

## CS2214B - Discrete Structures for Computing Course Outline

### 1. Course Information

#### Course Information

CS2214B - Discrete Structures for Computing, Winter 2024

**Lectures:** Monday 11:30am-12:30pm and Wednesday 11:30am-1:30pm, room AHB-1R40.

**Tutorials:** Monday 12:30pm-1:30pm, room AHB-1R40.

#### 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 Counselling) 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	Huron College A105	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
- 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: January 8, 2024

Reading Week: February 17 - February 25, 2024

Classes end: April 8, 2024

Exam period: April 11 - April 30, 2024

#### Contingency plan

Although the intent is for this course to be delivered in person, should any university-declared emergency require some or all of the course to be delivered online, either synchronously or asynchronously, the course will adapt accordingly. The grading scheme will **not** change. Any assessments affected will be conducted online as determined by the course instructor.

### 4. Course Materials

#### Suggested textbook

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

#### OWL course website

Students are responsible for checking the course OWL site (<http://owl.uwo.ca>) 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 by the instructor, and shall be submitted by students, via OWL.

If students need assistance with the course OWL site, they can seek support on the OWL 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 Jan 26 at 5pm via OWL/Gradescope;  
Assignment 2: due on Fri Feb 9 at 5pm via OWL/Gradescope;  
Midterm test: Mon Feb 26, 12pm-1:20pm (during class), room TBA;  
Assignment 3: due on Fri Mar 8 at 5pm via OWL/Gradescope;  
Assignment 4: due on Fri Mar 29 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 the OWL website of the course at least one week before the due date of the assignment.
- Any changes, updates, and clarifications to assignments will also be posted on the OWL website of the course.
- It is the responsibility of the students to monitor these pages 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 the course slides, in an assignment description, in the midterm test, or in the final exam, will be awarded an extra mark in the course grade.

## 6. Student Absences

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

### **Assessments worth less than 10% of the overall course grade**

For work worth less than 10% of the total course grade, the instructor is empowered to grant academic considerations without referring the student to their academic counsellors.

For assignments, each student has one “late submission coupon” available, which grants them a 24-hour extension to the deadline of 1 assignment, with no questions asked by the instructor.

The “late submission coupon” does not cancel the students’ right to seek approval for accommodation through the Academic Counselling Office.

Please note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. If your request for considerations requires supporting documents, as in the case of medically-based requests, then all documentation required must be submitted to the Academic Counselling office of your Home Faculty, regardless of the weight of the assessment. Note that in all cases where documentation (medical or otherwise) is required, it can *only* be collected by the student’s Dean’s Office Academic Counselling unit.

### **Assessments worth 10% or more of the overall course grade**

For work totalling 10% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the University’s medical illness policy at

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

The Student Medical Certificate is available at

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

If a student misses the midterm test for a legitimate reason, and the Academic Counselling Office endorse their request of accommodation, 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 Monday March 4, 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.

### **Absences from Final Examinations**

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a “Multiple Exam Situation” (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under [Special Examinations](#)).

**Note:** missed work can *only* be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is **not** sufficient on its own.

## 7. Accommodation and Accessibility

### Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

### 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).

## 8. Academic Policies

The website for Registrarial Services is <http://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.

Electronic devices will not be permitted on the midterm test and exams.

**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:

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

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

**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>.

## 9. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling 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 the Student Development Centre (<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/>.