ELECTRICITY AND MAGNETISM SPRING 2023

ECE 106

Published May 08, 2023

CLASS SCHEDULE

Section	Location	Time	Instructor(s)
ECE 106 001 *[LEC]*	E7 5343	Tuesdays, Wednesdays & Thursdays 12:30 p.m. - 1:20 p.m.	Hamed Majedi ahmajedi@uwaterloo.ca
		Monday, May 8th 1:30 p.m. - 2:20 p.m.	
		Monday, June 12th 1:30 p.m. - 2:20 p.m.	
		Monday, July 17th 1:30 p.m. - 2:20 p.m.	
ECE 106 002 *[LEC]*		Tuesdays & Thursdays 8:30 a.m. - 9:20 a.m.	Brenda Lee brenda.lee@uwaterloo.ca
		Wednesdays 9:30 a.m. - 10:20 a.m.	
	MC 1085	Thursday, May 11th 11:30 a.m. - 12:20 p.m.	
	STC 0060	Thursday, June 1st 11:30 a.m. - 12:20 p.m.	
		Thursday, July 13th 11:30 a.m. - 12:20 p.m.	
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Section	Location	Time	Instructor(s)
ECE 106 101 *[TUT]*	E7 4053	Mondays 8:30 a.m. - 10:20 a.m.	
ECE 106 102 *[TUT]*		Mondays 8:30 a.m. - 10:20 a.m.	
ECE 106 103 *[TUT]*		Mondays 8:30 a.m. - 10:20 a.m.	
ECE 106 104 *[TUT]*	E7 4043	Mondays 2:30 p.m. - 4:20 p.m.	
ECE 106 105 *[TUT]*		Mondays 2:30 p.m. - 4:20 p.m.	
ECE 106 106 *[TUT]*		Mondays 2:30 p.m. - 4:20 p.m.	
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Section	Location	Time	Instructor(s)
ECE 106 201 *[LAB]*	E2 3346	Thursday, May 18th 8:30 a.m. - 11:20 a.m.	David Lau david.lau@uwaterloo.ca
		Thursday, June 1st 8:30 a.m. - 11:20 a.m.	
		Thursday, June 15th 8:30 a.m. - 11:20 a.m.	
		Thursday, July 6th 8:30 a.m. - 11:20 a.m.	
		Thursday, July 20th 8:30 a.m. - 11:20 a.m.	
ECE 106 202 *[LAB]*		Tuesday, May 16th 8:30 a.m. - 11:20 a.m.	
		Tuesday, May 30th 8:30 a.m. - 11:20 a.m.	
		Tuesday, June 13th 8:30 a.m. - 11:20 a.m.	
		Tuesday, July 4th 8:30 a.m. - 11:20 a.m.	
		Tuesday, July 18th 8:30 a.m. - 11:20 a.m.	
ECE 106 203 *[LAB]*		Wednesday, May 17th 8:30 a.m. - 11:20 a.m.	
		Wednesday, May 31st 8:30 a.m. - 11:20 a.m.	
		Wednesday, June 14th 8:30 a.m. - 11:20 a.m.	
		Wednesday, July 5th 8:30 a.m. - 11:20 a.m.	
		Wednesday, July 19th 8:30 a.m. - 11:20 a.m.	

