

# COURSE DETAIL

## NUMERICAL ANALYSIS I

**Country**

Ireland

**Host Institution**

University of Galway

**Program(s)**

University of Galway

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Mathematics

**UCEAP Course Number**

112

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

NUMERICAL ANALYSIS I

**UCEAP Transcript Title**

NUMERICAL ANALYSIS 1

**UCEAP Quarter Units**

4.00

**UCEAP Semester Units**

2.70

## Course Description

This course emphasises the mathematics used to design numerical methods, and to analyze their properties. Students also experiment with implementing algorithms in MATLAB/Octave. The course covers Newton's method and other techniques for solving nonlinear equations; Runge-Kutta methods; numerical methods for solving systems of linear equations and their analysis, including the role played by matrix norms; and estimation of eigenvalues and eigenvectors (power method, Rayleigh quotient and Gerschgorin's circles). Various applications of these methods are presented, including financial modeling, and generating fractals.

## Language(s) of Instruction

English

## Host Institution Course Number

MA385

## Host Institution Course Title

NUMERICAL ANALYSIS I

## Host Institution Campus

National University of Ireland, Galway

## Host Institution Faculty

## Host Institution Degree

## Host Institution Department

Mathematics

[Print](#)