

CIS*2910 Discrete Structures in Computing II

Instructor

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Pronouns:
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teaching assistants

Or Brener
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Land acknowledgment

The Dish With One Spoon Covenant speaks to our collective responsibility to steward and sustain the land and environment in which we live and work so that all peoples, present and future, may benefit from the sustenance it provides. As we continue to strive to strengthen our relationships with and continue to learn from our Indigenous neighbours, we recognize the partnerships and knowledge that have guided the learning and research conducted in and for this class. We acknowledge that the University of Guelph resides in the ancestral and treaty lands of several Indigenous peoples, including the Attawandaron people and the Mississaugas of the Credit, and we recognize and honour our Anishinaabe, Haudenosaunee, and Métis neighbours. We acknowledge that the work we do here occurs on their traditional lands so that we might work to build lasting partnerships that respect, honour, and value the culture, traditions, and wisdom of those who have lived here since time immemorial.

Communication

Website:

www.courselink.uoguelph.ca.

Email:

cis2910@soc.s.uoguelph.ca (Preferred address for all team members)

Forums:

Please ask common questions to Discussion Board

Appointments:

<https://james-fraser9.youcanbook.me> --> James Fraser

TA Office Hours:

Please check CourseLink -> Office Hours

Course material, news, announcements, assignments, and grades releases will be regularly posted to the CIS*2910 website.

You are responsible for checking the site regularly and following the information provided in class. Please check the discussion board to avoid asking FAQs.

Course description

CIS*2910 is a .5 credit course.

This course introduces discrete structures and formal methodologies used in computer science, including sequences, summations, recursion, combinatorics, discrete probability, and graph theory.

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.

Learning outcomes

By the end of this course successful, you should be able to:

Knowledge and Understanding:

- understand the basics of sequences, summation, induction, and recursion
- develop an understanding of combinatorics, discrete probability, and graph theory
- understand the notion of mathematical thinking and formal methodologies.

Personal Development:

- demonstrate the ability to use techniques for constructing mathematical proofs.
- demonstrate a working knowledge of combinatorics and graph theory.
- apply the concepts learnt to real-world and computational problem-solving.

Prerequisites & restrictions

(CIS*1300 or ENGG*1410), (CIS*1910 or ENGG*1500) - Must be completed prior to taking this course.

Lecture and lab times

Lecture:

Monday, Wednesday, Friday – 2:30pm-3:20PM (Virtual)

Labs:

- 101: Tuesday 9:30 – 11:20 AM (MACN 118)
- 102: Monday 9:30 – 11:20 AM (MCKN 235)
- 103: Tuesday 2:30 – 4:20 PM (MCKN 235)
- 104: Wednesday 7:00 - 8:50 PM (ROZH 106)
- 105: Thursday 7:00 - 8:50 PM (MACS 129)

All lectures will be recorded. Lecture content will be posted when the recording is converted following the class. An assigned TA will instruct a lab session. The TA will explain the lab tasks and answer your questions about the weekly exercises. A recording of the weekly lab will be available to students, and students are encouraged to use TA or instructor office hours for additional help.

Final exam

Final Exam - April 22nd, 2:30-4:30 PM (Online via Courselink)

Textbooks

Course Textbook (Suggested - Optional)

This course offers the use of an online and interactive textbook from zybooks.zyante.com. (Details to follow on Courselink)

Course Textbook (Optional)

Rosen H. Kenneth, Discrete Mathematics and Its Applications (7th-edition), McGraw-Hill Education, 2011

Weighted assessments schedule

Lab exercises are ungraded and provide the opportunity to practice weekly problems. Please note that assignments and quizzes will only be accepted until 11:59 PM on the final due date.

20%	Assignments (10% each) Jan 30 th April 3 rd
10%	Quizzes (Online- 5% each) Feb 10-13 th March 3-6 th
20%	Midterm#1 (Online during class time) Feb 16 th
20%	Midterm#2 (Online during class time) March 16 th
30%	Final Exam (Online) April 22 nd 2:30-4:30pm

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Topics by date (expected)

