

<script>dataLayer.push({'course_title': 'Applied & Computational Mathematics Joint Major (APJ1)'});</script>

<h1 class="pageTitle"> Applied & Computational Mathematics Joint Major (APJ1) </h1>
<h2> </h2>

<div style="text-align:center;padding-top:10px;"><p>Curricular information is subject to change</p></div>

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Vision and Values

Applied mathematics is the branch of mathematics focused on developing mathematical methods and applying them to solve real-world problems in science, engineering, industry and technology. Computational mathematics utilises computational techniques and simulations to produce problem-solving techniques and methodologies. This programme is aimed at students who wish to gain a deep understanding of the concepts of modern applied mathematics, and a mastery of the associated mathematical and computational skills. Our students will become autonomous learners capable of formulating and creatively solving relevant problems through techniques in mathematical and computational modeling. Our students will become flexible enough in their thinking and training to apply these techniques to a wide range of fields in the traditional application areas in the Physical Sciences, but also in emerging application areas, such as finance and biology. Our graduates will be in demand by employers and academic research institutes for their ability to use the tools they have learned to explain, describe and predict. We value students who are motivated to find the underlying physical causes for observations and patterns. We aim to provide a teaching and learning environment that develops confidence and independence through a wide variety of interactive formats, both inside and outside the classroom, including lectures, tutorials, on-line course material and computer assisted labs.

Subject Description

Programme Outcomes

- 1 - Demonstrate an indepth understanding of core mathematics and a solid knowledge of both abstract mathematics and statistics
- 2 - Demonstrate strong proficiency in mathematical and computational methods, including computer programming.
- 3 - Apply the tools of mathematical and computational methods, including computer programming to at least one application area which the students will have studied in depth
- 4 - Model real world problems in a mathematical framework, at the same time demonstrating a real understanding of the limitations of modeling and the restrictions imposed by modeling assumptions
- 5 - Use the language of logic to reason correctly and make deductions
- 6 - Approach problems in an analytical, precise and rigorous way
- 7 - Analyze and interpret data and model predictions, find patterns and draw conclusions
- 8 - Work independently and as part of a team
- 9 - Carry out research into a specific topic, including a survey and synthesis of the known literature
- 10 - Give oral presentations of technical mathematical material at a level appropriate for the audience
- 11 - Prepare a written report on technical mathematical content in clear and precise language

Non-standard Progression Requirements

Additional Standards for Continuation

Approved Additional Standards for Continuation in undergraduate degree programmes in Science (all majors):

Students who return failing grades in a semester amounting to 15 credits, or more, will be identified under the UCD Continuation and Readmission Policy. Students whose rate of progression and performance over two academic sessions (2 years) is deemed unacceptable will be referred to the Academic Council Committee on Student Conduct and Capacity for exclusion from the programme.

Understanding your Degree

Mapping your Degree

International Study Opportunities

Career Opportunities

Graduates with training in Applied & Computational Mathematics work in fields as diverse as:

- Physics: nanoscience, quantum optical processes in semiconductors and robotics
- Biology: biomedical applications, medical instrumentation and bio-information technology
- Finance
- Pharmaceutical industry
- Environmental agencies and companies
- Computing in business, technology, research and academia

Further Information & Contact Details

Major Information by Stage

Stage 3

Students take five core modules.

Stage 4

Students take 4 core modules. Students must also take 2 options from the option list below. Students who take ACM40750 must also take ACM40090.

View All Modules

Module ID	Module Title	Trimester	Credits
Stage 3 Core Modules			
		Autumn	5
		Autumn	5
		Spring	5
		Spring	5
		Spring	5
Stage 3 Options - A)MIN00F:Students who major jointly in Mathematics and Applied and Computational Mathematics share MATH30040 as a core module in Stage 3. These students can pick 1 option from the list below. Students must choose STAT20110 as an option if not previously taken in Stage 2.			
		Autumn	5
		Spring	5
Stage 4 Core Modules			
		Autumn	5
		Autumn	5
		Autumn	5
		Spring	5
Stage 4 Options - A)MIN00F:Students select at least 10 credits from the list below. Students take ACM40750 must also take ACM40090.			
		Autumn	5
		Autumn	5
		Autumn	5
		Autumn	5
		Autumn and Spring (separate)	5

View All Modules (continued)

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Degree GPA and Award Calculation Rules

See the UCD Assessment for further details

Module Weighting Info

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		Award		GPA	
Programme	Module Weightings	Rule Description	Description	>=	<=
BHSCI001	Stage 4 - 70.00% Stage 3 - 30.00%	Standard Honours Award	First Class Honours	3.68	4.20
			Second Class Honours, Grade 1	3.08	3.67
			Second Class Honours, Grade 2	2.48	3.07
			Pass	2.00	2.47

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UCD Course Search

Applied & Computational Mathematics Joint Major (APJ1) Academic Year 2019/2020

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<dt>School:</dt>

<dd>Mathematics & Statistics</dd>

<dt>Attendance:</dt>

<dd>Full Time</dd>

<dt>Level:</dt>

<dd>Undergraduate</dd>

<dt>NFQ Level:</dt>

<dd>8</dd>

<dt>Programme Credits:</dt>

Stage 1

Core/Option: 55

Electives: 5

Stage 2

Core/Option: 50

Electives: 10

Stage 3

Core/Option: 50

Electives: 10

Stage 4

Core/Option: 60

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Electives: 0
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<dt>Major/Minor Core & Option Credits:</dt>
<dd>Stage 3: 25
Stage 4: 30
</dd>
<dt>Mode of Delivery:</dt>
<dd>Face-to-Face</dd>
<dt>Programme Director:</dt>
<dd>Assoc Professor Edward Cox</dd>
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