

COURSE DETAIL

SYMMETRIES OF QUANTUM MECHANICS

Country

United Kingdom - Scotland

Host Institution

University of Edinburgh

Program(s)

University of Edinburgh

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Physics

UCEAP Course Number

102

UCEAP Course Suffix**UCEAP Official Title**

SYMMETRIES OF QUANTUM MECHANICS

UCEAP Transcript Title

SYMMETRS QUANT MECH

UCEAP Quarter Units

4.00

UCEAP Semester Units

2.70

Course Description

Building on the material presented in the Quantum Mechanics course, this course introduces the basic mathematical tools of quantum mechanics with a special emphasis on the connection between physical phenomena and mathematical modeling. The Hilbert space of physical states is reviewed as a particular case of a linear vector space. General properties of representation theory are discussed for the case of finite groups and are applied to quantum mechanical systems. Representations of the continuous groups $U(1)$, $SO(3)$, and $SU(2)$ are presented and discussed in relation with invariance under translations and rotations. The general theory of angular momentum is introduced and applied to cases of physical interest. Quantum mechanical results are compared to their classical counterparts for a number of physical systems.

Language(s) of Instruction

English

Host Institution Course Number

PHYS10083

Host Institution Course Title

SYMMETRIES OF QUANTUM MECHANICS

Host Institution Course Details

<https://www.ed.ac.uk/global/study-abroad/course/index.php?year=18-19&browseby=s...>

Host Institution Campus

Edinburgh

Host Institution Faculty

Host Institution Degree

Host Institution Department

Physics and Astronomy

Course Last Reviewed

2019-2020

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