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Section	Location	Time	Instructor(s)
ECE 106 204 *[LAB]*		Thursday, May 18th 1:30 p.m. - 4:20 p.m.	
		Thursday, June 1st 1:30 p.m. - 4:20 p.m.	
		Thursday, June 15th 1:30 p.m. - 4:20 p.m.	
		Thursday, July 6th 1:30 p.m. - 4:20 p.m.	
		Thursday, July 20th 1:30 p.m. - 4:20 p.m.	
ECE 106 205 *[LAB]*		Tuesday, May 16th 1:30 p.m. - 4:20 p.m.	
		Tuesday, May 30th 1:30 p.m. - 4:20 p.m.	
		Tuesday, June 13th 1:30 p.m. - 4:20 p.m.	
		Tuesday, July 4th 1:30 p.m. - 4:20 p.m.	
		Tuesday, July 18th 1:30 p.m. - 4:20 p.m.	
ECE 106 206 *[LAB]*		Wednesday, May 17th 1:30 p.m. - 4:20 p.m.	
		Wednesday, May 31st 1:30 p.m. - 4:20 p.m.	
		Wednesday, June 14th 1:30 p.m. - 4:20 p.m.	
		Wednesday, July 5th 1:30 p.m. - 4:20 p.m.	
		Wednesday, July 19th 1:30 p.m. - 4:20 p.m.	
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INSTRUCTOR / TA INFORMATION

ECE 106 is made up of a team of two instructors, one lab instructor, and multiple teaching assistants. For all communications, please make sure that you include your WatIAM or Student ID so that the teaching team can follow up in an efficient manner.

Instructor (LEC 001): Prof. Hamed Majedi

- Email: ahmajedi@uwaterloo.ca (mailto:ahmajedi@uwaterloo.ca)
- Office: E5 4009
- Office Hours: Posted on LEARN
- Contact Preferences: Email is preferred, or visiting Prof. Majedi during office hours at set or booked times

Instructor (LEC 002): Prof. Brenda Lee

- Email: brenda.lee@uwaterloo.ca (mailto:brenda.lee@uwaterloo.ca)
- Office: PHYS 366
- Office Hours: Posted on LEARN
- Contact Preferences: Email is preferred, or visiting Prof. Lee during office hours at set or booked times

Lab Instructor (LAB 201-206): David Lau

- Email: david.lau@uwaterloo.ca (mailto:david.lau@uwaterloo.ca)
- Office: E2-2357
- Contact Preferences: Email only

Teaching Assistants: There are multiple teaching assistants this term for ECE 106 as listed below.

TA Name	Responsibility	E-Mail
Ahmed Salah	Tutorials, Grading	asalah@uwaterloo.ca
Maeve Wentland	Tutorials, Grading	mwentlan@uwaterloo.ca
Pablo Jamie Palacios Avila	Tutorials, Grading	p3palaci@uwaterloo.ca
Amarveer Singh Dhillon	Labs, Grading	as33dhil@uwaterloo.ca
Jalaledin Tayebpour	Labs, Grading	jtayebpo@uwaterloo.ca
Jessica Chong	Labs, Grading	jkchong@uwaterloo.ca
Mehran Golcheshmeh	Labs, Grading	mgolches@uwaterloo.ca
Milad Entezami	Labs, Grading	mentezam@uwaterloo.ca

Please note that this course is fully in person. Emails will be responded to as quickly as possible, but please give several business days for a response before sending any follow-ups.

COURSE DESCRIPTION

> *Calendar Description for ECE 106*
>
> Electrostatics: electric field, flux, Gauss's Law, potential and potential energy. Capacitors: dielectric, capacitance, electric energy storage. Resistors: charge flow, current, resistance. Magnetostatic: magnetic force, magnetic fields, Ampere's Law. Inductors: magnetic flux, inductance, magnetic materials, magnetic energy storage. Time-varying fields: Faraday's Law, mutual inductance, simple motors and generators. [Offered: W,S]
>
> Prereq: ECE 105; Level at least 1B Computer Engineering or Electrical Engineering or Software Engineering. Antireq: NE 241, PHYS 112 or 112L

Due to the in-person and online resources available in this course, it is expected that you leverage all resources available to you from course content to course discussion. Here is a list of resources we will be using this term outside

of LEARN's learning management system.

