

COURSE DETAIL

MONTE CARLO SIMULATIONS

Country

United Kingdom - England

Host Institution

University of Sussex

Program(s)

University of Sussex

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Physics Mathematics

UCEAP Course Number

161

UCEAP Course Suffix**UCEAP Official Title**

MONTE CARLO SIMULATIONS

UCEAP Transcript Title

MONTE CARLO SIMULTN

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

Monte Carlo simulations are a powerful computational technique for probabilistic and deterministic problems with applications to various fields including computer science, finance, economics, engineering, mathematics, and physics. The initial part of the course is about computer-simulated randomness and begins with pseudo-random generators and simulating one-dimensional random variables. From the moment that we can simulate one random variable, we can simulate a whole discrete process, such as Markov chains and use the simulations to extract statistical results of their equilibria. The course also explores applications in Physics via the Ising model and in Statistics via the goodness of fit tests. The course is a mixture of coding with probability theory, and students use the R software for the simulations.

Language(s) of Instruction

English

Host Institution Course Number

G5220

Host Institution Course Title

MONTE CARLO SIMULATIONS

Host Institution Course Details

<https://www.sussex.ac.uk/study/modules/undergraduate/2026/94739-monte-carlo-sim...>

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

Course Last Reviewed

2025-2026

[Print](#)