

# PHYS 3006 CLASSICAL PHYSICS

**Credit Points** 10

**Legacy Code** 301262

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**Description** This unit covers the key components of classical physics to the advanced level expected of a physics major. Newtonian mechanics will focus on realistic problems, in three dimensions and in the presence of friction and drag. Electromagnetism introduces Maxwell's equations, and applies them in the presence of matter. Thermodynamics is presented rigorously, focusing on the most general forms of the first and second laws. We will also introduce the basic elements of statistical physics. Fluids and waves will introduce the basic equations of fluids, and in particular the full (PDE) wave equation and its solution.

**School** Science

**Student Contribution Band** HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 3 subject

**Pre-requisite(s)** PHYS 1006

**Incompatible Subjects** CHEM 2003 Classical Physics and Applied Technologies

## Assumed Knowledge

Introductory mechanics: Newton's laws, work, conservation of energy and momentum. Introductory Electrostatics: Electric forces and Coulomb's law. Introduction to Magnetic fields: production by magnets & currents, magnetic forces on currents & charges; Induced EMF and Faraday's law. Basic thermodynamic principles of heat, energy and temperature. Mathematics: integral and differential calculus, vectors.

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/ Group Task
Quiz	60 minutes	25	N	Individual
Lab Reports x 6	500 words each	25	N	Individual
Final Examination	2 hours	50	Y	Individual

Teaching Periods

## 2022 Semester 1

### Campbelltown

#### Day

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View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=PHYS3006\\_22-AUT\\_CA\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=PHYS3006_22-AUT_CA_D#subjects))