

# CS2214A - Discrete Structures for Computing, Fall 2023

## Course Outline

### 1. Course Information

#### Course Information

Computer Science 2214A – Discrete Structures for Computing, Fall 2023.

**Lectures:** Monday 9:30am-11:30am and Wednesday 9:30am-10:30am, room Seb 1059.

**Tutorials:** Wednesday 10:30pm-11:30am, room Seb 1059.

#### List of Prerequisites

Either 1) Computer Science 1027A/B, Computer Science 1037A/B, or 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 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 1412A/B, the former Applied Mathematics 1414A/B, the former Applied Mathematics 1413; or  
2) Integrated Science 1001X with at least 60%.

#### Antirequisites:

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

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. Mohsen Mollahajiaghahi	<a href="mailto:mmollaha@uwo.ca">mmollaha@uwo.ca</a>	MC 128	Friday 10:30 am-12:30 pm
TA (TBA)			

Students must use their Western (@uwo.ca) email addresses when contacting their instructors, and write "CS2214A" in the email subject (to minimize the risk of the email to be flagged as spam).

**Office hours format:** In person. office hours by appointment can be either in person or online.

### 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: September 7, 2023

Fall Reading Week: October 30 – November 5, 2023

Classes end: December 8, 2023

Exam period: December 10 – 22, 2023

#### 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 web browser such as Chrome, Safari or Firefox.
- 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:

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

### **Tentative evaluation schedule:**

Assignment 1: due on Monday Sep 25 at 11:30pm via Gradescope.  
Assignment 2: due on Tuesday Oct 10 at 11:30pm via Gradescope.  
Midterm: Saturday Oct 21, 9am-11am, room TBA.  
Assignment 3: due on Monday Nov 6 at 11:30pm via Gradescope.  
Assignment 4: due on Monday Nov 27 at 11:30pm via Gradescope.  
Final exam: TBA.

The midterm and final exam are close-book written exams that will last approximately 2h and 3h, 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 Gradescope. Assignments may be typed using a text editor or hand-written and must be submitted in PDF or JPG 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.

## 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. Students can use only one 'late coupon' policy in which a student can redeem a “no-questions asked” one day extension on their assignments."

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.

### **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).

Students who have a direct conflict between a test and another academic requirement (i.e. test/class/lab/tutorial), and also students for whom a test conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, should contact the Academic Counselling Office in their Faculty of Registration as soon as they become aware of the conflict and not later than two weeks before the test.

Students who experience an extenuating circumstance (illness, injury or other extenuating circumstance) sufficiently significant to temporarily render them unable to complete a course component may submit a request for academic consideration to the Academic Counselling office of their Faculty of Registration.

**Midterm:** If you missed the midterm due to any circumstance listed above, you must provide an academic consideration from the Academic Counselling office of your Faculty of Registration covering the date of the test. Makeup examination for the midterm will be available to those who gain accommodation. A makeup midterm is anticipated to be provided in the week following the term test. In cases where a student misses to take the midterm and the makeup test and can provide an academic consideration for both absences, the weight of that term test 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.

## 6. 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).

## 7. 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.

NO calculators or other electronic devices or any other aids are allowed on tests 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>).

## 8. 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/>.