THE SCHOOL OF OCEAN SCIENCES

Studying the Science of our Oceans:
Marine Biology, Chemistry, Geosciences and Physics
90% of our research impact has been judged as world-leading or internationally excellent.*

The School of Ocean Sciences is one of the oldest University marine science centres in the UK.

We have over 70 years of teaching experience across the breadth of the marine sciences.

Our alumni are now leaders in marine science roles across the globe.

Continued development of offshore industry, renewables and aquaculture has led to increased demand for marine science graduates.

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**Equality and Diversity**

School of Ocean Sciences received an Athena Swan Bronze award in recognition of the department’s ongoing work to advance gender equality, aiming for representation, progression and success for all.
Welcome to the School of Ocean Sciences, one of the largest university Marine Science departments in Europe.

We are a multidisciplinary marine science department located on the shores of the Menai Strait, North Wales, UK. We are proud of our global reputation for world leading research and high quality teaching spanning over 70 years.

Humans rely on the marine environment; we use it to obtain food, energy, for leisure and to dump our waste. It also poses a significant threat to humanity through coastal flooding.

71% of the Earth's surface is covered by the oceans on which we are becoming increasingly reliant and have a growing awareness of the damage we're causing to them (as highlighted by the alarming levels of marine plastic pollution). Understanding the oceans is an even more important challenge for modern science.

The oceans and the organisms they support influence each of us every single day. They regulate global climate by transferring heat across the planet. Marine algae absorb carbon dioxide from the atmosphere and replace it with the oxygen we breathe.

It is imperative that we conserve and manage marine wildlife and resources carefully in accordance with the United Nations Sustainable Development Goals.

At Bangor we are unique in covering all the marine sciences under one roof. We work on global research projects which could provide you with invaluable experience greatly enhancing your employability.

Over many decades we have produced successful and highly employable graduates including many of the leaders in the marine industry today.

We have a strong network of alumni with whom we are in regular contact and who continue to support the School by visiting regularly to inspire our current students and advise on employment opportunities.

We place great emphasis on the support we provide and your career development.

Our unique location and the vibrant teaching and research environment offers you a rigorous and exciting practical learning opportunity.

Professor John Turner
Head of School and Professor in Marine Biology
We have taught marine science in Menai Bridge for over 50 years, and are one of the UK’s leading institutions for marine science research.

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The School of Ocean Sciences is one of the largest university marine science departments in Europe and a leading international research institution.

The School of Ocean Sciences is based across the bridge from the University in Bangor, North Wales, in the town of Menai Bridge. Menai Bridge is known as the gateway to the Isle of Anglesey, the largest Island in the Irish Sea.

Anglesey’s beautiful rural coastline has sandy beaches, dramatic cliffs and numerous small bays with a rich diversity of wildlife. It’s not surprising that the Anglesey coastline has been designated an Area of Outstanding Natural Beauty.

Anglesey has recently been designated as one of only four UNESCO Geoparks in the UK in recognition of its unique geology. Across the Strait, Snowdonia represents one of the best examples of a glaciated landscape in the UK.

Not only is Bangor one of the most beautiful university settings in the UK, it is also an ideal place to study geological processes and terrestrial and aquatic habitats, with easy access to both the mountains and the sea for field trips. The School’s teaching laboratories are a few metres from the shore, enabling students to study coastal and physical processes.

Our students can collect marine organisms from the sea and study them in the laboratory during the same practical session.

The School has excellent support facilities for both teaching and research. These range from large, modern, well equipped teaching laboratories to state-of-the-art research laboratories.

We have access to powerful supercomputers that are used in numerical ocean modelling, in-house electrical and mechanical workshops capable of designing and building oceanographic equipment. We have freshwater as well as temperate and tropical marine aquaria. Our strong seagoing capability is supported by a fleet of research vessels.

The School of Ocean Sciences is home to Marine Centre Wales which has strong links to industry, and from which much marine science activity across Wales is coordinated.

The School of Ocean Sciences is part of the College of Environmental Sciences and Engineering. The College is one of the leading centres in the UK for teaching in environmental science, biology, geography, engineering and ocean sciences. Students benefit from these links as they enable the studies of diverse ranges of subjects.

