

University of Pretoria Yearbook 2021

Particle and astroparticle physics 310 (PHY 310)

Qualification Undergraduate

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

Module credits 18.00

NQF Level 07

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

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.

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