



OLLSCOIL NA GAILLIMHE  
UNIVERSITY OF GALWAY

Bachelor of Science Degree  
College of Science and Engineering  
2023/2024

# BSc EARTH AND OCEAN SCIENCES

[www.universityofgalway.ie/science-engineering/](http://www.universityofgalway.ie/science-engineering/)

# 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>

Year 1	Year 2	Year 3	Year 4
<b>[Core 45 credits; Options: 15 credits]</b>	<b>[Core: 25 credits; Pathway: 20 credits; Electives: 15 credits]</b>	<b>[Core: 50 credits; Options: 10 credits]</b>	<b>[Core: 10 Credits; Options: 50 Credits]</b>
<i>Full Year – Semester 1 and Semester 2</i>	<i>Semester 1</i>	<i>Semester 1</i>	<i>Semester 1</i>
MP180 Applied Mathematics [15]*	EOS213 Introduction to Ocean Science [10]	EOS305 Introduction to Applied Field Hydrology [5]	EOS418 Applied Field Hydrogeology [5]*
BO101 Biology [15]	<i>Semester 2</i>	EOS3107 Minerals, magmas and Metamorphism [10]	EOS4102 EOS Minor Final Year Project [10]*
CH130 Chemistry: The World of the Molecule [15]	EOS2101 Introduction to Field Skills [5]	EOS3103 Palaeontology and Evolution [5]	EOS4106 Fieldskills in Oceanography [5]*
MA161 Mathematical Studies [15]*	EOS2102 The Earth: From Core to Crust [10]	EOS323 Sediments and the Sedimentary Record [5]	EOS403 Final Year Project [20]*
MA180 Mathematics (Honours) [15]*		<i>Semester 2</i>	EOS402 Global Change [5]
PH101 Physics [15]		EOS304 Aquatic Geochemistry [5]	<i>Semester 2</i>
		EOS3102 Environmental and Marine Geophysical Remote Sensing [5]	EOS4103 Advanced Fieldskills [5]
		EOS3104 Fieldskills Training [5]	EOS409 Biophysical Interactions in the Ocean [5]*
		EOS3101 Geological Structures and Maps [5]	EOS4101 Earth Observation and Remote Sensing [5]*
		EOS303 Ocean Dynamics [5]	EOS4105 Economic Geology: principles, practice and sustainability [5]*
			EOS407 History of Life [5]*
			EOS422 Sedimentary Basins [5]*
* 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.