Manchester Airport is within one and a half hour’s drive along the Expressway; rail connections to Crewe, Cardiff and London are direct and ferry connections from nearby Holyhead to Ireland are fast and frequent.
WHY STUDY AT BANGOR?

One of the best University locations in the UK
Surrounded by the Irish Sea, a short drive to Snowdonia and a stone’s throw from the Menai Strait, the School is well situated for marine science. Anglesey is one of only 4 UNESCO Designated Geoparks in the UK with 95% of the coast designated an Area of Outstanding Beauty.

We use these different local environments to teach concepts such as rocky shore zonation at Cable Bay, where organisms organise themselves into bands, and weathering processes of coastal cliffs, beaches and dunes at Newborough Beach. Many of our students take full advantage and enjoy the great outdoors, including walking, climbing, kayaking and diving.

Our degrees teach key skills
At Ocean Sciences we place great emphasis on teaching students practical skills as well as literacy and numeracy. Our degrees ensure that you leave with skill sets that are in demand by employers, and that you have the confidence to use these in your career. These can include computational, observational and experimental skills, and, depending on degree, may include elements such as taxonomy, conducting experiments and using state-of-the-art oceanographic and geophysical equipment.

Unique learning atmosphere
Over many decades, Ocean Sciences has developed into a unique, cohesive and inclusive environment. Our students have excellent links with academics, as well as amongst themselves. The student-led Endeavour Society ensures that like minded students socialise together, and our staff offer funded summer projects to second year undergraduates, providing real experience of working within a research environment.

Taught by leading researchers
At Ocean Sciences you will be taught by leading UK marine biologists, geologists, physicists and chemists during your entire degree. This means that our staff integrate their cutting edge research and skills into their teaching, providing a stimulating and fresh learning experience. Our staff also offer research opportunities for motivated undergraduates that can run parallel to their studies or occur during the summer.

International and work experience
The University has an active International Office that offers an international experience year that can be taken during any degree in the University. The School has strong links with institutions in the US and China. Our students are offered summer internships and work placement years allowing them to gain work experience while studying for a degree.
Teaching since the 1950s
The School of Ocean Sciences has existed for many decades and continues to be one of the few solely marine science Schools in Europe. Our longevity is testament to the staff and students who have elevated the School of Ocean Sciences into one of the most famous marine science departments in the world. You will study with fellow students and staff who are passionate about the marine environment, and join our alumni who all feel a genuine sense of belonging to the School.

Affordable and safe
Coming to University is a life changing decision, and both cost and personal safety come into consideration. Bangor is ranked as one of the safest cities in the UK, and has many amenities that are found in larger cities. Bangor has some of the most affordable living costs of any university in the UK. The University prides itself on the financial support it offers to many new students.

One eye on the future
The School places great emphasis on employability of our graduates. We offer careers advice, CV writing courses, interview skills training and we frequently invite industry professionals to the School to speak about their careers. The University also offers the Bangor Employability Award, where students can enhance their immediate and longer term employability prospects.

TEF Gold - highest rated teaching
Bangor University achieved a Gold Award, the highest rating possible, in the national Teaching Excellence Framework (TEF).

The TEF assessment measures teaching quality, learning environment and student outcomes as well as learning gain.

Bangor University was judged to deliver consistently outstanding teaching, learning and outcomes for our students and our teaching is of the highest quality found in the UK.

Student Satisfaction amongst the best in the UK
Bangor University has once again been placed in the top 10 universities in the UK for student satisfaction in the National Student Survey 2018.

Our clubs and societies were again voted the best in the UK at the What Uni Student Choice Awards 2018.

Bangor University was also the winner of Best Student Accommodation at the What Uni Student Choice Awards 2018.
The College of Environmental Sciences and Engineering at Bangor University is one of the leading centres in the UK for teaching and research in an extensive range of science subjects. We aim to educate and train a new generation of scientists aware of societal and environmental needs in a world-class research-led environment.

As well as being an Area of Outstanding Natural Beauty, Anglesey hosts a rich diversity of wildlife including colonies of grey seals with pods of dolphins and porpoises often seen offshore during boat based fieldwork. Important local bird colonies include puffins, arctic terns and choughs.

