MATH/CSCI 2112
Fall term 2017

LECTURES: MWF 11:35–12:25, MacMechan Auditorium. Web presence: on BrightSpace. No labs or tutorials.

INSTRUCTOR: Dr. Jeannette Janssen.

- Office: Chase building, room 315.
- Office hours: Tuesday 3-4.30pm, or by appointment.
- Email: Jeannette.Janssen@dal.ca, or use the email function in BrightSpace.

Course Description from Calendar: This course together with MATH/CSCI 2113.03 offers a survey of the following areas: set theory, mathematical induction, number theory, relations, functions, algebraic structures and introductory graph theory. The topics to be discussed are fundamental to most areas of Mathematics and have wide applicability to Computer Science.

Course Prerequisites: NS Math 441/equivalent

Course Text: The course uses a number of publicly available course texts. Links to these are on Brightspace.

- The Book of Proof, Richard Hammack
- Discrete Mathematics, and Open Introduction, by Oscar Levin.
- Lectures in Discrete Mathematics, by Edward A. Bender and S. Gill Williamson.

For additional reading:

- Discrete Mathematics with Applications, Susanna S. Epp, Brooks/Cole. In Killam library.
- Discrete and Combinatorial Mathematics, Ralph P. Grimaldi, Addison-Wesley. In Killam library.

Course Assessment:

Assignments	20%
Quizzes	$4 \times 4\% = 16\%$
Midterm	24 %
Final exam	40%

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale:

A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (¡50)
A- (80-84)	B- (70-72)	C- (55-59)	

Assignments: Weekly assignments will be posted on BrightSpace, and have to be submitted electronically. Please follow the instructions below precisely; up to 50% of points will be deducted for violations of the format. Points will deducted for late submissions. No assignments will be accepted more than 48hrs late. The least assignment mark during term will not be counted.

- Submit your solutions to the assignment questions **in order**, and start each question on **new page**.
- Submit your solutions as a **PDF file**.
- Submit your solutions before the posted deadline.

Exams and Quizzes: Four quizzes will be held in class, on Sept 26, 16 Oct,19 Nov, 5 Dec. Each quiz is 15 minutes long. An 80 minute midterm exam will be held in the evening in the week of October 23 (date to be announced) The final examination (3 hours) will be held during exam period, and be scheduled by the registrar. All quizzes and exams are closed book. No calculators. No listening devices. Switch off cellular telephones. Bring a pen to print your name on your paper.

Policy on missed exams or quizzes: When you miss an exam or quiz, you must let me know via email *before the start of the exam/quiz.* If you fail to do so, then you will automatically receive a failing grade on the exam/quiz, and there will be no accommodations made. If you did notify me and have a valid excuse, the following applies. If you miss a quiz, your quiz mark will be computed out of the remaining quizzes. If you miss the midterm or final exam, there will be a scheduled make-up exam.

Other relevant policies A document containing Dalhousie's policies on plagiarism, accessibility, and a number of other important issues has been posted to Brightspace.

Course Objectives/Learning Outcomes

- Use truth tables and logical reasoning to evaluate elementary logical arguments.
- To build basic skills in mathematical reasoning.
- To become familiar with the basic terminology and concepts in logic and set theory, combinatorics, and number theory.
- To be able to develop formal mathematical proof through direct proof, proof by cases, proof by contradiction, proof by contrapositive, and proof by induction.
- Be able to perform computations in modular arithmetic, and to understand the relevant number system.
- Be able to calculate the number of possible outcomes for problems involving combinations and permutations.
- Be able to prove the correctness of simple recursive algorithms.