CS 2214B: Discrete Structures for Computing
Winter 2018

1. General Course Information

Course Description
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 may include sets, functions, relations, algorithms, number theory, matrices, mathematical reasoning, counting, graphs and trees. Tentative list of specific topics includes:

- Foundations: Logic and Proofs
- Basic Structures: Sets, Functions, Sequences, Sums and Matrices
- Number Theory and Cryptography (divisibility and modular arithmetic, integer representations, primes and greatest common divisors)
- Induction and Recursion
- Counting (basics of counting, Pigeonhole principle, permutations and combinations)
- Discrete Probability (introduction to discrete probability, Bayes' Theorem)
- Relations (equivalence relations, partial orders)
- Graphs (graphs and graph models, connectivity, Euler and Hamiltonian paths)

Prerequisite Requirements
Computer Science 1027A/B, 1037A/B, or Computer Science 2101A/B, in each case with at least 65%, and one full course or equivalent chosen from the following, with at least 60% in each: Applied Mathematics 1201A/B or the former Calculus 1201A/B, Applied Mathematics 1413, Calculus 1000A/B, 1100A/B, 1301A/B, 1500A/B, 1501A/B, Mathematics 1600A/B or the former Linear Algebra 1600A/B, or permission of the Department.

Unless you have either the requisites for this course or written special permission from your Dean 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.

Antirequisites: Math 2151A/B, Math 2155A/B, former Software Engineering 2251A/B.

2. Instructor: Professor Yuri Boykov
Office: Middlesex College 387
Phone: 519-661-2111 ext. 82159
Email: yuri at uwo.ca

When contacting the instructor students must use their Western (@uwo.ca) email addresses and include the course number (CS2214) in the subject line.

3. Schedule of Lectures
Three lecture hours per week: Monday 11:30 - 13:30 (at SEB1200), Wednesday 11:30 -12:30 (at NCB113). One tutorial hour per week: Wednesday 12:30 -13:30 (at NCB113). Tutorial sessions may involve material review and problem solving based on questions from students.

4. Course Materials
The recommended textbook is *Discrete Mathematics and Its Applications*, 7th Edition, 2012, Kenneth Rosen, McGraw-Hill.

Students should check both OWL (http://owl.uwo.ca) and the course's web site (http://www.csd.uwo.ca/~yuri/Courses/cs2214b/) 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. Students are responsible for checking both the course's web site and OWL on a regular basis.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

5 Assignments	25% (5% each)
Midterm Exam	25%
Final Exam	50%

Tentative dates:	Midterm:	March 5 (in class).				
	Assignments given:	Jan 19	Feb 2	Feb 9	Mar 16	Mar 28
	Assignments due:	Jan 26	Feb 9	Feb 16	Mar 23	Apr 4

The Midterm is a written exam that will last 1 hr 45 min. The 3-hour written Final Exam will be scheduled during the exam period. NOTE: if your mark for the Final exam is better than your mark for the Midterm then your Midterm mark will be automatically raised to the Final mark. Otherwise, it is not possible to have any of the components reweighted unless they were legitimately missed (see the section on Accommodation below).

Late assignments cost 10% of the assignment per day late. After a week has passed from the due-date no assignments will be accepted for marking. No extensions will be given for any assignment. If there is an "academic accommodation" approved by the Dean's office (see Accommodations section below) the corresponding assignment will be dropped and its weight will be added to other assignments. Similarly, no make-up Midterm will be given. If you miss the Midterm for any reason (with or without an "academic accommodation"), then your Final mark will automatically have 75% weights for your overall mark in this course (this is consistent with the previously mentioned rule on automatic raising of the Midterm mark to the Final exam mark if the latter is higher). The Final exam will cover the material of the whole course. *To obtain a passing grade in the course, a student must obtain at least 50% on the final exam.*

Every effort will be made to have assignments/tests marked within 2 weeks of the hand-in date.

6. Accommodation and Accessibility

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in WSC 140, and can be contacted at scibmsac@uwo.ca.

For further information, please consult the university's medical illness policy at http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

- Only permitted adjustments to the course evaluation (assignment or midterm reweighting mentioned earlier) can be made. Any specific assignment adjustment should be requested by a student via email **after** "academic accommodation" was approved by the Dean's office. Documentation (medical or otherwise) can be collected only by the student's Dean's Office/Academic Counselling unit. Midterm adjustment (mentioned earlier) is entirely automatic based on your Final exam mark and requires no requests/emails or "academic accommodation" forms.
- The submission of assignments is electronic (via OWL). No assignments will be accepted via email.
- No electronic devices may be in your possession during tests and exams.
- All exams/tests are close-book. A letter-size hand-written reference sheet (both sides, no flaps, and no fully-worked out examples or any proofs) is allowed for the Midterm and Final exams.
- In case of questions regarding the marks, please note that no exams will be accepted for re-marking later than two weeks after they have been marked. We reserve the right not to re-mark exams that have been written in pencil.

If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (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" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html).

7. Academic Policies

The website for Registrarial Services is http://www.registrar.uwo.ca. In accordance with policy, http://www.uwo.ca/its/identity/activatenonstudent.html, 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 his/her official university address is attended to in a timely manner.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at this website: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf. 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.

8. Support Services

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 Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 if you have questions regarding accommodation.

The policy on Accommodation for Students with Disabilities can be found here: www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf

The policy on Accommodation for Religious Holidays can be found here: www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Learning-skills counsellors at the Student Development Centre (http://www.sdc.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.

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

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