

# COURSE DETAIL

## INTRODUCTION TO DISCRETE MATHEMATICS

**Country**

South Africa

**Host Institution**

University of Cape Town

**Program(s)**

University of Cape Town

**UCEAP Course Level**

Lower Division

**UCEAP Subject Area(s)**

Mathematics

**UCEAP Course Number**

18

**UCEAP Course Suffix****UCEAP Official Title**

INTRODUCTION TO DISCRETE MATHEMATICS

**UCEAP Transcript Title**

INTRO DISCRETE MATH

**UCEAP Quarter Units**

6.00

**UCEAP Semester Units**

4.00

## Course Description

This course introduces the language and methods of the area of Discrete Mathematics and show how discrete mathematics can be used in modern computer science (with the focus on algorithmic applications). Topics covered include (1) sets, relations and functions; (2) basic logic, including propositional logic, logical connectives, truth tables, propositional inference rules and predicate logic; (3) proof techniques, including the structure of mathematical proofs, direct proofs, disproving by counterexample, proof by contradiction; (4) basics of counting, including counting arguments, the pigeonhole principle, permutations and combinations, solving recurrence relation; (5) graphs and trees; (6) discrete probability, including finite probability space, axioms of probability, conditional probability; and, (7) linear algebra, including vectors, matrices and their applications. The course is offered in a blended-learning format. Students are provided with a set of video lectures that they can watch multiple times. Student contact time is in a tutorial format aimed at reinforcing the principles introduced in the online lectures and giving students time to do exercises under the supervision of tutors. Co-requisites: MAM1004S or MAM1005H (unless a pass has been obtained for MAM1004F or MAM1031F or equivalent).

### Language(s) of Instruction

English

### Host Institution Course Number

MAM1008S

### Host Institution Course Title

INTRODUCTION TO DISCRETE MATHEMATICS

### Host Institution Course Details

<https://www.uct.ac.za/sites/default/files/media/documents/uct-handbook-11-2025-...>

### Host Institution Campus

University of Cape Town

**Host Institution Faculty**

Science

**Host Institution Degree****Host Institution Department**

Math and Applied Math

**Course Last Reviewed**

2025-2026

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