

COURSE DETAIL

GROUPS AND SYMMETRIES

Country

United Kingdom - England

Host Institution

King's College London

Program(s)

King's College London

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Mathematics

UCEAP Course Number

136

UCEAP Course Suffix**UCEAP Official Title**

GROUPS AND SYMMETRIES

UCEAP Transcript Title

GROUPS&SYMMETRIES

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

This course provides an understanding of group theory and some of its applications. In this course, students work with cyclic groups, permutation groups, dihedral groups, equivalence classes, cosets, Lagrange's theorem, and direct product groups; are introduced to quotient groups, construct the groups of low order, learn about the conjugation map, and construct conjugacy classes; meet the classical matrix groups, which are examples of continuous (or Lie) groups; work with group homomorphisms, isomorphisms, automorphisms, normal subgroups, kernels of homomorphisms, and prove and make extensive use of the group homomorphism theorem (also known as the first isomorphism theorem); learn about the semi-direct product and semi-direct product groups; construct and investigate the Euclidean group; investigate the geometric structure of some of the classical matrix groups, in particular $SU(2)$ and $SO(3)$; work with group actions on sets, stabilisers and orbits; and prove the Sylow theorems.

Language(s) of Instruction

English

Host Institution Course Number

5CCM232A

Host Institution Course Title

GROUPS AND SYMMETRIES

Host Institution Course Details

<https://www.kcl.ac.uk/abroad/module-options/groups-and-symmetries-1>

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

Mathematics

Course Last Reviewed

2024-2025

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