

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 \mathbb{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 $f: \mathbb{R}^n \rightarrow \mathbb{R}$; classification of stationary points; positive definite matrices; generalized inner products on \mathbb{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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