

# COURSE DETAIL

## INTRODUCTION TO NUMERICAL ANALYSIS

**Country**

United Kingdom - England

**Host Institution**

Imperial College London

**Program(s)**

Imperial College London

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Mathematics

**UCEAP Course Number**

150

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

INTRODUCTION TO NUMERICAL ANALYSIS

**UCEAP Transcript Title**

NUMERICAL ANALYSIS

**UCEAP Quarter Units**

5.00

**UCEAP Semester Units**

3.30

## Course Description

This applied analysis course leads to an introduction to some of the standard algorithms in numerical analysis. Students explore orthogonality, alongside inner/outer products on  $R^n$ ; linear dependence/independence; orthogonal/orthonormal vectors; classical Gram-Schmidt; orthogonal matrices; Givens rotations, QR factorization, and Cauchy-Schwartz inequality. The course also covers gradients/Hessians, exploring Taylor series for  $f: R^n \rightarrow R$ ; classification of stationary points; positive definite matrices; generalized inner products on  $R^n$ ; and Cholesky factorization of symmetric positive definite matrices.

## Language(s) of Instruction

English

## Host Institution Course Number

M2AA3

## Host Institution Course Title

INTRODUCTION TO NUMERICAL ANALYSIS

## Host Institution Course Details

<http://www.imperial.ac.uk/computing/current-students/courses/M2AA3/>

## Host Institution Campus

Imperial College London

## Host Institution Faculty

## Host Institution Degree

## Host Institution Department

Mathematics

## Course Last Reviewed

2019-2020

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