



NUI Galway  
OÉ Gaillimh

College of Science

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# BSc EARTH & OCEAN SCIENCES



[www.nuigalway.ie/science](http://www.nuigalway.ie/science)

## Overview

Year 1	Year 2	Year 3	Year 4
<b>[60 Credits]</b>	<b>[60 credits]</b>	<b>[60 credits]</b>	<b>[60 credits]</b>
<p>There are 45 credits of Core modules.</p> <p>Choose one module to a value of 15 credits:</p> <ul style="list-style-type: none"> <li>Mathematics (Honours)</li> <li>Mathematical Studies</li> <li>Applied Mathematics</li> </ul>	<p>There are 25 credits of Core modules.</p> <p>Choose one Pathway to a value of 20 credits:</p> <ul style="list-style-type: none"> <li>Applied Mathematics</li> <li>Botany and Plant Science</li> <li>Chemistry</li> <li>Mathematical Studies</li> <li>Mathematics</li> <li>Microbiology</li> <li>Physics and Applied Physics</li> <li>Zoology</li> </ul> <p>Choose Electives to a value of 15 credits from the list available.</p>	<p>There are 50 credits of Core modules.</p> <p>Choose Electives up to a value of 10 credits from the list available.</p>	<p>There are 10 credits of core modules.</p> <p>Student are assigned one project module: EOS403 [20 credits] or EOS4102 [10 credits]</p> <p>Depending on the credit value of the project assigned, choose modules to a value of 20 or 30 credits from the list available.</p>
<p><b>Module Descriptors for Years 1 to 4 are available at: <a href="http://www.nuigalway.ie/science/undergraduate-courses/earthandoceansciences/#course_outline">http://www.nuigalway.ie/science/undergraduate-courses/earthandoceansciences/#course_outline</a></b></p>			

## BSc Earth and Ocean Sciences

Year 1	Year 2	Year 3	Year 4
[Core 45 credits; Options: 15 credits]	[Core: 25 credits; Pathway: 20 credits; Electives: 15 credits ]	[Core: 50 credits; Options: 10 credits]	[Core: 10 Credits; Options: 50 Credits]
<p><i>Full Year – Semester 1 and Semester 2</i></p> <p>MP180 <b>Applied Mathematics</b> [15]*</p> <p>BO101 <b>Biology</b> [15]</p> <p>CH130 <b>Chemistry: The World of the Molecule</b> [15]</p> <p>MA161 <b>Mathematical Studies</b> [15]*</p> <p>MA180 <b>Mathematics (Honours)</b> [15]*</p> <p>PH101 <b>Physics</b> [15]</p>	<p><i>Semester 1</i></p> <p>EOS213: <b>Introduction to Ocean Science</b> [10]</p> <p>-----</p> <p><i>Semester 2</i></p> <p>EOS2101 <b>Introduction to Field Skills</b> [5]</p> <p>EOS2102 <b>The Earth: From Core to Crust</b> [10]</p>	<p><i>Semester 1</i></p> <p>EOS305 <b>Introduction to Applied Field Hydrology</b> [5]</p> <p>EOS3106 <b>Minerals and Rocks under the Microscope</b> [5]</p> <p>EOS3103 <b>Palaeontology and Evolution</b> [5]</p> <p>EOS323 <b>Sediments and the Sedimentary Record</b> [5]</p> <p>EOS3105 <b>The Crystalline Crust</b> [5]</p> <p>-----</p> <p><i>Semester 2</i></p> <p>EOS304 <b>Aquatic Geochemistry</b> [5]</p> <p>EOS3102 <b>Environmental and Marine Geophysical Remote Sensing</b> [5]</p> <p>EOS3104 <b>Fieldskills Training</b> [5]</p> <p>EOS3101 <b>Geological Structures and Maps</b> [5]</p> <p>EOS303 <b>Ocean Dynamics</b> [5]</p>	<p><i>Semester 1</i></p> <p>EOS418 <b>Applied Field Hydrogeology</b> [5]*</p> <p>EOS4102 <b>EOS Minor Final Year Project</b> [10]*</p> <p>EOS405 <b>Fieldskills in Oceanography</b> [5]*</p> <p>EOS403 <b>Final Year Project</b> [20]*</p> <p>EOS402 <b>Global Change</b> [5]</p> <p>-----</p> <p><i>Semester 2</i></p> <p>EOS4103 <b>Advanced Fieldskills</b> [5]</p> <p>EOS409 <b>Biophysical Interactions in the Ocean</b> [5]*</p> <p>EOS4101 <b>Earth Observation and Remote Sensing</b> [5]*</p> <p>EOS407 <b>History of Life</b> [5]*</p> <p>EOS422 <b>Sedimentary Basins</b> [5]*</p>
* Select one 15-credit modules			* Assigned one project module: EOS403 [20] or EOS4102 [10] If allocated EOS4102, select elective modules to a value of 10 credits.

