

**Faculty of Science**

**MATH2080/CSCI2110: Discrete Mathematics**

Course outline for Fall, 2017

**1. Course Details & Important Dates\***

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| Term | | Course Type | | Day | | Time |
| F | | LEC | | TUE  THU | | 2:10PM-3:40PM |
| Location | CRN # | Classes Start | | Classes End | | Final Exam Period |
| UA1120 | 40245(CSCI)  40341(MATH) | SEP 07, 2017 | | DEC 01, 2017 | | TBA |

\* for other important dates go to: [www.uoit.ca](http://www.uoit.ca) >Current Students >Important Dates and Deadlines

**2. Instructor Contact Information**

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| Instructor Name | Office | Phone | Email | |
| MIHAI BELIGAN | UA2018 | 5318 | In BlackBoard | |
| Office Hours: TBA | | | | |
| Teaching Assistant Name | Office Hours | | |
| Martin Magill  Eric Ng | TBA  TBA | | |

**3. Course Description**

| This is an elementary introduction to discrete mathematics. Topics covered include first-order logic, set theory, fundamental techniques of mathematical proof, relations, functions, induction and recursion, combinatorics, discrete probability, finite-state machines, and graph theory. 3 cr, 3 lec, 1 tut. Prerequisite: MATH 1020U. |
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**4. Course Design**

| Two lectures of 80 minutes each per week, one tutorial of 50 minutes each week. Typed notes are posted in Blackboard ahead of lectures, with completed by hand notes uploaded the day after lecture. Help resources are Office Hours for instructor and teaching assistants, workshops offered by the Student Learning Centre, practice tests from prior years posted ahead of midterm. |
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**5. Learning Outcomes**

| On the successful completion of the course, students will be able to: On the successful completion of this course students will   * be able to read, comprehend, and construct mathematical arguments * become familiar with discrete structures of mathematics and computer science, including finite sets, permutations, combinations, sequences, sums, relations, and graphs * be capable of algorithmic thinking required to understand pseudocodes and computer programs * have developed counting skills required for combinatorial analysis of discrete systems * have built modeling skills required to map specific application examples to clearly stated mathematical problems |
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**6. Outline of Topics in the Course**

| Week 01 - Propositional Logic; Propositional Equivalences  Week 02 - Predicate Logic; Rules of Inference  Week 03 - Proofs: Methods and Strategy  Week 04 - Sets; Functions  Week 05 - Sequences and Summation. Algorithms; Growth of Functions; Complexity of Algorithms.  Week 06 - Integers: Divisibility and Modular Arithmetic; Integer Representations and Algorithms  Week 07 - Primes and GCD. Mathematical Induction  Week 08 - Recursive Definitions. Basic Counting.  Week 09 - Elementary Combinatorics (Counting)  Week 10 - Discrete Probability  Week 11 - Relations  Week 12 - Introductions to Graph Theory |
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**7. Required Texts/Readings**

| Discrete Mathematics and Its Applications by Kenneth Rosen, 7th ed.  We will cover only Chapters 1, 2, 3, 4, 5, 6, 9 and 10.  The website www.mhhe.com/rosen contains many useful resources. Readings from Rosen's text will be assigned each week with the expectation that you will  complete the reading before the next class. |
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**8. Evaluation Method**

| The course mark will be calculated as follows:   * Assignments: 12% * In lecture and in tutorial Pop Quizzes: 8% * Term Test 1: 20% (In lecture, Oct 17)Term Test 2: 20% (In lecture, Nov 21) * Final Exam: 40% (During Exam Period)   *Final course grades may be adjusted to conform to program or Faculty grade distribution profiles. Further information on grading can be found in Section 5 of the UOIT Academic Calendar.* |
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**9. Assignments and Tests**

