

COURSE DETAIL

INTRODUCTION TO NUMBER THEORY

Country

Ireland

Host Institution

Trinity College Dublin

Program(s)

Trinity College Dublin

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Mathematics

UCEAP Course Number

117

UCEAP Course Suffix**UCEAP Official Title**

INTRODUCTION TO NUMBER THEORY

UCEAP Transcript Title

INTRO NUMBER THEORY

UCEAP Quarter Units

4.00

UCEAP Semester Units

2.70

Course Description

In this course, students state and prove some standard theorems in number theory, use standard theorems to solve problems in number theory including some classes of Diophantine equations, and learn to use the following: divisibility and factorization of integers: prime numbers, gcd and lcm, Euclidean algorithm, Bézout's theorem, multiplicative functions such as sums of divisors; arithmetic in the ring $\mathbb{Z}/n\mathbb{Z}$ and the field $\mathbb{Z}/p\mathbb{Z}$, Euler's totient function, Chinese remainder theorem, multiplicative order and primitive roots; sums of squares, quadratic forms, discriminant, class number; and continued fractions, expansion of rationals and quadratic irrationals, Diophantine approximation, and Pell-Fermat equations.

Language(s) of Instruction

English

Host Institution Course Number

MAU23101

Host Institution Course Title

INTRODUCTION TO NUMBER THEORY

Host Institution Campus

Trinity College Dublin

Host Institution Faculty

Host Institution Degree

Host Institution Department

Mathematics

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