aims & objectives

The course aims to provide an understanding of the physical processes occuring in stars and responsible for their internal structure and evolution from the main sequence to white dwarfs, neutron stars and black holes. It builds on *Introduction to Astrophysics* (PHY104), and seeks to explain the evolutionary phenomena described in *Our Evolving Universe* (PHY111). Topics treated include the equations of stellar structure, the state of stellar material, simple stellar models, energy generation, energy transport, and the evolution of stars. On successful completion of this half-module you should be able to:

- identify the main physical processes which determine the structure of stars and the equations which must be solved in order to find the details of this structure;
- assess the state of stellar material, including the effects of relativity and quantum degeneracy;
- build simple stellar models and understand their value and their limitations;
- describe how energy is generated and transported in stars;
- explain the evolution of main and post-main sequence stars, including their ultimate evolution into white dwarfs, neutron stars and black holes.