| **Assignments** are to be done individually, but you may submit one copy per pair of students. More details will be posted prior to the first assignment.  **In** **lecture and in tutorial (pop) quizzes** may be administered at any point during the lecture or tutorial time. Topics will always be from that current lecture/tutorial, and the format will be Fill In The Blank, or True/False, or Multiple Choice. Each passed quiz earns 1 mark toward your final grade.  Only the best 8 quiz marks will count towards the final grade. Marks may be awarded for a missed or failed quiz for answering the instructor’s questions during office hours.  **Midterm Examinations**: There will be two 70 minute midterm examinations held during class. All exams in this course will be closed book and will require only paper and pen/pencil; in particular, calculators will not be permitted.  **Final Examination**: There will be a 180 minute final examination. Final examinations are held during the final examination period.  **Missed Work:** The normal policy on missed (midterm and other) tests is as follows: If you miss a test for a legitimate reason and can provide appropriate documentation, you will not be penalized. Legitimate reasons are illness or death in the family, and appropriate documentation is a UOIT Medical Certificate or a photocopy of a death certificate, respectively. You should submit documentation to one of the Science Academic Advisors (Tara Funston, Nicole Suss, or Amanda Groothuis), within 5 days of missing the test. If you are not able to do so for any reason, you must contact the Science Academic Advisors (via email if at all possible – science.advising@uoit.ca ) within this time to make other arrangements. The usual accommodation for a missed midterm test will be to re-weight the grading scheme to allocate the missed test mark to the final exam mark.  If you miss a test without a legitimate reason or do not provide the proper  documentation, you will receive a mark of zero. If the test is written, the decision is  irreversible. If you are contemplating not writing a test for any reason, please speak to Science Advising in advance of the test, as well as informing the instructor.  For further policies and information relating to the Faculty of Science and this  course, please refer to http://www.science.uoit.ca/undergraduate/currentstudents/  academic-policies.php (copy and paste into your browser)  You can also find the answers to many frequently asked advising questions by  referring to http://www.science.uoit.ca/undergraduate/current-students/academicadvising/  faqs/ (copy and paste into your browser) |
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**10. Accessibility**

| Accommodating students with disabilities at UOIT is a responsibility shared among various partners: the students themselves, SAS staff and faculty members. To ensure that disability-related concerns are properly addressed during this course, students with documented disabilities and who may require assistance to participate in this class are encouraged to speak with me as soon as possible. **Students who suspect they have a disability that may affect their**  **participation in this course are advised to go to Student Accessibility Services (SAS) as soon as possible.** Maintaining communication and working collaboratively with SAS and faculty members will ensure you have the greatest chance of academic success.  Students taking courses on the North Campus Location can visit Student Accessibility Services in the U5 Building located in the Student Life Suite  Students taking courses on the Downtown Oshawa Campus Location can visit Student Accessibility Services in the 61 Charles St. Building, 2nd Floor, Room DTA 225 in the Student Life Suite.  Disability-related support and accommodation support is available for students with mental health, physical, mobility, sensory, medical, cognitive, or learning challenges.  Office hours are 8:30am-4:30pm, Mon-Fri.  For more information on services provided, you can visit the SAS website at <http://uoit.ca/studentaccessibility>   Students may contact Student Accessibility Services by calling 905-721-3266, or email [studentaccessibility@uoit.ca](mailto:studentaccessibility@uoit.ca)  Students who require the use of the Test Centre to write tests, midterms, or quizzes MUST register online using the SAS test/exam sign-up module, found here [www.uoit.ca/SASexams](http://www.uoit.ca/SASexams). Students must sign up for tests, midterms or quizzes AT LEAST seven (7) days before the date of the test.  Students must register for final exams by the registration deadline, which is typically 2 weeks prior to the start of the final examination period. SAS will notify students of the registration deadline date. |
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**12. Academic Integrity**

