

Queen's University
School of Computing

CISC 203: Discrete Mathematics for Computing II
Course Outline
Winter 2019

1 Course Description

Proof methods. Combinatorics: permutations and combinations, discrete probability, recurrence relations. Graphs and trees. Boolean and abstract algebra.

2 Learning Outcomes

A course learning outcome is a brief statement of a skill, competency, or attitude a successful student will achieve by the end of a course. The following list of learning outcomes for CISC 203 is provided by the School of Computing. (<http://www.cs.queensu.ca/students/undergraduate/outcomes/CLO.php>)

- Critique and construct moderately sophisticated mathematical arguments such as proof by contradiction, proof by induction, proof by minimal counterexample, counting arguments, and recognition of orderings.
- Apply discrete mathematical tools and models such as graph theory, probability, group theory and modular arithmetic to problems such as modelling relational data and networks, scheduling and resource allocation, network design, predicting expected performance, motion planning, cryptography.
- Apply basic discrete probability techniques to computational tasks.
- Build a foundation for further learning by exposure to multiple computer languages, development tools, and methodologies.

3 Personnel

3.1 Instructor

Taylor J. Smith

- Email: tsmith@cs.queensu.ca
- Office: Goodwin Hall, room 235
- Office hours: Tuesday, 1:30pm–2:30pm; Thursday, 12:30pm–1:30pm

3.2 Teaching Assistants

Xavier McMaster-Hubner

- Email: 17xjem@queensu.ca
- Office: Goodwin Hall, room 241
- Office hours: Monday, 10:30am–11:30am

Leonard Zhao

- Email: 161z1@queensu.ca
- Office: Goodwin Hall, room 241
- Office hours: Wednesday, 10:30am–11:30am

4 Course Details

4.1 Lecture Time/Place

- Tuesday, 12:30pm–1:30pm
- Thursday, 11:30am–12:30pm
- Friday, 1:30pm–2:30pm

All lectures are held in Goodwin Hall, room 254.

4.2 Textbook

E. Scheinerman, *Mathematics: A Discrete Introduction*. Cengage Learning, 3rd edition, 2012.

4.3 Prerequisites

This course requires [CISC 102 (Discrete Mathematics for Computing I) or MATH 110 (Linear Algebra)] and CISC 121 (Introduction to Computing Science I) as prerequisites, each with a minimum mark of C–.

This course is a prerequisite for CISC 235 (Data Structures), CISC 322 (Software Architecture), CISC 333 (Introduction to Data Mining), and CISC 365 (Algorithms I).

5 Evaluations

5.1 Marking Scheme

- 50% assignments (12.5% per assignment)
- 25% midterm
- 25% final exam

You must pass the final exam to pass the course.

The marking scheme will not be adjusted for individual students, with the exception of students who miss an evaluation due to illness or other extenuating circumstances.

5.2 Assignments

There will be four written assignments in this course. Assignments will be due at the beginning of class on the due date. Only paper assignments will be accepted; email copies will not be accepted.

Assignment solutions must be based on individual work. See Section 6 for more information about academic integrity.

Late assignments will be accepted up to the beginning of the first class following the due date. Assignments submitted later than this time will not be accepted. Late assignments are subject to a penalty of 10% deducted from the earned mark.

If you must miss an assignment due to illness or other extenuating circumstances, please contact the instructor prior to the assignment due date/time. See Section 5.5 for more information about academic considerations and accommodations.

If you have questions about assignment marking, please contact the teaching assistant within one week from the time you received the marked assignment. All assignment marks are considered final after one week has passed from the time you received the marked assignment.

5.3 Midterm and Final Exams

The midterm exam will be held in class during the usual lecture time.

If you have questions about midterm exam marking, please contact the instructor within one week from the time you received the marked midterm exam. All midterm exam marks are considered final after one week has passed from the time you received the marked midterm exam.

The final exam will be held during the examination period in April. It will be scheduled by the Examinations Office. More details are listed in Section 5.4.

If you require accommodations for the midterm or final exam, please follow the procedures listed in Section 5.5.

5.4 Location and Timing of Final Exams

Arts and Science Regulation 8.2.1 states

The final examination in any class offered in a term or session (including Summer Term) must be written on the campus on which it was taken, at the end of the appropriate term or session at the time scheduled by the Examinations Office.

The exam period is listed in the key dates prior to the start of the academic year in the Faculty of Arts and Science Academic Calendar and on the Office of the University Registrar's webpage. A detailed exam schedule for the Fall Term is posted before the Thanksgiving holiday; for the Winter Term it is posted the Friday before Reading Week, and for the Summer Term the window of dates is noted on the Arts and Science Online syllabus prior to the start of the course. Students should delay finalizing any travel plans until after the examination schedule has been posted. Exams will not be moved or deferred to accommodate employment, travel/holiday plans or flight reservations.

