Brief summary of Stage 1 (first year) Physics modules in DN200 Science

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There are 6 Physics modules on offer to Stage 1 Science students. With two of these modules scheduled at the same time, students can take a maximum of 3 physics modules in the first trimester and 2 in the second trimester. However, some of these modules can also be taken in 2nd year – students should consult with staff to balance their interests in Physics with their other Science subjects.

PHYC10070 Foundations of Physics (Trimester 1)

Must be taken if you have below a H5 in Leaving Cert Physics (or equivalent) and want to study further Physics in your degree. Can't be taken with PHYC10210.

This module provides an introduction to fundamental concepts in physics; Newton's laws, work, energy, sound, light, thermal physics, electricity and magnetism.

PHYC10210 Quanta, Particles and Relativity (Trimester 1)

Recommended that students have at least a H5 in Leaving Cert Physics (or equivalent). Can't be taken with PHYC10070. Can be taken in second year.

This module provides a thorough introduction to Special Relativity and its application to laboratory and astrophysical problems.

PHYC10050 Astronomy & Space Science (Trimester 1)

Must be taken in first or second year to study Physics with Astronomy and Space Science in second year.

This module provides an introduction to astronomy including the solar system, extrasolar planets, the sun, stellar evolution, black holes and the Big Bang.

PHYC20080 Fields, Waves and Light (Trimester 1)

Must be taken in first or second year. Students must have a minimum H3 in both Leaving Cert Physics and Maths (or equivalent) to take this module in first year.

This module covers wave phenomena in physics including charges and currents as sources of electric and magnetic fields and their unification in electromagnetic waves and light.

PHYC10080 Frontiers of Physics (Trimester 2)

Must be taken in first year in order to study physics in second year.

This module introduces Special Relativity and the basis for the Theory of Quantum Mechanics with applications in atomic, nuclear and particle physics.

PHYC10250 Thermal Physics and Materials (Trimester 2)

Must be taken in first or second year. Students must have either taken PHYC10070 or achieved a minimum H5 in Leaving Cert Physics (or equivalent).

This module introduces the laws of thermodynamics, applies them to a number of physical systems and shows the connection between the mechanics of atoms and molecules and the bulk properties of matter.

Remaining core modules for Physics degrees

In addition to the Physics requirements on the previous page, students intending to study Physics in second year must also meet the following requirements in first year.

SCI10010 Scientific Enquiry (Trimester 1)
This project module must be taken in first year.

MATH10340 Linear Algebra in the Mathematical and Physical Sciences (Trimester 2)
Must be taken in first year.

ACM10080 Applied Mathematics (Trimester 1)
Must be taken in first year by students who do not have at least an H5 in Leaving Cert Applied Maths (or equivalent).

MATH10350 Calculus in the Mathematical and Physical Sciences (Trimester 1)
Must be taken in first year by students with at least an H5 or O1 in Leaving Cert Maths (or equivalent). Students below an H5 or O1 must take MATH00010 and then do MATH10400 (instead of MATH10350) in trimester 3, to count towards second year.

ACM10060 Applications of Differential Equations (Trimester 2)
Must be taken in first year by students who wish to study Theoretical Physics in second year.
Must be taken in first or second year for other Physics Programmes.

Overall Stage 1 Choices

It is a particular strength of UCD Science that in first year students with both a relatively specialised range of interests (e.g. Physics, Applied Maths & Maths) and those with wide interests (e.g. Physics, Chemistry & Biology) can be accommodated. The important principle is to make modules choices that, while they must comply with the rules of the programme, suit your individual interests and leave open to you the second year subjects that interest you most. Here are some general pointers.

- Make good use of the **Stage 1 Guide** and the online information.
- Attend the on-line **Orientation/Academic Advisory session**.
- **All students take at least two maths modules in first year**. If you take those required for the physics degrees (MATH10340 and MATH10350) then these also fulfill the requirements for Biology and Chemistry.
- **If you intend to study Physics and Chemistry in second year**, you should take either PHYC20080 or CHEM20080 in stage 1 and ensure that you can take all requisite modules in stage 2.
- **If you intend to study Physics with Astronomy and Space Science and Applied and Computational Mathematics in second year**, you should take MATH10320 in first year.
- You have two weeks at the beginning of the first trimester to finalise your choices, and the module selection for the second trimester reopens in January.
- ***Communicate with us – we're here to help!***