

Physics, Mathematics & Education

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



APPROVED
DEGREE



Students discussing how to prepare a Physics class.

Sample pathway to become a Physics and Mathematics teacher *

YEAR
1

ENGAGE WITH THE PRINCIPLES

EDUCATION

Topics include:

- ▶ Introduction to Mathematics Pedagogy

PHYSICS

Topics include:

- ▶ Foundations of Physics
- ▶ Frontiers of Physics

MATHEMATICS

Topics include:

- ▶ Linear Algebra
- ▶ Calculus
- ▶ Applications of Differential Equations
- ▶ Statistical Modelling

* SCIENCE

- ▶ Biology
- ▶ Chemistry

- ▶ One Small-Group Project
- ▶ Elective Modules

YEAR
2

CHOOSE YOUR SUBJECTS

EDUCATION

Topics include:

- ▶ Education Issues and Ideas
- ▶ Science and Mathematics Pedagogy

PHYSICS

Topics include:

- ▶ Quantum Mechanics
- ▶ Electromagnetism and Optics
- ▶ Fields, Waves and Light
- ▶ Methods for Physicists
- ▶ Thermal Physics

MATHEMATICS

Topics include:

- ▶ Vector Integral and Differential Calculus
- ▶ Calculus of Several Variables
- ▶ Analysis

- ▶ Elective Modules

YEAR
3

REFINE YOUR KNOWLEDGE

EDUCATION

Topics include:

- ▶ Collaborative Pedagogy in Mathematics Education
- ▶ Schools and Society

SCHOOL PLACEMENT

- ▶ Post-Primary Placement
- ▶ Peer-Assisted Tutoring
- ▶ Small Group Tutoring

PHYSICS

Topics include:

- ▶ Classical Mechanics and Relativity
- ▶ Quantum Mechanics
- ▶ Electromagnetism
- ▶ Nuclear Physics
- ▶ Laboratory Skills

MATHEMATICS

Topics include:

- ▶ Algebraic Structures
- ▶ Probability Theory

YEAR
4

PREPARE FOR PROFESSIONAL PRACTICE

EDUCATION

Topics include:

- ▶ Pedagogical Approaches to Mathematics and Science
- ▶ Psychology for Teaching and Learning

SCHOOL PLACEMENT

- ▶ Year-Long Placement in Post-Primary School
- ▶ Classroom Teaching
- ▶ Broad Experience of Wider School Context

PHYSICS AND MATHEMATICS

Topics include:

- ▶ Particle Physics
- ▶ Differential Equations with Computer Algebra
- ▶ Geometry
- ▶ Complex Analysis
- ▶ History of Mathematics

BSc Physics, Mathematics & Education

YEAR
5

PREPARE FOR PROFESSIONAL PRACTICE

EDUCATION

Topics include:

- ▶ Research Methods
- ▶ Professional Dissertation

SCHOOL PLACEMENT

- ▶ Year-Long Placement in Post-Primary School
- ▶ Experience Both Teaching and Non-Teaching Activities
- ▶ Further Development of Professional Practice Portfolio

MSc Mathematics and Science Education

Post-Primary
School
Teacher

QUALIFIED TO TEACH

Physics
Leaving Certificate

Mathematics
Leaving Certificate

Science
Junior Certificate

“ The Science DN200 course was a perfect option for me as it allowed me to study all the sciences in first year before concentrating on my chosen pathway of Physics, Maths & Education. I plan to further my studies to MSc level where I hope to qualify as a post-primary education teacher. Such is the flexibility of this course, however, that many other options are still available to me in both Maths and Physics. UCD offers many opportunities for students to get involved. I have been a member of UCD GAA club since first year and play with the Men's Gaelic Football Team. It is a good way of getting a break from time spent studying.

Jim Rossiter, Student



*See pages 4 and 5 for information on the terminology used above. Potential combinations shown here are examples only and are not guaranteed by UCD. Topics are subject to change each year.



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