

# CS2214A - Discrete Structures for Computing Course Outline

## 1. Course Information

### Course Information

CS2214A - Discrete Structures for Computing, Fall 2024

**Lectures:** Monday 9:30am-11:30am and Wednesday 9:30am-10:30am, [REDACTED]

**Tutorials:** Wednesday 10:30am-11:30am, [REDACTED]

**List of Prerequisites:** Either 1) Computer Science 1027A/B, Computer Science 1037A/B, or the former Computer Science 2101A/B, in each case with at least 65%, and 1.0 course with at least 60% in each from: Applied Mathematics 1201A/B, Numerical and Mathematical Methods 1411A/B, Numerical and Mathematical Methods 1412A/B, Numerical and Mathematical Methods 1414A/B, Calculus 1000A/B, Calculus 1301A/B, Calculus 1500A/B, Calculus 1501A/B, Mathematics 1600A/B, the former Applied Mathematics 1411A/B, the former Applied Mathematics 1412A/B, the former Applied Mathematics 1414A/B, the former Applied Mathematics 1413; or 2) Integrated Science 1001X with at least 60%.

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Counsellors and Science Academic Advisors) to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

## 2. Instructor Information

Instructors	Email	Office	Office Hours
Dr. Federico Pasini	fpasini@uwo.ca	[REDACTED]	By appointment (see below)
TAs (TBD)			

Students must use their Western (@uwo.ca) email addresses when contacting their instructors and include "CS2214" in the subject line of their messages (to minimize the risk of the email being flagged as spam).

**Office Hours:** Several time slots are available throughout the week, based on a shared calendar booking system. To reserve a slot, students are requested to follow the instructions provided on the OWL course website. As a courtesy to the other students, if a student can no longer attend a booked office hour, they are recommended to cancel their booking, so that the time slot returns available for somebody else. Office hours can be held either in person or online via Zoom.

## 3. Course Syllabus, Schedule, Delivery Mode

### Learning objectives

This course presents an introduction to the mathematical foundations of computer science, with an emphasis on mathematical reasoning, combinatorial analysis, discrete structures, applications and modeling, and algorithmic thinking.

### **Tentative table of contents of the course**

- Foundations: logic and proofs
- Mathematical induction and recursion
- Basic structures: sets, relations, and functions
- Sequences, series, and matrices
- Graphs
- Number theory and cryptography
- Principles of counting
- Discrete probability

### **Key Sessional Dates**

Classes begin: September 5, 2024;

Fall Reading Week: October 12 - October 20, 2024;

Classes end: December 6, 2024;

Exam period: December 9 - December 22, 2024;

## **4. Course Materials**

### **Suggested textbook**

K. Rosen, Discrete Mathematics and Its Applications, McGraw-Hill (available as eBook or print text).

### **OWL course website**

All course material will be posted to OWL: <https://westernu.brightspace.com/>

Students are responsible for checking the OWL course website on a regular basis for news and updates.

This is the primary method by which information will be disseminated to all students in the class. In particular,

- Lecture slides and all additional course material will be posted to OWL.
- Updates and messages regarding the course will be posted to OWL.
- Assignments will be posted, and shall be submitted by students, via OWL/Gradescope.

If students need assistance with the course OWL site, they can seek support on the [OWL Brightspace Help](#) page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

### **Technical Requirements**

- Computer or laptop able to run a recent version of a web browser.
- Stable high-speed internet connection.
- Document Scanner device or App.

### **Protection of online content**

The instructor owns the intellectual property of the lectures and tutorials materials even when such materials are posted online. Students are not permitted to post lectures or tutorials materials, including assignments, assignment solutions, etc., to any other websites or platforms, or use the lecture recordings or materials for any other purpose than studying the course materials.

## 5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Assignments (4)	5% each
Midterm Test	32%
Final Exam	48%

### Tentative evaluation schedule

Assignment 1: due on Fri Oct 4 at 5pm via OWL/Gradescope;  
Assignment 2: due on Fri Oct 25 at 5pm via OWL/Gradescope;  
Midterm test: Wed Oct 30, 9:50am-11:10am (during class), room TBA;  
Assignment 3: due on Fri Nov 15 at 5pm via OWL/Gradescope;  
Assignment 4: due on Fri Dec 6 at 5pm via OWL/Gradescope;  
Final exam: TBA.