# Electives

Year 1	Year 2	Year 3	Year 4
	<p><i>Full Year – Semester 1 and Semester 2</i></p> <p>FR252 <b>French [10]</b> GR224 <b>Beginner's German for Science [10]</b> GR252 <b>German [10]</b> GR353 <b>German [10]</b></p> <p><i>Semester 1</i></p> <p>BO202 <b>Evolution and the Tree of Life [5]</b> BO201 <b>Molecular and Cellular Biology [5]</b> BO2101 <b>Scientific Writing Skills [5]</b> BPS202 <b>Fundamentals in Aquatic Plant Science [5]</b></p> <p>LN2210 <b>Scileanna Gaeilge don Eolaíochta 1 [5]</b> MA284 <b>Discrete Mathematics [5]</b> MA211 <b>Calculus I [5]</b> MA215 <b>Mathematical Molecular Biology I [5]</b> MP231 <b>Mathematical Methods I [5]</b> MP236 <b>Mechanics I [5]</b> ST2001 <b>Statistics for Data Science I [5]</b></p> <p><i>Semester 2</i></p> <p>BPS203 <b>Plant Diversity, Physiology &amp; Adaptation [5]</b></p> <p>LN2211 <b>Scileanna Gaeilge don Eolaíochta 2 [5]</b> MA203 <b>Linear Algebra [5]</b> MA212 <b>Calculus II [5]</b> MA216 <b>Mathematical Molecular Biology II [5]</b> MP232 <b>Mathematical Methods II [5]</b> MP237 <b>Mechanics II [5]</b> PAB2101 <b>AgriBiosciences [5]</b> ST2002 <b>Statistics for Data Science II [5]</b></p>	<p><i>Full Year – Semester 1 and Semester 2</i></p> <p>FR365 <b>Advanced French for Science [10]</b> GR224 <b>Beginner's German for Science [10]</b> GR252 <b>German [10]</b> GR353 <b>German [10]</b></p> <p><i>Semester 1</i></p> <p>BPS3102 <b>Plant Resources and Ecosystems [5]</b> BPS3103 <b>Plant Function [5]</b> PAB3101 <b>Soil Science [5]</b> LN2210 <b>Scileanna Gaeilge don Eolaíochta 1 [5]</b> MA302 <b>Complex Variable [5]</b> MA313 <b>Linear Algebra I [5]</b> MA335 <b>Algebraic Structures [5]</b> MP231 <b>Mathematical Methods I [5]</b> MP345 <b>Mathematical Methods I [5]</b> PH328 <b>Physics of the Environment I [5]</b> ZO317 <b>Evolutionary Biology [5]</b> ZO3101 <b>Marine Habitat [5]</b></p> <p><i>Semester 2</i></p> <p>BPS3104 <b>Plant Interactions [5]</b> BPS3107 <b>Plants, Atmosphere and Environment throughout Earth History [5]</b> CS3101 <b>Software for Mathematical Scientists and Educators [5]</b></p> <p>LN2211 <b>Scileanna Gaeilge don Eolaíochta 2 [5]</b> MP232 <b>Mathematical Methods II [5]</b> MP346 <b>Mathematical Methods II [5]</b> PH329 <b>Physics of the Environment II [5]</b> ZO315 <b>Applied Ecology [5]</b> ZO318 <b>Geographic Information Systems and Biostatistics [5]</b></p>	<p><i>Semester 1</i></p> <p>BPS402 <b>Current Topics in Algal Research [5]</b> BPS4107 <b>Plant Cell Biology and Biochemistry [5]</b> PAB4103 <b>Climate Change, Plants &amp; Agriculture [5]</b> ZO418 <b>Phylogenetics &amp; Conservation [5]</b></p> <p><i>Semester 2</i></p> <p>BPS4104 <b>Primary Productivity and Global Change [5]</b></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><i>Semester 1</i></p> <p>MP231 <b>Mathematical Methods I [5]</b> MP236 <b>Mechanics I [5]</b></p> <p><i>Semester 2</i></p> <p>MP232 <b>Mathematical Methods II [5]</b> MP237 <b>Mechanics II [5]</b></p>	<p><i>Semester 1</i></p> <p>BO202 <b>Evolution and the Tree of Life [5]</b> BPS202 <b>Fundamentals in Aquatic Plant Science [5]</b></p> <p>BO201 <b>Molecular and Cellular Biology [5]</b></p> <p><i>Semester 2</i></p> <p>BPS203 <b>Plant Diversity, Physiology and Adaptation [5]</b></p>	<p><i>Semester 1</i></p> <p>CH204 <b>Inorganic Chemistry [5]</b> CH203 <b>Physical Chemistry [5]</b></p> <p><i>Semester 2</i></p> <p>CH205 <b>Analytical and Environmental Chemistry [5]</b> CH202 <b>Organic Chemistry [5]</b></p>	<p><i>Semester 1</i></p> <p>MA211 <b>Calculus I [5]</b> MA284 <b>Discrete Mathematics [5]</b></p> <p><i>Semester 2</i></p> <p>MA212 <b>Calculus II [5]</b> MA203 <b>Linear Algebra [5]</b></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><i>Semester 1</i></p> <p>MA284 <b>Discrete Mathematics</b> [5] MA2286 <b>Differential Forms</b> [5]</p> <p><i>Semester 2</i></p> <p>MA283 <b>Linear Algebra</b> [5] MA2287 <b>Complex Analysis</b> [5]</p>	<p><i>Semester 1</i></p> <p>MI202 <b>Laboratory Skills in Microbiology I</b> [5] BO201 <b>Molecular and Cellular Biology (MCB)</b> [5]</p> <p><i>Semester 2</i></p> <p>MI203 <b>Laboratory Skills in Microbiology II</b> [5] MI204 <b>Microbes and the Environment</b> [5]</p>	<p><i>Semester 1</i></p> <p>PH2105 <b>Mechanics and Thermodynamics</b> [5] PH2102 <b>Physics Laboratory and Problem Solving I</b> [5]</p> <p><i>Semester 2</i></p> <p>PH2106 <b>Atomic Physics and Electromagnetism</b> [5] PH2104 <b>Physics Laboratory and Problem Solving II</b> [5]</p>	<p><i>Semester 1</i></p> <p>BO202 <b>Evolution and the Tree of Life</b> [5] BO201 <b>Molecular and Cellular Biology</b> [5]</p> <p><i>Semester 2</i></p> <p>ZO208 <b>Invertebrate Biology</b> [5] ZO209 <b>Vertebrate Zoology</b> [5]</p>