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| Students and faculty at UOIT share an important responsibility to maintain the integrity of the teaching and learning relationship. This relationship is characterized by honesty, fairness and mutual respect for the aim and principles of the pursuit of education. Academic misconduct impedes the activities of the university community and is punishable by appropriate disciplinary action.  Students are expected to be familiar with and abide by UOIT’s regulations on Academic Conduct (Section 5.15 of the Academic Calendar) which sets out the kinds of actions that constitute academic misconduct, including plagiarism, copying or allowing one’s own work to copied, use of unauthorized aids in examinations and tests, submitting work prepared in collaboration with another student when such collaboration has not been authorized, among other academic offences. The regulations also describe the procedures for dealing with allegations, and the sanctions for any finding of academic misconduct, which can range from a resubmission of work to a failing grade to permanent expulsion from the university. A lack of familiarity with UOIT’s regulations on academic conduct does not constitute a defense against its application.  Further information about academic misconduct can be found in the Academic Integrity link on your laptop. Extra support services are available to all UOIT students in academic development, study skills, counseling, and peer mentorship. More information on student support services can be found in the Academic Calendar (Section 8). |

**14. Final Examinations**

| Final examinations are held during the final examination period at the end of the semester and may take place in a different room and on a different day from the regularly scheduled class. Check the published Examination Schedule for a complete list of days and times.  Students are advised to obtain their Student ID Card well in advance of the examination period as they will not be able to write their examinations without it. Student ID cards can be obtained at the Campus ID Services, in G1004 in the Campus Recreation and Wellness Centre.  Students who are unable to write a final examination when scheduled due to religious publications may make arrangements to write a deferred examination. These students are required to submit a Request for Accommodation for Religious Obligations to the Faculty concerned as soon as possible and no later than three week prior to the first day of the final examination period.  Further information on final examinations can be found in Section 5.24 of the Academic Calendar. |
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**15. Course Evaluations**

| Student evaluation of teaching is a highly valued and helpful mechanism for monitoring the quality of UOIT’s programs and instructional effectiveness. To that end, course evaluations are administered by an external company in an online, anonymous process during the last few weeks of classes. Students are encouraged to participate actively in this process and will be notified of the dates. Notifications about course evaluations will be sent via e-mail, and posted on Blackboard, Weekly News and signage around the campus. |
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**16. Freedom of Information and Protection of Information Act**

| The following is an important notice regarding the process for submitting course assignments, quizzes and other evaluative material in your courses in the Faculty of Science.  As you may know, UOIT is governed by the *Freedom of Information and Protection of Information Act* (“FIPPA”).  In addition to providing a mechanism for requesting records held by the university, this legislation also requires that UOIT not disclose the personal information of its students without their consent.  FIPPA’s definition of “personal information” includes, among other things, documents that contain both your name and your Banner ID. For example, this could include graded test papers or assignments. To ensure that your rights to privacy are protected, the Faculty of Science encourages you to use only your Banner ID on assignments or test papers being submitted for grading. This policy is intended to prevent the inadvertent disclosure of your information where graded papers are returned to groups of students at the same time. If you still wish to write both your name and your Banner ID on your tests and assignments, please be advised that UOIT will interpret this as an implied consent to the disclosure of your personal information in the normal course of returning graded materials to students.  If you have any questions or concerns relating to the new policy or the issue of implied consent addressed above, please contact your science advisor office. |
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*UOIT is committed to the prevention of sexual violence in all is forms. For any UOIT student who has experienced Sexual Violence,* ***UOIT can help****. UOIT will make accommodations to cater to the diverse backgrounds, cultures, and identities of students when dealing with individual cases.*

*If you think you have been subjected to or witnessed sexual violence:*

                     *Reach out to a Support Worker, who are specially trained individuals authorized to receive confidential disclosures about incidents of sexual violence. Support Workers can offer help and resolutions options which can include safety plans, accommodations, mental health support, and more. To make an appointment with a Support Worker, call 905.721.3392 or email* [*supportworker@uoit.ca*](mailto:supportworker@uoit.ca)

                     *Learn more about your options at:* [*www.uoit.ca/sexualviolence*](http://www.uoit.ca/sexualviolence)

*Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact* [*studentlife@uoit.ca*](mailto:studentlife@uoit.ca) *for support.*