### Course policies

- The midterm and final exam are close-book written exams that will last approximately 1h20' and 2h, respectively; no calculators of any sort will be permitted in either.
- Assignment descriptions will be posted on OWL at least one week before the due date of the assignment.
- Any changes, updates, and clarifications to assignments will be posted on OWL. Students are responsible for monitoring OWL closely.
- The submission of assignments is electronic using OWL/Gradescope.
- Assignments may be typed using a text editor or hand-written, and must be submitted in PDF format.
- When a student submits an assignment for evaluation, this student automatically certifies that the material they have handed in is exclusively their own work.
- It is the student's responsibility to keep up-to-date backups of assignment disk files in case of system crashes or inadvertently erased files.
- Bonus for finding a mistake (with the exclusion of obvious writing typos) in the course materials: the first student to signal (via email or direct conversation with the instructor) a mistake in any course materials (slides, assessments, practice assessments), will be awarded 1 extra mark in the course grade.

### General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/academic\\_consideration\\_Sep24.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf)

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:

[https://registrar.uwo.ca/academics/academic\\_considerations/](https://registrar.uwo.ca/academics/academic_considerations/)

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Examinations scheduled during official examination periods, i.e., final exam (Defined by policy).
- Midterm test (Designated by the instructor as the one assessment that always requires documentation when requesting Academic Consideration).

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

### **Evaluation Scheme for Missed Assessments**

**Assignments:** Students are expected to submit each of the 4 assignments by the deadline listed. Gradescope will accept submissions for 24 additional hours after the deadline. Assignments submitted within these extra 24 hours will be flagged as “late assignments” and graded with a penalty: for each late assignment submitted, the student will receive a penalty of -1 mark in the course grade.

No submissions will be accepted after the extra 24 hours: the assignment will receive a grade of 0.

If a student requests, and is granted, Academic Consideration for an assignment,

- if the student is able and willing to submit the assignment within the submission acceptance period (including the extra 24 hours after the deadline), the assignment will be graded without the late assignment penalty (that is, it will not be considered a late assignment);
- otherwise, the assignment’s weight will be distributed uniformly onto the submitted assignments (or onto the final exam, in the unlikely case a student receives Academic Consideration for all 4 assignments).

**Midterm test:** If a student misses the midterm test for a legitimate reason, and is granted Academic Consideration, they will be offered to either transfer the midterm weight to the final exam, or write a makeup midterm test, according to their preference. The makeup midterm test is tentatively scheduled on Saturday November 9, from 10:40am to 12pm. In case the student also misses the makeup midterm test for a legitimate reason, their midterm weight will be transferred to the final exam.

**Final Exam:** When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period.

## **6. Additional Statements**

### **Religious Accommodation**

When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor

and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

<https://www.edi.uwo.ca>.

### **Accommodation Policies**

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf)

### **Academic Policies**

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

In accordance with policy,

[https://www.uwo.ca/univsec/pdf/policies\\_procedures/section1/mapp113.pdf](https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf)

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

No electronic devices will be permitted on the midterm test and the final exam.

**Scholastic offences** are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf)

**In the event of health lock-down**, tests and examinations in this course may be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at:

<https://remoteproctoring.uwo.ca>

### **Support Services**

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic-related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

[https://www.uwo.ca/health/student\\_support/survivor\\_support/get-help.html](https://www.uwo.ca/health/student_support/survivor_support/get-help.html)

To connect with a case manager or set up an appointment, please contact [support@uwo.ca](mailto:support@uwo.ca).

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at

[http://academicsupport.uwo.ca/accessible\\_education/index.html](http://academicsupport.uwo.ca/accessible_education/index.html)

if you have any questions regarding accommodations.

Learning-skills counsellors at Learning Development and Success (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Additional student-run support services are offered by the USC, <https://westernusc.ca/services/>.