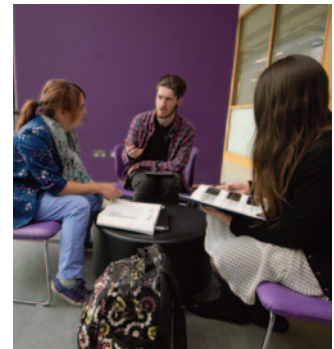
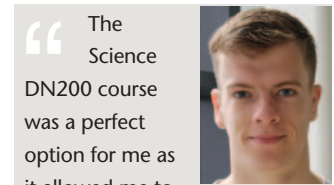


# Physics, Mathematics & Education

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



Students discussing how to prepare a Physics class.



“ 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 ”

## Sample pathway to become a Physics and Mathematics teacher \*

### YEAR 1 ENGAGE WITH THE PRINCIPLES

<b>EDUCATION</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Mathematics &amp; Science Education &amp; Communication</li> </ul>	<b>PHYSICS</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Foundations of Physics</li> <li>▶ Frontiers of Physics</li> </ul>	<b>MATHEMATICS</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Linear Algebra</li> <li>▶ Calculus</li> <li>▶ Applications of Differential Equations</li> <li>▶ Statistical Modelling</li> </ul>	<b>SCIENCE</b> <ul style="list-style-type: none"> <li>▶ Biology</li> <li>▶ Chemistry</li> </ul> <hr/> <ul style="list-style-type: none"> <li>▶ One Small-Group Project</li> <li>▶ Elective Module</li> </ul>
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### YEAR 2 CHOOSE YOUR SUBJECTS

The subject combinations listed below are illustrative of what a student who graduates in Physics, Mathematics & Education could choose in Year 2. Further subject combinations are possible depending on the choices in Year 1. Further information is available on page 19.

<b>EDUCATION</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Education for Democracy</li> <li>▶ Science and Mathematics Pedagogy</li> </ul>	<b>PHYSICS</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Quantum Mechanics</li> <li>▶ Electromagnetism and Optics</li> <li>▶ Fields, Waves and Light</li> <li>▶ Methods for Physicists</li> <li>▶ Thermal Physics</li> </ul>	<b>MATHEMATICS</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Vector Integral and Differential Calculus</li> <li>▶ Calculus of Several Variables</li> <li>▶ Analysis</li> </ul>	<ul style="list-style-type: none"> <li>▶ Two Elective Modules</li> </ul>
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### YEAR 3 REFINE YOUR KNOWLEDGE

<b>EDUCATION</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Teaching Second-Level Science</li> <li>▶ Schools and Society</li> </ul>	<b>SCHOOL PLACEMENT</b> <ul style="list-style-type: none"> <li>▶ Post-Primary Placement</li> <li>▶ Peer-Assisted Tutoring</li> </ul>	<b>PHYSICS</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Classical Mechanics and Relativity</li> <li>▶ Quantum Mechanics</li> <li>▶ Electromagnetism</li> <li>▶ Nuclear Physics</li> <li>▶ Laboratory Skills</li> </ul>	<b>MATHEMATICS</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Algebraic Structures</li> <li>▶ Probability Theory</li> </ul>
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### YEAR 4 PREPARE FOR PROFESSIONAL PRACTICE

<b>EDUCATION</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Psychology for Teaching and Learning</li> <li>▶ Pedagogical Approaches to Mathematics and Science</li> </ul>	<b>SCHOOL PLACEMENT</b> <ul style="list-style-type: none"> <li>▶ Year-Long Placement in Post-Primary School</li> <li>▶ Classroom Teaching</li> <li>▶ Broad Experience of Wider School Context</li> </ul>	<b>MATHEMATICS</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Particle Physics</li> <li>▶ Group Theory</li> <li>▶ Geometry</li> <li>▶ Complex Analysis</li> <li>▶ History of Mathematics</li> </ul>
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## BSc Physics, Mathematics & Education

### YEAR 5 PREPARE FOR PROFESSIONAL PRACTICE

<b>EDUCATION</b> <i>Modules include:</i> <ul style="list-style-type: none"> <li>▶ Research Methods</li> <li>▶ Professional Dissertation</li> </ul>	<b>SCHOOL PLACEMENT</b> <ul style="list-style-type: none"> <li>▶ Year-Long Placement in Post-Primary School</li> <li>▶ Continuous Professional Development Activities</li> <li>▶ Further Development of Professional Practice Portfolio</li> </ul>
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## MSc Mathematics and Science Education

QUALIFIED TO TEACH			
Post-Primary School Teacher	Physics	Mathematics	Science
	Leaving Certificate	Leaving Certificate	Junior Certificate

\*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. Modules are subject to change each year.