Bangor University together with the Centre for Ecology and Hydrology and Environment Centre Wales host one of the largest and most diverse groups of environmental scientists of any centre in the UK.
Marine Centre Wales is located at the School of Ocean Sciences. It provides a link to many local industries, such as those involved with marine renewable energy and aquaculture. The Centre co-ordinates much of Marine Science activity across Wales.

The Centre is a community of high achieving students, world-leading researchers and various companies involved with marine research. It provides Ocean Sciences students with unique access to state of the art facilities as well as with opportunities to work with industry.

The offshore renewable energy industry has contributed to continued growth in the marine science sector.
The School of Ocean Sciences has a long tradition of world-leading research covering the full range of ocean sciences. Research highlights include:

Bangor Marine Biologists, working with fisheries scientists across the globe, have analysed a high-resolution bottom trawl fishing footprints from five continents with the results showing that collateral environmental benefits of effective local fisheries management.

Recent work by Bangor Physical Oceanographers has revealed a regime shift in Arctic Sea Ice as a result of the warming of the Atlantic Ocean. This regime shift could help explain the increasing frequency of severe weather experience by the UK over the past decade.

A new paper by Geological and Physical Oceanographers has revealed the existence of a ‘super tidal cycle’ linked to continental drift. This has important consequences for the history of the moon and evolution of life on Earth.

Research Spotlight
At the turn of 2018-19 Bangor Marine Biologists, Geological and Physical Oceanographers joined scientists from the British Antarctic Survey on a field campaign in Antarctica to examine the impact of retreating glaciers on marine life.

89% of Ocean Sciences’ research was judged to be World Leading or Internationally Excellent in the last [2014] Research Excellent Framework (REF)
SEAGOING

You will learn about new concepts from world-leading research scientists throughout your degree.

Marine scientists are the true pioneers in environmental science research, working in one of the hardest to access environments on Earth. While studying the ocean is difficult, it is also incredibly exciting, as we continually uncover new information in our last remaining true wilderness.

At the School of Ocean Sciences, we take great pride in our seagoing heritage. For over 50 years we have owned our own research ships [RV Prince Madog I and II].

Many of our staff have worked on research vessels across the globe. Examples of our work include research on changing sea ice and retreating glaciers, in polar regions, and the impact of climate change on coral reefs in the Pacific and Indian Oceans. We bring this expertise to the class room.

Marine biologists collect samples of fish that they will use in later practicals, and many students conduct a multidisciplinary oceanographic ship-based research project as part of their course.

The skills and experience gained through fieldwork will be vital in helping you find work after graduation.

Bangor University Ocean Scientists research all over the globe, from the tropics to the poles.

www.bangor.ac.uk/oceansciences
DIVING AT BANGOR

North West Wales is one of the UK’s top recreational diving destinations. Many of our students take advantage of our location to take up diving.

Anglesey and the Llyn Peninsula have incredible diving and snorkelling sites. The exposed coastline hides hundreds of Shipwrecks whilst the sheltered bays boast healthy reefs perfect for exploring.

Bangor University has a thriving Sub Aqua Club, which dives all year around, and is welcoming of beginners and experienced divers alike. They even have their own boat.

Find out more about BUSAC [Bangor University Sub Aqua Club] on

Facebook: BUSAC [Bangor Sub Aqua Club]

Instagram: @BUSAC17

This is just one of Bangor’s award winning clubs and societies that make it such a rewarding place to live and study.
### OUR COURSES

#### How you will learn

The course you choose will involve between 25 and 35 hours per week of lectures, practicals (laboratory and fieldwork), private study, tutorials and project work.

Throughout your degree we will place a strong emphasis on fieldwork taking full advantage of our location.

During the first two years lectures and practicals are supplemented by regular small group (about 8 students) tutorials during which we develop your critical appraisal and science communication skills.

In the third year you will carry out an individually supervised dissertation on a topic of your choice. Many students also opt to undertake a marine biology or geosciences residential field course.

Throughout your degree, you’ll be assessed through a combination of continuous assessment and also formal examinations.

If you select a four-year MSci course, you will undertake a research project in your final year.

Students gain practical experience, such as using small boats during their degree.
UNDERGRADUATE DEGREES

The School of Ocean Sciences offers a unique learning environment, staffed by leading marine experts and located within an area with some of the most dynamic natural environments in the British Isles. Bangor is also ranked in the top ten UK universities for student satisfaction, [NSS 2018].

