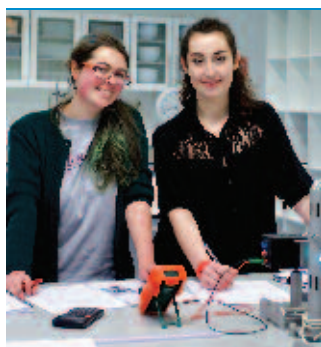


Physics

CAO code: DN200 Option: Mathematical, Physical & Geological Sciences (MPG)



A measure of Planck's constant: Niamh Maher and Sadhbh O'Toole in a laboratory session for the Frontiers of Physics module.
Image by Niall Hayes © UCD

- Learn how to investigate the physical world from the outermost reaches of the universe to the innermost parts of the atom
- Develop skills in how to interpret the physical world, carry out experiments and compare results critically with predictions from theory



I completed the Advanced Laboratory Development internship in the UCD School of Physics in the Summer of 2013 when I was in the third year of my degree. I tested new laboratories and modified them to make use of equipment already available in the lab. I spent a large part of the internship modifying third year electronics laboratories to include the use of Arduino.

Olivia Carrington, Student



Sample pathway for a degree in Physics *

YEAR 1

ENGAGE WITH THE PRINCIPLES

PHYSICS

Topics include:

- Foundations of Physics
- Frontiers of Physics
- Thermal Physics and Materials

MATHEMATICS

Topics include:

- Calculus in the Mathematical and Physical Sciences
- Linear Algebra in the Mathematical and Physical Sciences

APPLIED & COMPUTATIONAL MATHEMATICS

Topics include:

- Applied Mathematics: Mechanics and Methods

- Two Elective modules
- One Small-Group Project

YEAR 2

CHOOSE YOUR SUBJECTS

PHYSICS

Topics include:

- Electronics and Devices
- Introductory Quantum Mechanics
- Fields, Waves and Light
- Methods for Physicists

Physics students also study the following topics in Mathematics:

- Calculus of Several Variables
- Vector Integral & Differential Calculus
- Computational Science

PHYSICS WITH ASTRONOMY & SPACE SCIENCE

Topics include:

- Astronomy & Space Science
- Exploring the Solar System

- Two Elective modules

YEAR 3

FOCUS ON YOUR CHOSEN SUBJECT

PHYSICS – Topics include:

- Classical Mechanics & Relativity
- Optics & Lasers
- Electromagnetism
- Advanced Laboratory

- Thermodynamics & Statistical Physics
- Nuclear Physics
- Quantum Mechanics
- Stellar Astrophysics & Astronomical Techniques

- Two Elective modules

YEAR 4

REFINE YOUR KNOWLEDGE

PHYSICS – Topics include:

- Applied Quantum Mechanics
- Advanced Quantum Mechanics
- Applied Optics
- General Relativity & Cosmology
- High Energy Particle Physics

- Advanced Laboratory
- Computational Biophysics
- Theoretical Astrophysics
- Condensed Matter Physics
- Medical Physics

- Galaxies & Observational Cosmology
- Quantum Field Theory
- Advanced Statistical Physics

BSc (Honours) Physics

MSc (Taught)

- MSc Nanobio Science
- MSc Meteorology
- MSc Space Science and Technology
- MSc Research
- MSc Physics by Negotiated Learning
- MSc Nano Technology
- MSc Applied Mathematics and Computational Physics
- MSc Computational Physics

PhD

- Students can pursue a PhD in universities in Ireland or abroad in areas as diverse as atomic physics, computational nanobio physics, particle physics, biophysics, nuclear physics, medical physics, theoretical physics and astrophysics

Industry

- Energy Technology Sector
- Medical Physics & Biotechnology
- Material Science & Nanotechnology
- Geoscience & Exploration
- ICT Industry
- Financial Sector
- Meteorology

Conversion Courses

- Professional Master of Education (PME)
- MA Economics
- Graduate Medicine
- Master in Business Administration
- Master in Management

*See page 42 for more information on subject choices. Potential combinations shown here are examples only and are not guaranteed by UCD. Topics are subject to change each year.



Professor Gerry O'Sullivan & Dr Emma Sokell
UCD School of Physics

gerry.osullivan@ucd.ie/
emma.sokell@ucd.ie
+353 1 716 2514
facebook.com/UCDSscience

