

# University of Pretoria Yearbook 2017

## Particle and astroparticle physics 310 (PHY 310)

**Qualification** Undergraduate

**Faculty** [Faculty of Natural and Agricultural Sciences](#)

**Module credits** 18.00

**Programmes** [BSc Physics](#)

**Prerequisites** PHY 255 and PHY 263 and PHY 356

**Contact time** 2 lectures per week, 1 practical per week, 1 discussion class per week

**Language of tuition** Module is presented in English

**Academic organisation** Physics

**Period of presentation** Semester 2

### Module content

Relativistic kinematics, fundamentals of elementary particle physics, the four forces of nature and the Standard Model, beyond the Standard Model, early universe cosmology (inflation, baryogenesis), the Cosmic Microwave Background, high-energy astronomy (cosmic rays, gamma rays and neutrinos), gravitational waves, dark matter (evidence, candidates, detection), dark energy and the Standard Cosmological Model.

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.