Week	Topic	Labs
W0 – Jan 10	Course Introduction – CIS1910 Review – Sets, Functions, Sums	No Labs
W1 – Jan 17	CIS1910 Review -Induction, Recursion Introduction to Counting	CIS1910 Review – Sets, Functions, Sums
W2 – Jan 24	Counting Basics	CIS1910 Review – Induction, Recursions
W3 – Jan 31	Permutations, Combinatorial Generation,	Counting Basics
W4 – Feb 7	Discrete Probability, Probability, Multi-sets	Permutation
W5 – Feb 14	*Midterm1* Discrete Probability	Discrete Probability
W6 – Feb 21	Winter Break – No classes	Winter Break – No labs
W7 – Feb 28	Introduction to Undirected Graphs Isomorphic	Discrete Probability
W8 – March 7	Graph walk, paths, circuits, cycles	Introduction to Graphs
W9 – March 14	*Midterm2* Planar and Graph Colors	Graph Cycles and walks
W10 – March 21	Introduction to Trees and Tree Traversal	Graph Planar and Coloring
W11 – March 28	Minimum Spanning Trees	Trees, BST and DFS
W12 – April 4th	Minimum Spanning Trees – Review	Minimum Spanning Trees Review

Policies

• **Regrades:**

If errors in the grading occur, you must indicate in writing to the teaching assistant within 5-days of receiving your grade and before the exam period. Be specific about the grading error issue and why its correct. You must indicate the difference between the grading and the solution. Grading requests without proper explanation will not be reviewed. Your submission may be regraded entirely, which could result in your grade being reduced. It is not a grading error if you received a lower grade than you were expecting, disagree with the marking scheme, or other students received higher marks for similar solutions.

• **Missed or Late Assessments:**

If you cannot meet an in-course requirement due to medical, psychological, or compassionate reasons, please contact the instructor and explain the situation as early as possible. If you merit academic consideration for one of the assessments, you may be given an alternate assessment or have weight redistributed to other assessments. Please remember, however, that each of the homework assignments builds from the previous one. If you do not submit an earlier assignment, you will still have to learn to do the subsequent assignments.

Please consult the undergraduate calendar for information on regulations and procedures for Academic Consideration.

• **Communication & Email**

Policy Major announcements will be posted to the course website. It is your responsibility to check the course website regularly. As per university regulations, all students must regularly check their mail.uoguelph.ca email account: email is the official route of communication between the University and its students.

• **Recording of Materials**

Presentations which are made in relation to course work, including lectures, cannot be recorded or copied without the permission of the instructor and presenter, whether the instructor, class member, or guest lecturer. Material recorded with permission is restricted to use for that course and may not be posted on any public space unless further permission is granted.

• **Accommodation of Religious Obligations:**

If you are unable to meet an in-course requirement due to religious obligations, please email the instructor **within two weeks of the start of the semester** to make alternate arrangements. See [the academic calendar](#) for information on regulations and procedures for Academic Accommodation of Religious Obligations.

• **Instructor's Role and Responsibility to Students**

The instructor's role is to develop and deliver course material in ways that facilitate learning for a variety of students. A variety of materials, including notes and recorded lectures, will be made available on the course website.

• **Students' Learning Responsibilities:**

Students are expected to take advantage of the learning opportunities provided during lectures, labs, and help sessions. Students, especially those having difficulty with the course content, should also make use of other resources recommended by the instructor. Students who fall behind due to illness, work, or extra-curricular activities are advised inform the instructor about their situation as early as possible. This will allow the instructor to recommend extra resources in a timely manner and/or provide consideration if warranted.

• **Accessibility:**

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability, or for a short-term disability should contact Student Accessibility Services (SAS) as soon as possible.

For more information, contact SAS at 1.519.824.4120 ext 56208 or accessibility@uoguelph.ca or wellness.uoguelph.ca/accessibility.

Code of conduct

Our learning environment must be a safe, and welcoming environment for all, regardless of ethnicity, gender, sexual orientation, ability, socioeconomic status, and/or religion (or lack thereof). This code of conduct outlines the expectations for all participants¹.

