



Mathematics (MATH) 309

Discrete Mathematics (Revision 7)

Status:	Replaced with new revision, see the course listing ↗ for the current revision ✖
Delivery mode:	Individualized study online ↗
Credits:	3
Area of study:	Science
Prerequisites:	MATH 209 ↗ or MATH 270 ↗ . (If MATH 270 is used as a prerequisite, MATH 271 ↗ is recommended.)
Precluded:	None
Challenge:	MATH 309 has a challenge for credit option.
Faculty:	Faculty of Science and Technology ↗
Notes:	Mathematics Diagnostic Assessment ↗ . This online test contains 70 questions that will help you assess your mathematical skills. Based on your score we will recommend which

Athabasca University mathematics course you are likely ready to take successfully.

Overview

The course covers integers, set theory, logic, relations, functions, Boolean algebra, divisibility, combinatorics, finite-state automata and formal languages.

Outline

The course consists of the following six units:

- Unit 1: Integers
- Unit 2: Formal Logic
- Unit 3: Set Theory
- Unit 4: Counting
- Unit 5: Relations and Functions
- Unit 6: Finite-state Automata

Learning outcomes

Upon successful completion of this course, you will be able to

- demonstrate a foundational understanding of discrete mathematics, with a focus on formal logic, set theory, counting, and Automata.
- use discrete mathematical methods for applied problem solving in computer science, counting both combinations and permutations,

identifying languages over alphabets, and creating finite-state automata to model specific processes.

- apply background knowledge to pursue further learning in related advanced mathematics and computer science courses.
- apply foundational skills in the development of mathematical proofs.
- communicate mathematical ideas, and analyses in a clear and organized manner.


Evaluation

To **receive credit** [↗](#) for MATH 309, you must complete all course work, achieve a composite course grade of at least **D (50 percent)** [📄](#). You must also achieve a midterm and final exam grade of at least D (50 percent). You will be assessed on the basis of two examinations and three assignments, weighted as follows:

Activity	Weight
Assignment 1	15%
Midterm Exam	25%
Assignment 2	15%
Assignment 3	15%
Final Exam	30%
Total	100%

To learn more about assignments and examinations, please refer to Athabasca University's **online Calendar** [↗](#).

Materials

Epp, Susanna S. *Discrete Mathematics with Applications: Custom Edition for Athabasca University*. Toronto: Cengage, 2012.  (Print)

Epp, Susanna S. *Student Solutions Manual—Discrete Mathematics with Applications: Custom Edition for Athabasca University*. Toronto: Cengage, 2012.  (Print)

Other materials

Course materials include a study guide, and a student manual. All other materials are available online.



Challenge for credit

Overview

The challenge for credit process allows you to demonstrate that you have acquired a command of the general subject matter, knowledge, intellectual and/or other skills that would normally be found in a university-level course.

Full information about **challenge for credit**  can be found in the Undergraduate Calendar.

Evaluation

To **receive credit**  for the MATH 309 challenge registration, you must complete the two parts of the challenge exam and achieve a minimum grade of at least **D (50 percent)**  on both parts. The two parts of the challenge exam must be written on the same day, or on two consecutive days.

Activity	Weight
Part 1: Exam	50%
Part 2: Exam	50%
Total	100%



Challenge for credit course registration form

Important links

- › **Academic advising** [↗](#)
- › **Program planning** [↗](#)
- › **Request assistance** [↗](#)
- › **Support services** [↗](#)

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

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