Resource	Details
Content Delivery	Lecture notes written by Prof. Majedi and/or Prof. Lee will be used for each of the week's contents throughout the course.
Practice Problems	Practice problems will be given as practice prior to weekly quizzes. Full solutions will not be given but may be covered during office hours or live lectures. Practice problems are for you to test your understanding. If you have trouble solving them, please seek help in office hours.
Tutorials & Office Hours	Tutorials are held weekly on Mondays. These will be used for extra practice. Office hours will be held in-person and/or online. Further details will be announced in class and on LEARN.

LEARNING OUTCOMES

By the end of this course students should be able to:

Construct scientifically sound explanations of a wide variety of physical electromagnetic phenomena by applying basic physics principles and laws.

Use appropriate methods to calculate electric fields and electric potentials due to arbitrary charge distributions in different materials.

1. Apply Gauss's Law and demonstrate when it can be conveniently used to calculate E-fields
2. Calculate electric fields using integrals for problems where Gauss's Law cannot be used
3. Calculate electric potential from electric field and vice-versa
4. Explain the relationship between field and potential quantitatively, and discuss equipotential surfaces.
5. Use appropriate boundary conditions to determine how electric fields traverse boundaries between conductors and dielectrics, and between different dielectrics.

Evaluate the capacitance of different geometries from first principles

1. Define capacitance and explain the function of a capacitor
2. Make appropriate approximations

Calculate magnetic flux density for different geometries of current

1. Apply Ampere's Law and the Biot-Savart Law and demonstrate the strengths of each
2. Contrast the dipolar nature of the magnetic field to that of the electrostatic field.

Explain Faraday's Law and calculate induced EMF for time varying flux

1. Demonstrate the non-conservative nature of the induced field and contrast it to the static field
2. Explain Lenz's Law and show the polarity of the induced EMF.
3. Explain the function of a generator, and the difference between dynamic current and AC current.

Evaluate inductance for different conductor shapes.

1. Define self and mutual inductance
2. Make appropriate approximations
3. Explain the function of a transformer and carry out order of magnitude calculations for power generation from various sources.

Solve new problems using recently developed knowledge

1. Interpret, visualize and convert the problem into a physical model
2. Represent the physical model in language of math
3. Use appropriate approximations if possible
4. Calculate and evaluate the result - does it make sense?

TENTATIVE COURSE SCHEDULE

The course material is divided up into chapters. We will cover 1-2 chapters per week, with the theory in the chapter notes and practice in the lectures and tutorials. The schedule below is approximate. Weekly notices will be sent on the material to be covered that week.

Week	Date	Topic
1	May 8-12	Co-ordinate Systems; Coulomb's Law
2	May 15-19	Electric Fields & Calculations
3	May 22-26	Gauss's Law
4	May 29 - Jun 2	Electrostatic Potential
5	Jun 5-9	Conductors in Electric Fields
6	Jun 12-16	Dielectrics and Boundary Conditions
7	Jun 19-23	MIDTERM WEEK (NO CLASSES)
8	Jun 26-30	Capacitances
9	Jul 3-7	Biot-Savart Law
10	Jul 10-14	Ampere's Law
11	Jul 17-21	Faraday's Law
12	Jul 24-28	Inductance
13	Jul 31 - Aug 1	Final Review / Last Day of Classes

Here are some **IMPORTANT DATES** to be aware of throughout the term:

- May 8: Classes begin
- May 19: Last day to add a class
- **May 22: Victoria Day (no classes)**
- **May 23: Make-Up Day (make-up for Victoria Day; follow Monday schedule)**
- May 29: Tuition and fee refund deadline - 100% | Last Day to Drop Class from Academic Record

- May 30: Drop with WD begins
- Jun 2: Final exam schedules released
- Jun 16: Requests for final exam accommodations on religious grounds due
- Jun 19: Final exam relief requests due (for consecutive final exams)
- Jun 23: Tuition and fee refund deadline - 50%
- **Jul 3: Canada Day Holiday (no classes)**
- Jul 19: Drop with WF begins
- **Jul 31: Make-Up Day for Canada Day**
- **Aug 1: Make-Up Day for Tuesday Lost from Victoria Day | Last Day of Classes**
- Aug 3: Drop with WF ends
- Aug 4: Final examination period begins
- Aug 7: Civic Day (holiday; no exams)
- Aug 19: Final examination period ends
- Apr 20: Grades begin to appear on Quest (not all grades will be available on this date)
- Sep 14: Standing decisions and official grades available in Quest

