

## ***CBC 731 Quantum Mechanics – A time-dependent perspective***

### **Aims and Objectives**

To provide the concepts for a time-dependent perspective of quantum mechanics and to cover the modern applications in ultrashort pulse spectroscopy and molecular reaction dynamics.

### **Syllabus**

Time-dependent Schrödinger equation; free particle wave packet; gaussian wave packet; Ehrenfest Theorem; Wigner representation; time-dependent perturbation theory; correlation functions and spectra; approximation methods and numerical methods; molecular dynamics; wave packet approach to one- and two-photon electronic spectroscopy; femtosecond spectroscopy; wave packet approach to reactive scattering.

### **Assessment**

Written Exam: 40%

Continuous assessment: 60%

### **Prerequisites**

CBC 314 Physical and Biophysical Chemistry 2 or Division approval