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# University of Pretoria Yearbook 2018

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## Particle and astroparticle physics 310 (PHY 310)

**Qualification** Undergraduate

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

**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.

**Module credits** 18.00

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

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

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

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

**Department** Physics

**Period of presentation** Semester 2

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