WEEKLY COURSE SCHEDULE

All course materials including notes, problem sets, and assignments will be released over the weekend prior to the start of the school week. Partial solutions to each quiz and problem set will be provided throughout the week. Here is a tentative weekly course schedule for ECE 106. Please make sure you have read all the notes prior to attending the live lectures as they will consist of summaries and detailed discussions with problem-solving applications.

<table>
<tr><th>Sat/Sun</th><th>Mon</th><th>Tues</th><th>Wed</th><th>Thurs</th><th>Fri</th></tr>
<tr><td rowspan="3">Material posted on LEARN for the following week, including notes, problem set and labs</td><td rowspan="3">Tutorials take place at scheduled times</td><td colspan="3">Labs take place at the scheduled times. Submissions are due on Crowdmark at the end of your lab session</td><td rowspan="3"></td></tr>
<tr><td colspan="3">In-Person Lectures offered by Prof. Majedi & Prof. Lee. Attendance is highly recommended.</td></tr>
<tr><td colspan="3">Online Quizzes through LEARN - check LEARN for dates</td></tr>
</table>

Lectures, labs and tutorials will follow the Registrar's schedule for individual sections and groups. See beginning of course outline for details.

TEXTS / MATERIALS

Title / Name	Notes / Comments	Required
Griffiths: Introduction to Electrodynamics, Cambridge University Press	Classical electromagnetic book for students who want to expand their knowledge. It has very interesting physical discussions.	No

Title / Name	Notes / Comments	Required
Purcell/Morin: Electricity and Magnetism, Cambridge University Press	A beautifully written book by a Nobel Prize winner (and someone who has an effect named after him - see Purcell effect), though it can be difficult to understand the first time. Read lecture notes and then the corresponding sections in the book to take full advantage. The students who want to extend their knowledge beyond the course notes will find this book an excellent resource.	No
Sadiku: Elements of Electromagnetics	Good book with an engineering perspective.	No

We will have live lectures where theory and examples will be covered.

Please note that there are **no mandatory/required textbooks** for ECE 106 this term. However, this does not mean that there are no textbooks that cover the contents of this course. You are encouraged to explore the topics of *electricity and magnetism* through these recommended textbooks and materials above for your own benefit and enhanced learning experience.

In the suggested references; there is some vector calculus (like divergence, curl etc.) that we will not cover in this course. You can skip those sections if you are using the book or learn it yourselves!

STUDENT ASSESSMENT

Grading Scheme

Component	Value
Quizzes	10%
Labs	15%
Midterm	25%
Final Exam (Scheduled by Registrar)	50%

Additional details regarding each type of assessment metric is provided below for your reference.

WEEKLY CONCEPTUAL QUIZZES (10%):
Collaboration Level: None – Done Individually - Policy 71 Allegations will be Reported

Conceptual quizzes will be on LEARN, to be completed within a timed window each week. All quizzes will be counted towards your final quiz grade.

LABS (15%):
Collaboration Level: Groupwork - Each group must obtain their own data or else be in violation of Policy 71

There will be 5 labs (described below) during the course. These are to be done in groups of two. The lab syllabus is provided in a separate section below.

MIDTERM (25%):
Collaboration Level: None – Done Individually - Policy 71 Allegations will be Reported

This is the midterm and cover the first half of the course. It will consist of both conceptual and analytical questions. Midterm is a summative assessment.

FINAL EXAM (50%):
Collaboration Level: None – Done Individually - Policy 71 Allegations will be Reported

This will be cumulative covering all chapters with a focus on post-midterm material. It will consist of both conceptual and analytical questions. The final exam is a summative assessment.

