

CS2214A - Discrete Structures for Computing Course Outline

1. Course Information

Course Information

CS2214A - Discrete Structures for Computing, Fall 2025

Lectures: Monday 9:30am-11:30am and Wednesday 9:30am-10:30am

Tutorials: Wednesday 10:30am-11:30am

List of Prerequisites: Computer Science 1027A/B, Computer Science 1037A/B, Computer Science 2121A/B or Digital Humanities 2221A/B in each case with at least 65%; Computer Science 1020A/B with at least 60%; 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.

Antirequisites: Mathematics 2151A/B, Mathematics 2155F/G.

Unless you have either the prerequisites for this course or written special permission from the Department of Computer Science to enroll in it, you may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on your academic record. This decision may not be appealed.

2. Instructor Information

Instructors	Email	Office	Office Hours
Dr. Federico Pasini	fpasini@uwo.ca		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. Topics include sets, functions, relations, algorithms, number theory, matrices, mathematical reasoning, counting, graphs and trees.

Tentative table of contents of the course

- Foundations: logic and proofs (review)
- Matrices (review)
- Mathematical induction and recursion
- Basic structures: sets (review), relations, and functions (review)
- Lattices and Boolean algebras
- Graphs
- Number theory and cryptography
- Principles of counting (review)
- Discrete probability

Key Sessional Dates

Classes begin: September 4, 2025;

Fall Reading Week: November 3 – 9, 2025;

Classes end: December 9, 2025;

Exam period: December 11 – 22, 2025.

4. Course Materials

Suggested textbook

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

- **Cost**
 - \$69 for 180-day eBook rental
 - \$99 for lifetime eBook access
 - \$129.95 for paper copy
 - More information at the publisher's webpage
<https://www.mheducation.ca/product/discrete-mathematics-and-its-applications-2025-release-ise-9781266191541-can-group#configurable-product-options-title>
 - IMPORTANT: please do not purchase any options with *Connect*.
- Students are welcome to rent, borrow, or purchase second-hand or earlier editions of this textbook.

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 materials 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 3 at 5pm via OWL/Gradescope;
 Assignment 2: due on Fri Oct 24 at 5pm via OWL/Gradescope;
 Midterm test: Wed Oct 29, 9:50am-11:10am (during class);
 Assignment 3: due on Fri Nov 14 at 5pm via OWL/Gradescope;
 Assignment 4: due on Fri Dec 5 at 5pm via OWL/Gradescope;
 Final exam: TBA.

Course policies

- The midterm and final exam are closed-book written exams that will last approximately 1h20' and 2h, respectively; no calculators nor cheat sheets 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.

Use of Generative AI Tools

Generative AI tools are useless in this course. It is well known that these tools do not handle mathematics correctly. In the past, several students who relied on generative AI tools in their assignments lost grades due to horrifying and astonishingly foolish blunders the tools made in elementary mathematics.

Students are referred to Section 6.4 for the University's general policy concerning the use of generative AI tools in academic courses.

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,

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/

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 15, from 12:40pm to 2pm. 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

6.1 Religious Accommodation

When conflicts arise 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 of 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>

6.2 Academic 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.

6.3 General Academic Policies

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

Use of @uwo.ca email: In accordance with policy, 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 email address.

It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as “appeals”)

Policy on Request for Relief from Academic Decision:

https://uwo.ca/univsec/pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

6.4 Scholastic Offences

Policy on Scholastic Offences:

https://uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a *scholastic offence*, even if the device is not in use.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is your responsibility to seek clarification before using any AI tools in academic work.

Contingency policy on assessments in the event of a health lockdown

Tests and examinations in this course will 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>.

6.5 Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, 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.

To connect with a case manager or set up an appointment, please contact 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. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

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.

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