



Applied & Computational Mathematics

DN200

Stream: Mathematical, Physical & Geological Sciences (MPG)

Sample pathway for Applied & Computational Mathematics*

<p>YEAR 1</p>	<p>YEAR 2</p>	<p>YEAR 3</p>	<p>YEAR 4</p>
<p>Engage with the principles</p>	<p>Choose your subjects</p>	<p>Focus on your chosen subject</p>	<p>Refine your knowledge</p>
<p>First Year (Stage 1), students interested in Applied & Computational Mathematics must study modules in Mathematics, Applied & Computational Mathematics and Statistics. The Stage 1 (First Year) Guide details the modules required for each degree subject. Please email gary.dunne@ucd.ie if you have any questions.</p>	<p>In Second Year (Stage 2), the majority of MPG students study a minimum of two subjects but many students will study three subjects. The following is just one example of subjects you could combine with Applied & Computational Mathematics in Second Year.</p>	<p>In Third Year (Stage 3), students focus their studies on one degree subject.</p>	<p>In Fourth Year (Stage 4), students complete their undergraduate studies and in Applied & Computational Mathematics this will include a research project.</p>
<p><i>Modules available include:</i></p> <ul style="list-style-type: none"> - Applied Mathematics: Mechanics and Methods - Applications of Differential Equations - Calculus in the Mathematical and Physical Sciences - Mathematical Analysis - Linear Algebra in the Mathematical and Physical Sciences - Introduction to Statistical Modelling - One elective module - One small-group project 	<p>Applied & Computational Mathematics</p> <p><i>Modules include:</i></p> <ul style="list-style-type: none"> - Computational Science - Vector Integral and Differential Calculus - Oscillations and Waves - Classical Mechanics and Special Relativity <p>Mathematics</p> <p><i>Modules include:</i></p> <ul style="list-style-type: none"> - Linear Algebra 2 - Groups, Rings & Fields - Calculus of Several Variables <p>Statistics</p> <p><i>Modules include:</i></p> <ul style="list-style-type: none"> - Probability Theory - Inferential Statistics - One elective module 	<p>Applied & Computational Mathematics</p> <p><i>Modules include:</i></p> <ul style="list-style-type: none"> - Mathematical Biology - Dynamical Systems - Functions of One Complex Variable - Partial Differential Equations - Advanced Mathematical Methods - Mathematical Fluid Dynamics I - Foundations of Quantum Mechanics - Metric Spaces - Two elective modules 	<p>Applied & Computational Mathematics</p> <p><i>Modules include:</i></p> <ul style="list-style-type: none"> - Applied & Computational Mathematics Research Project - Differential Geometry - General Relativity and Black Holes - Advanced Computational Science - Electrodynamics and Gauge Theory - Mathematical Fluid Dynamics II - Maths of Machine Learning - Maths of Complex Networks - Survey of Applied & Computational Mathematics

Career & Study Opportunities

BSc (Honours) Applied & Computational Mathematics

<p>MSc (Taught)</p> <ul style="list-style-type: none"> - MSc Data & Computational Science - MSc Mathematical Science - MSc Applied Mathematics & Theoretical Physics - MSc Computational Physics 	<p>PhD</p> <p>Students can pursue a PhD in universities in Ireland or abroad in areas as diverse as:</p> <ul style="list-style-type: none"> - Data and Computational Science - Meteorology and Climate - Mathematical Biology - Fluid Mechanics - Dynamical Systems - General Relativity 	<p>Industry</p> <p>A wide variety of career opportunities are open with new application areas discovered constantly. Technology areas include:</p> <ul style="list-style-type: none"> - Data Analytics - Computing - Finance - Energy - Environment - Communication 	<p>Conversion Courses</p> <ul style="list-style-type: none"> - Professional Master of Education (PME) - Graduate Medicine - Master of Management - Graduate Veterinary Medicine
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*This pathway is an example only and is not guaranteed by UCD. Modules are subject to change each year.