LAB DETAILS

LAB OBJECTIVES

The high-level objectives of Lab activities in this course are to give students the opportunity to simulate, characterize, and analyze fundamental electromagnetic phenomenon. Detailed instructional learning objectives are specified within individual Lab manuals for each Lab activity. Some of the key learning objectives include:

- Build models in a commercial finite element method software package (COMSOL) in order to visualize and quantify electromagnetic phenomenon.
- Characterize a variable parallel plate capacitor with different dielectrics, employing laboratory techniques and equipment.
- Characterize an inductor coil in order to understand the effect of inductance on an electric circuit, employing various laboratory techniques and equipment.

LAB STRUCTURE

The Labs in this course consist of five in-person synchronous sessions in E2-3346 as well as an asynchronous design activity. During these sessions, students will simulate electromagnetic phenomena in order to gain a deeper understanding of them. Students will also setup apparatus and perform quantitative measurements that will explore these phenomena. All lab instructions and documentation will be provided through the D2L Learn LMS and the DigitalEd Mobius system. Students are required to make a lab submission to the Crowdmark system after completing each lab session. The submission will be due the same day as the lab session. There will be a Lab Test during the fifth and final session.

SCHEDULED LAB TIMES

Access to the lab facilities is limited to each student's scheduled lab time. Therefore, it is highly recommended that students arrive at the lab room at least five minutes prior to the start of the lab time, so that they can maximize their use of the lab facilities.

LAB GRADING

Labs are allotted 15% of the overall course grade. Each lab is weighted accordingly:

Lab Activity	Weighting
Lab #1	2%
Lab #2	2%
Lab #3	2%
Lab #4	2.5%
Lab #5	2.5%
Lab Test	2%
Capacitive Sensor Design Activity	2%

LAB ASSESSMENT/GRADE PHILOSOPHY

In designing lab assessments, a grade of 80% is intended to indicate a student has successfully completed or accomplished the tasks set out. Grades greater than 80% are reserved for students who demonstrate accomplishments that exceed expectations. This recognizes students that show exceptional interest and/or ability in the lab concepts.

LAB SUBMISSIONS

In general, lab submissions are made in-lab through the Mobius system as well as at the end of the lab through the Crowdmark system. Crowdmark submissions are due at the end of the scheduled lab session, with a 30-minute grace period to allow for technical submission issues.

Late submissions will receive a 10% deduction for each hour late. No exceptions are provided to this policy, including exceptions for co-op interviews, illness, computer failures, Internet outages, or being out-of-timezone.

LAB TEST

The Lab Test will be conducted using an online learning system called Mobius. The Lab Test is to be completed individually by each student during the fifth and final lab session. The Lab Test will have a time restriction. The format of the Lab Test will require students to complete each question before proceeding to the next question.

CAPACITIVE SENSOR DESIGN ACTIVITY

The Design Activity is to be worked on and completed through the term. While lab time is not specifically allocated for this Activity, students are welcome to use remaining time in the labs if they complete the schedule lab activity early.

SAFETY

The study of electromagnetism exposes us to inherent risks to our safety and the safety of those around us. We study electromagnetism because it allows us to take advantage of large and concentrated amounts of energy and power. Some basic principles that everyone is required to follow in the labs for this course are:

