

# COURSE DETAIL

## ESSENTIALS OF ANALYSIS AND PROBABILITY

**Country**

United Kingdom - Scotland

**Host Institution**

University of Edinburgh

**Program(s)**

University of Edinburgh

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Statistics Mathematics

**UCEAP Course Number**

148

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

ESSENTIALS OF ANALYSIS AND PROBABILITY

**UCEAP Transcript Title**

ANALYSIS&PROBABILITY

**UCEAP Quarter Units**

4.00

**UCEAP Semester Units**

2.70

## Course Description

The course covers many of the following topics: Random events, sigma-algebras, monotone classes. Measurable spaces, random variables - measurable functions. Measures, probability measures, signed measures. Borel sets in  $\mathbb{R}^d$ , Lebesgue measure. Caratheodory extension theorem. Sequences of events and random variables, Borel-Cantelli lemma. Distributions of random variables. Independence of random variables. Integral of measurable functions - mathematical expectation,. Moments of random variables,  $L_p$  spaces. Convergence concepts of measurable functions. Limit theorems for integrals. Weak and strong laws of large numbers. Completeness of  $L_p$  spaces. Conditional expectation and conditional distribution of random variables. Fubini's theorem.

## Language(s) of Instruction

English

## Host Institution Course Number

MATH10047

## Host Institution Course Title

ESSENTIALS OF ANALYSIS AND PROBABILITY

## Host Institution Course Details

<http://www.drps.ed.ac.uk/23-24/dpt/cxmath10047.htm?code=MATH10047AC>

## Host Institution Campus

## Host Institution Faculty

School of Mathematics

## Host Institution Degree

## Host Institution Department

## Course Last Reviewed

2023-2024

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