5.5 Academic Considerations and Accommodations

Academic considerations and accommodations are two different mechanisms for helping students in extenuating circumstances. If you have extenuating circumstances for missing a midterm or assignment deadline, or for long-term issues, see the Student Wellness website.

(<http://www.queensu.ca/studentwellness/resources/students-extenuating-circumstances>)

Queen's University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact Student Wellness Services (SWS) and register as early as possible. For more information, including important deadlines, please visit the Student Wellness website.

(<http://www.queensu.ca/studentwellness/resources/students-extenuating-circumstances>)

The Senate Policy on Academic Consideration for Students in Extenuating Circumstances was approved in April 2017. Queen's University is committed to providing academic consideration to students experiencing extenuating circumstances that are beyond their control and which have a direct and substantial impact on their ability to meet essential academic requirements. Each Faculty has developed a protocol to provide a consistent and equitable approach in dealing with requests for academic consideration for students facing extenuating circumstances. Arts and Science undergraduate students please consult the Faculty of Arts and Science protocol and the portal where they submit a request. Students in other Faculties and Schools should refer to the protocol for their home Faculty.

5.5.1 Academic Considerations and Accommodations for Tests

Some of your instructors may participate in central administration of special tests (including midterms and quizzes) for students with accommodations (other than “use of computer”, which is handled by the exams office); the same process will apply for make-up tests requested via the Arts and Science academic considerations portal. Although we will strive to ensure you are accommodated to the standards in your form, if we do not have, at minimum, 10 working days’ notice, we can’t guarantee that your accommodation needs will be fully met. Shorter notice may be possible with academic considerations for students who don’t have accommodations that complicate scheduling, but we can’t guarantee it.

Students’ accommodation tests will be booked either at the same time as the rest of the class, or as soon after as possible, according to their accommodation requirements. Make-up tests for academic considerations will similarly be booked as soon as possible. Your class schedule will be taken into account when making the booking; due to the expected volume of requests and bookings, we will not be able to book according to the student’s preference. Once we have finalized the booking and arranged for a proctor, you will be contacted by email.

IMPORTANT: Should you elect to write your test with the rest of the class, instead of writing the accommodated test that was booked for you, we require two working days’ notice so that we can cancel your room booking, and notify the proctor that was hired to invigilate your test.

All computer accommodations are handled by the Exams Office. They require 10 working days’ notice to make these arrangements.

If you have questions or concerns, or would like to discuss your case, please feel free to contact us at accommodation@cs.queensu.ca, 613-533-6050, or drop by the School of Computing main office in Goodwin Hall, room 557 (8am–12pm and 1pm–4pm).

6 Academic Integrity

Queen’s students, faculty, administrators and staff all have responsibilities for supporting and upholding the fundamental values of academic integrity. Academic integrity is constituted by the five core fundamental values of honesty, trust, fairness, respect and responsibility (see www.academicintegrity.org) and by the quality of courage. These values and qualities are central to the building, nurturing and sustaining of an academic community in which all members of the community will thrive. Adherence to the values expressed through academic integrity forms a foundation for the “freedom of inquiry and exchange of ideas” essential to the intellectual life of the University.

Students are responsible for familiarizing themselves with and adhering to the regulations concerning academic integrity. General information on academic integrity is available at [Integrity@Queen’s University](mailto:Integrity@Queen's University), along with Faculty or School specific information. Departures from academic integrity include, but are not limited to, plagiarism, use of unauthorized materials, facilitation, forgery and falsification. Actions which contravene the regulation on academic integrity carry sanctions that can range from a warning, to loss of grades on an assignment, to failure of a course, to requirement to withdraw from the university.

6.1 Academic Integrity in the School of Computing

Within the School of Computing, in addition to the general concerns about academic integrity, there are a few specific situations.

- **Group work.** Teamwork is an essential part of certain courses. Failure to carry out your own fair portion of the group work may be considered a departure from academic integrity.
- **Collaboration on individual assignments.** In some courses it is permitted to discuss the overall approach to a problem, but not specifics of the solution. With coding exercises, for example, many instructors will consider that you have gone too far if you look at someone's specific code. It is much safer to consult your TAs or the instructor, who can help you work on your programs without giving away details that cross the line into departures from academic integrity.
- **Internet solutions.** Finding and using solutions on websites is usually a departure from academic integrity.