- Do not turn on or use any equipment that you have not received instruction on. Certain electrical equipment can store and/or release large amounts of energy and power, even if not connected to a power supply (e.g. capacitor).
- Each student is expected to supply their own safety eyewear for the labs. Safety eyewear can be purchased at the W Store. As according to the UW Safety Office Eye and Facewear Protection Guideline (https://uwaterloo.ca/safety-office/sites/ca.safety-office/files/uploads/files/eye_and_face_protection_guideline_v.1.0_oct2020.pdf (https://uwaterloo.ca/safety-

office/sites/ca.safety-office/files/uploads/files/eye_and_face_protection_guideline_v.1.0_oct2020.pdf)), safety eyewear must meet the CSA Z94.3 specifications. All of the classes (1/2A/2B/6) are acceptable for use within ECE 106 labs. If safety eyewear was not purchased from the W Store, students must be prepared to produce evidence of the eyewear's certification. This can include appropriate markings on the eyewear or a certificate of compliance.
    - The use of safety glasses is mandatory at all times in the labs, unless given explicit instruction by the lab instructor. Electrical energy can be converted to mechanical energy, causing devices to explode or otherwise move with high velocity.
- If at any point in time anyone feels unsafe or feel that there are unacceptable risks to their wellbeing, they should inform the lab instructor immediately.

LAB PARTNERS & GROUP WORK

All Lab work in this course is to be done in groups of 2. Lab partners must be in the same lab section, as they are required to work together during the lab sessions. Students looking to work alone are only permitted with written authorization from the lab instructor and are typically granted due to an odd number of students in the lab section. A student working alone is permitted to work together with another group of 2 during the lab session, but the individual student must submit their own separate lab submission. All students are required to register their groups on LEARN by the first lab.

ATTENDANCES & ABSENCES

Attendance during synchronous lab sessions is mandatory. A failure to be recorded for attendance will result in the student receiving a grade of zero for the Lab activity. A student missing more than 30 minutes of a lab session for any reason is cause to be recorded as absent from the lab session.

Note that for co-op interviews if the only times available are during a lab session, it is recommended that the student contact the employer directly and explain to them that missing the lab would result in loss of grade. Most employers are accommodating and will provide alternate interview times outside of the lab session time.

ABSENCE ACCOMMODATIONS

Two possible accommodations are available for absences from labs:

1. Attend an alternate schedule lab session in the same week as the schedule lab session.
2. Divert the weight of a lab activity to the course final exam.

Absence accommodations for reasons other than illness requires a minimum of 48-hour notice via email to the Lab Instructor prior to the start of the usual scheduled lab session. Absence accommodations due to illness require a Verification of Illness Form submission and a subsequent follow-up email to the Lab Instructor.

Absence accommodations for attending an alternate lab session should include a preferred alternate lab session time within the email request.

A maximum of one lab activity can be diverted to the course final exam. The grade for the Design Activity cannot be diverted to the course final exam as its duration spans the entire term and therefore is not applicable for absence accommodations.

ASSIGNMENT SCREENING

Manual and automated screening methods may be applied to any written or digital content being submitted by students. The written content will include written assessments and tasks such as assignments and lab reports. If coding is involved as part of a submission, plagiarism includes moderate to significant reproduction of other's work (source code from available resources, code from classmate submissions, fragments of original code, etc.) in areas where reproduction is not allowed (quizzes, assignments, assessments, reports).

NOTICE OF RECORDING

Activities for this course involve recording, in partial fulfillment of the course learning outcomes. You will receive notification of recording via at least one of the following mechanisms: within the Learning Management System (LEARN), a message from your course instructor, course syllabus/website, or other means. Some technologies may also provide a recording indicator. Images, audio, text/chat messaging that have been recorded may be used and/or made available by the University to ECE 106 and its teaching team (instructors, teaching assistants) and students for the purpose of materials review, assessment, and content delivery. Recordings will be managed according to the University records classification scheme, WatClass (https://uwaterloo.ca/records-management/records-classification-and-retention-schedules) , and will be securely destroyed when no longer needed by the University. Your personal information is protected in accordance with the Freedom of Information and Protection of Privacy Act (https://www.ontario.ca/laws/statute/90f31) , as well as University policies and guidelines (https://uwaterloo.ca/privacy/) and may be subject to disclosure where required by law.

