

COURSE DETAIL

STATISTICAL MECHANICS AND THERMODYNAMICS

Country

Hong Kong

Host Institution

University of Hong Kong

Program(s)

University of Hong Kong

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Physics

UCEAP Course Number

150

UCEAP Course Suffix**UCEAP Official Title**

STATISTICAL MECHANICS AND THERMODYNAMICS

UCEAP Transcript Title

STATISTIC MECHANICS

UCEAP Quarter Units

5.00

UCEAP Semester Units

3.30

Course Description

This course discusses statistical mechanics and thermodynamics in the advanced undergraduate level with vigorous mathematical treatment. It serves as a core course for physics major students as well as an elective core for those who are interested to gain a deep understanding of statistical mechanics and thermodynamics and to apply related techniques in their own majors. This is also an essential course for those who plan to pursue postgraduate studies in physics or related disciplines. Both conceptual ideas and mathematical treatment are emphasized. Topics include: Elements of Ensemble Theory, Boltzmann, Fermi and Bose-Einstein statistics. Partition function and the laws of Thermodynamics. Disorder and entropy; concept of temperature; the free energy. Density of states. Classical gas, electrons in metals, and black body radiation. Heat capacities. Thermal properties of magnetic systems. Assessment: assignments, final exam, test, lab reports.

Language(s) of Instruction

English

Host Institution Course Number

PHYS3550

Host Institution Course Title

STATISTICAL MECHANICS AND THERMODYNAMICS

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

Physics

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