Module Descriptors for Years 1 to 4 are available at: [http://www.nuigalway.ie/science/undergraduate-courses/earthandoceansciences/#course\\_outline](http://www.nuigalway.ie/science/undergraduate-courses/earthandoceansciences/#course_outline)

## ELECTIVES

Year 1	Year 2	Year 3	Year 4
	<p><u>Full Year – Semester 1 and Semester 2</u></p> <p>FR252 French [10]</p> <p>GR224 Beginner’s German for Science [10]</p> <p>GR252 German [10]</p> <p>GR353 German [10]</p> <p>-----</p> <p><u>Semester 1</u></p> <p>BO202 Evolution and the Tree of Life [5]</p> <p>BO201 Molecular and Cellular Biology [5]</p> <p>BO2101 Scientific Writing Skills [5]</p> <p>BPS202 Fundamentals in Aquatic Plant Science [5]</p> <p>LN2210 Scileanna Gaeilge don Eolaíochta 1 [5]</p> <p>MA284 Discrete Mathematics [5]</p> <p>MA211 Calculus I [5]</p> <p>MA215 Mathematical Molecular Biology I [5]</p> <p>MP231 Mathematical Methods I [5]</p> <p>MP236 Mechanics I [5]</p> <p>ST2001 Statistics for Data Science I [5]</p> <p>-----</p> <p><u>Semester 2</u></p> <p>BPS203 Plant Diversity, Physiology &amp; Adaptation [5]</p> <p>LN2211 Scileanna Gaeilge don Eolaíochta 2 [5]</p> <p>MA203 Linear Algebra [5]</p> <p>MA212 Calculus II [5]</p> <p>MA216 Mathematical Molecular Biology II [5]</p>	<p><u>Full Year – Semester 1 and Semester 2</u></p> <p>FR365 Advanced French for Science [10]</p> <p>GR224 Beginner’s German for Science [10]</p> <p>GR252 German [10]</p> <p>GR353 German [10]</p> <p>-----</p> <p><u>Semester 1</u></p> <p>PAB3101 Soil Science [5]</p> <p>LN2210 Scileanna Gaeilge don Eolaíochta 1 [5]</p> <p>MA302 Complex Variable [5]</p> <p>MA313 Linear Algebra I [5]</p> <p>MA335 Algebraic Structures [5]</p> <p>MP231 Mathematical Methods I [5]</p> <p>MP345 Mathematical Methods I [5]</p> <p>PH328 Physics of the Environment I [5]</p> <p>ZO317 Evolutionary Biology [5]</p> <p>ZO319 Marine Zoology [5]</p> <p>-----</p> <p><u>Semester 2</u></p> <p>CS3101: Software for Mathematical Scientists and Educators [5]</p> <p>LN2211 Scileanna Gaeilge don Eolaíochta 2 [5]</p> <p>MP232 Mathematical Methods II [5]</p> <p>MP346 Mathematical Methods II [5]</p> <p>PH329 Physics of the Environment II [5]</p> <p>ZO318 Geographic Information Systems and Biostatistics [5]</p>	<p><u>Semester 1</u></p> <p>BPS402 Current Topics in Algal Research [5]</p> <p>BPS4103 Plant Cell [5]</p> <p>PAB4103 Climate Change, Plants &amp; Agriculture [5]</p> <p>ZO415 Biometry [5]</p> <p>ZO418 Phylogenetics &amp; Conservation [5]</p> <p>-----</p> <p><u>Semester 2</u></p> <p>BPS4104 Primary Productivity and Global Change [5]</p>
	<i>Continued...</i>		