- **Expected Behavior:** Members of our learning community are expected to:
 - participate in an authentic and active way, and in doing so, contribute to the health and value of our community,
 - exercise consideration and respect in their speech and actions,
 - attempt collaboration before conflict,
 - refrain from demeaning, discriminatory, or harassing behavior and speech,
 - be mindful of your surroundings and your fellow participants, and alert community leaders (e.g. your instructor) if you notice a dangerous situation, someone in distress, or violation of this Code of Conduct, even if it seems inconsequential.
- **Citizenship & Participation:** Communities mirror the societies in which they exist and positive action is essential to counteract the many forms of inequality and abuses of power that exist in society. If you see someone who is making an extra effort to ensure our community is welcoming, friendly, and encourages all participants to contribute to the fullest extent, we want to know.
- **Unacceptable Behavior:** Unacceptable behaviors include intimidating, harassing, abusive, discriminatory, derogatory or demeaning speech or actions by any participant in our community, either in person, online, at any related events, or in one-on-one communications carried out in the context of community business. Harassment includes harmful or prejudicial verbal or written comments related to race, religion, disability, gender, sexual orientation; inappropriate use of nudity and/or sexual images in public spaces (including computer labs and presentation slides); deliberate intimidation, stalking or following; harassing photography or recording; sustained disruption of talks or other events; inappropriate physical contact, and unwelcome sexual attention.
- **Consequences of Unacceptable Behavior:** Unacceptable behavior from any community member, including the course instructor and those members with decision-making authority, will not be tolerated. Anyone asked to stop unacceptable behavior is expected to comply immediately. If a community member engages in unacceptable behavior, action will be taken to ensure that such behavior ends, beginning with action on the part of the course instructor, and escalating if necessary. Additional information on university policy regarding harassment, conduct, and human rights is available [here](#).
- **If You Witness or Are Subject to Unacceptable Behavior or Have Any Other Concerns:** please notify the course instructor as soon as possible. If you feel that the course instructor cannot or will not provide remedy for the situation, please contact any of these alternate resources:
 - Associate Director, Undergraduate ([click here to email](#)),
 - Director of the School ([click here to email](#)),
 - Associate Dean, Academic ([click here to email](#)),
 - Office of Diversity and Human Rights ([click here to email](#), or ext 53000),
 - Campus Community Police (ext 52245).

¹Based on [citizen code of conduct](#), distributed under a [Creative Commons Attribution-ShareAlike](#) license

Computing requirements

You must have access to a computing device and internet connection that allows you to share your screen in online meetings while having a voice conversation.

A video feed is nice for labs and one-on-one online meetings but is not required.

Academic integrity

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. All students who take a SOCS course must pass the Academic Integrity Self Test.

For educational purposes, instructors impose conditions on assignments that may limit students' permission to collaborate with others or to utilize external sources (including, but not limited to, software, data, images, text, etc.). Any permitted utilization must be done with proper references. Aiding and abetting is a punishable offence; students must be careful not to help others commit offences by giving out solutions or providing to access computer accounts. Instructors may use automated tools to detect possible cases of academic misconduct.

Please note: Whether 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.

- [The UofG Academic Misconduct Policy in the Undergraduate Calendar](#).
- [The SOCS Academic Integrity Unit](#). Login with your central login credentials.

Health & wellness

All members of campus play a role in fostering and promoting a safe, supportive environment, as well as good physical, emotional, spiritual, cultural, and mental health and wellness.

COVID-19 has required all of us to adjust our work habits and our expectations of ourselves. I cannot change the expectations for you, but if you are struggling because of challenges related to COVID-19, please contact me and I will try to help you identify a path to success.

If you are sick, heartbroken, or exhausted, go home. Work is not more important than your health.

[Dr. Max Liboiron](#)

If you are experiencing any challenges, please do not hesitate to contact the instructor, and know that there are resources on campus set up to help you out.

Medical concerns? Student Health Services at x52131

Threats of violence, personal safety? Campus police at x2000 **Psychological or emotional concerns?**

Counselling services at x53244 **Accessibility concerns?** SAS at x56208

Sexual assault? Campus police at x2000, or counselling services at x53244

Mental Health concerns? Please see the Mental Health Resources page [here](#).

Students who are also parents often face the barrier of exhaustion in the evening once children have finally gone to sleep. While I maintain the high expectations for all students in my classes regardless of parenting status, I am happy to problem-solve with you in a way that makes you feel supported as you strive for school-parenting balance.

Other sources of help can be found at the following links:

- [Student Health Services](#), Monday to Friday, 8:30 AM-4:30 PM, x52131, J.T. Powell Building
- [Counselling Services](#), Monday to Friday, 8:15 AM-4:15 PM, x53244, Level 3, University Centre

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- [Wellness Education Centre](#), Monday to Friday, 8:30 AM-4:30 PM, x53327, J.T. Powell Building
- [Student Support Network](#), Monday to Friday, 12:00 PM-10:00 PM, Raithby House
- [Campus Community Police](#), 24/7, x2000, Trent Building
- Good2Talk, 1.866.925.5454
- Here 24/7, 1.844.437.3427