

PHASM426, Advanced Quantum Theory or equivalent is required. In particular knowledge of abstract vector space formalism, the difference between the Schrödinger, Heisenberg and interaction pictures, perturbation theory, raising and lowering operators. Familiarity with Dirac notation for quantum mechanics will be assumed.

PHAS3424, Dynamical Systems is recommended, particularly Lagrangian and Hamiltonian formalism of classical mechanics, though this will be repeated briefly at the beginning of the course.

PHASM442 is recommended. In particular a familiarity with relativistic kinematics is required and a knowledge of cross sections, luminosity and relativistic quantum mechanics (Klein-Gordon and Dirac) equations is desirable. Experience of the description of electromagnetism in terms of four vectors is also highly recommended, as covered at the end of PHAS3201.

PHAS2246. A good understanding of most of the material in this course is essential. In particular linear vector spaces, eigenvalues and eigenvectors, and Fourier transformations.

PHAS2423, Mathematics for Physics and Astronomy, is highly recommended. In particular more detailed knowledge of Fourier transforms, delta functions and Green's functions.

MATH6202 is recommended. A knowledge of complex analysis is useful, but not essential. Calculus of variations is also useful, but not essential -- it will be briefly covered at the beginning of the course.