Electives – *Continued*

	<p>MP232 <b>Mathematical Methods II</b> [5]</p> <p>MP237 <b>Mechanics II</b> [5]</p> <p>PAB2101 <b>AgriBiosciences</b> [5]</p> <p>ST2002 <b>Statistics for Data Science II</b> [5]</p>		

## BSc Earth and Ocean Sciences – Year 2 Pathways

Applied Mathematics	Botany and Plant Science	Chemistry Pathway	Mathematical Studies Pathway
[Pathway: 20 credits]	[Pathway: 20 credits]	[Pathway: 20 credits]	[Pathway: 20 credits]
<p><u>Semester 1</u></p> <p>MP231 Mathematical Methods I [5]</p> <p>MP236 Mechanics I [5]</p> <p>-----</p> <p><u>Semester 2</u></p> <p>MP232 Mathematical Methods II [5]</p> <p>MP237 Mechanics II [5]</p>	<p><u>Semester 1</u></p> <p>BO202 Evolution and the Tree of Life [5]</p> <p>BPS202 Fundamentals in Aquatic Plant Science [5]</p> <p>-----</p> <p>BO201 Molecular and Cellular Biology [5]</p> <p>-----</p> <p><u>Semester 2</u></p> <p>BPS203 Plant Diversity, Physiology and Adaptation [5]</p>	<p><u>Semester 1</u></p> <p>CH204 Inorganic Chemistry [5]</p> <p>CH203 Physical Chemistry [5]</p> <p>-----</p> <p><u>Semester 2</u></p> <p>CH205 Analytical and Environmental Chemistry [5]</p> <p>CH202 Organic Chemistry [5]</p>	<p><u>Semester 1</u></p> <p>MA211 Calculus I [5]</p> <p>MA284 Discrete Mathematics [5]</p> <p>-----</p> <p><u>Semester 2</u></p> <p>MA212 Calculus II [5]</p> <p>MA203 Linear Algebra [5]</p>

## BSc Earth and Ocean Sciences – Year 2 Pathways

Mathematics	Microbiology Pathway	Physics and Applied Physics Pathway	Zoology Pathway
[Pathway: 20 credits]	[Pathway: 20 credits]	[Pathway: 20 credits]	[Pathway: 20 credits]
<p><u>Semester 1</u></p> <p>MA284 Discrete Mathematics [5]</p> <p>MA2286 Differential Forms [5]</p> <p>-----</p> <p><u>Semester 2</u></p> <p>MA283 Linear Algebra [5]</p> <p>MA2287 Complex Analysis [5]</p>	<p><u>Semester 1</u></p> <p>MI202 Laboratory Skills in Microbiology I [5]</p> <p>BO201 Molecular and Cellular Biology (MCB) [5]</p> <p>-----</p> <p><u>Semester 2</u></p> <p>MI203 Laboratory Skills in Microbiology II [5]</p> <p>MI204 Microbes and the Environment [5]</p>	<p><u>Semester 1</u></p> <p>PH2101 Mechanics and Electromagnetism [5]</p> <p>PH2102 Physics Laboratory and Problem Solving I [5]</p> <p>-----</p> <p><u>Semester 2</u></p> <p>PH2103 Thermodynamics &amp; Atomic Physics [5]</p> <p>PH2104 Physics Laboratory and Problem Solving II [5]</p>	<p><u>Semester 1</u></p> <p>BO202 Evolution and the Tree of Life [5]</p> <p>BO201 Molecular and Cellular Biology [5]</p> <p>-----</p> <p><u>Semester 2</u></p> <p>ZO208 Invertebrate Biology [5]</p> <p>ZO209 Vertebrate Zoology [5]</p>