Advanced Physical Chemistry (I)

Credits: 3

Lecturer: Lu, Chun-Yi 陸駿逸教授

Classroom: Room 121, Dept of Chemistry, NTU

Class hour: Wednesday 9:10-12:20

Introduction:

This course covers the principles and methods of equilibrium statistical mechanics for applications to chemical physics problems. The lectures will be divided into three parts: 1/4 on a review of thermodynamics principles, 1/4 on the concepts of ensemble theory and thermodynamic fluctuations, and the last 1/2 with applications to chemical systems.

Planned topics: laws of thermodynamics, thermal equilibrium and temperature, ensemble theory, entropy, non-interacting systems, Monte Carlo method, Ising models, phase equilibria, chemical equilibrium, imperfect gases, classical liquids, ionic and non-ionic solutions, biological systems, quantum statistics.

Recommended reference book

Statistical Mechanics by Donald Allan McQuarrie, University Science Books; 2nd edition [MQ]