The University will use reasonable means to protect the security and confidentiality of the recorded information, but cannot provide a guarantee of such due to factors beyond the University's control, such as recordings being forwarded, copied, intercepted, circulated, disclosed, or stored without the University's knowledge or permission or the introduction of malware into computer system which could potentially damage or disrupt the computer, networks, and security settings. The University is not responsible for connectivity/technical difficulties or loss of data associated with your hardware, software or Internet connection.

By engaging in course activities that involve recording, you are consenting to the use of your appearance, image, text/chat messaging, and voice and/or likeness in the manner and under the conditions specified herein. (In the case of a live stream event, if you choose not to have your image or audio recorded, you may disable the audio and video functionality (https://uwaterloo.ca/student-it-services/) . Instructions to participate using a pseudonym instead of your real name are included where the feature exists; however, you must disclose the pseudonym to your instructor in advance in order to facilitate class participation.) If you choose not to be recorded, this notice serves as confirmation of your understanding that you should view the recording(s) later and ask questions in the discussion forums and communication methods made available to the class of ECE 106. All instructions, guidelines and assessments will be provided in a readable format in this document or elsewhere (ie. a PDF, PowerPoint, LEARN content).

You are not permitted to disclose the link to/URL of an event or an event session recording or copies of recording to anyone, for any reason. Recordings are available only to authorized individuals who have been directly provided the above instructions/link for their use. Recordings for personal use, required to facilitate your learning and preparation of personal course/lecture notes, should not be shared with others without the permission of the instructor or event coordinator. Review the University's guidelines for faculty, staff and students entering relationships with external organizations offering access to course materials (https://uwaterloo.ca/secretariat/faculty-staff-and-students-entering-relationships-external) for more information on your obligations with respect to keeping copies of course materials. For more information about accessibility, connect with AccessAbility Services (https://uwaterloo.ca/accessability-services/) .

Use of Self-Declared Absences of Up to 48h: If you self-declare an absence throughout the term and miss any assessments (outside of midterms and finals), the weight of that component will be transferred to the final exam.

Territorial Acknowledgement: The University of Waterloo acknowledges that much of our work takes place on the traditional territory of the Neutral, Anishinaabeg and Haudenosaunee peoples. Our main campus is situated on the Haldimand Tract, the land granted in a legally binding treaty to the Six Nations that includes six miles on each side of the Grand River. Our active work toward reconciliation takes place across our campuses through research, learning, teaching, and community building, and is centralized within our Indigenous Initiatives Office (https://uwaterloo.ca/indigenous) .

UNIVERSITY POLICY

Academic integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check the Office of Academic Integrity (https://uwaterloo.ca/academic-integrity/) for more information.]

Grievance: A student who believes that a decision affecting some aspect of their university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4 (https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70) . When in doubt, please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing an academic offence, and to take responsibility for their actions. [Check the Office of Academic Integrity (https://uwaterloo.ca/academic-integrity/) for more information.] A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate associate dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline (https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71) . For typical penalties, check Guidelines for the Assessment of Penalties (https://uwaterloo.ca/secretariat/guidelines/guidelines-assessment-penalties) .

Appeals: A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70) (other than a petition) or Policy 71, Student Discipline (https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-71) may be appealed if there is a ground. A student who believes they have a ground for an appeal should refer to Policy 72, Student Appeals (https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-72) .

Note for students with disabilities: AccessAbility Services (https://uwaterloo.ca/accessability-services/) , located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

Turnitin.com: Text matching software (Turnitin®) may be used to screen assignments in this course. Turnitin® is used to verify that all materials and sources in assignments are documented. Students' submissions are stored on a U.S. server, therefore students must be given an alternative (e.g., scaffolded assignment or annotated bibliography), if they are concerned about their privacy and/or security. Students will be given due notice, in the first week of the term and/or at the time assignment details are provided, about arrangements and alternatives for the use of Turnitin in this course.

It is the responsibility of the student to notify the instructor if they, in the first week of term or at the time assignment details are provided, wish to submit alternate assignment.