We offer honours degree programmes across the breadth of the marine sciences. Our unique combination of research-led teaching and student support produces some of the most “in-demand” graduates in the marine sciences in the UK.

**Marine Biology BSc C160 BSc/MB**
We are increasingly aware of the value of marine organisms for food, medicine and other products as well as for their role in influencing the climate. Marine Biology is the study of organisms that occupy 95% of the biosphere of our planet. The majority of phyla are found in the oceans; the sizes of organisms range from the smallest micro-organism on the planet to the largest invertebrates and mammals. This very popular course allows you to study the fundamental aspects of the biology of marine life as well as more specialised aspects such as aquaculture, fisheries and marine biotechnology.

**Applied Marine Biology BSc C163 BSc/AMB4**
Our four-year degree in Applied Marine Biology provides you with the background in marine biology that is needed to consider important environmental issues including exploitation and marine conservation. You will learn about the range and increasing importance of natural products produced by marine organisms and the need for a balanced and sustainable approach. Unique to this degree is that you also have the opportunity to undertake a year-long work placement with an industrial or research partner, in which you have the opportunity to apply your skills in a professional environment.
**Marine Biology and Oceanography BSc CF17 BSc/MBO**

Our Marine Biology and Oceanography degree is the study of the organisms living in the ocean and the environment in which they live. You will learn about life in the sea from the smallest algae to the largest mammals and also about the ocean currents, waves, tides and mixing that affect them. The course also involves studying marine pollution including plastics in the ocean. This multidisciplinary degree is one of the longest established at the School of Ocean Sciences and is well suited to students interested in how the ocean works and supports the life which thrives in it.

**Marine Biology and Zoology BSc CC13 BSc/BMZ**

This degree programme provides a wide overview of the huge diversity of animal life and ecosystems on the planet, ranging from the mountains to the deep sea. In this challenging course, we will demonstrate the principles of interactions between different groups of animals and between animals and their environments. You can choose to study modules from across a wide range of topics including anatomy, physiology, behaviour, ecology and whole-animal biology. Students on this course will benefit from access to the University zoological museum and temperate and tropical aquarium facilities.

**Geological Oceanography BSc F650 BSc/GeO**

Geological Oceanography is the study of sediments in oceans and seas, their interaction with major global processes (e.g. climate change, sea-level rise), and their impact on the environment (e.g. pollution, ecosystem sustainability). It is a subject that encompasses present day marine sedimentary processes: the origin, transport and deposition of sediments in the marine environment. These sediments in turn provide the fundamental evidence for understanding the history of the oceans and their role within the climate system. This degree has a very strong record of placing graduates in employment in the offshore geoscience sector.

Bangor and Menai Bridge are amongst the safest areas in the UK to study.
**Marine Environmental Studies BSc** F710 BSc/MES
The Marine Environmental Studies degree is concerned with the study of the global marine environment. It is a fully integrated marine science course that incorporates all aspects of the marine system - physical, chemical, biological, and geological. In addition, it also covers issues such as management of the coastal zone, environmental policy, and sustainable development. The course covers the whole ocean but concentrates on the coastal and shelf seas since these are the focus of greater socioeconomic activity and are the most susceptible to climatic and human-induced change.

**Marine Vertebrate Zoology BSc** C351 BSc/MVZ
Many marine vertebrates are now rare and it has never been more important to understand their biology and how they interact with their environment and humans. During this degree course the general principles of biology, marine biology and marine sciences will be explored, with focus on taxonomy, physiology, behaviour and ecology of marine vertebrates. This degree provides training in the fundamental aspects of the life of the top marine predators as well as providing opportunities to consider applied aspects of marine biology such as fisheries, aquaculture, conservation and ecotourism.

**Ocean and Geophysics BSc** F7F6 BSc/OGP
On this course you will learn how to apply the laws of physics to understand how the ocean works and interacts with the atmosphere and ice in the polar regions to control the global climate. You will be taught to develop computer models of the ocean as well as learning about the different techniques used in observing the ocean and the sea bed. Graduates with these skills are in great demand across the globe by the petroleum and marine renewables industries, as well as national and international organisations like the Met Office or consultancies who use computer models to predict the weather and climate.
Ocean Science BSc F700 BSc/OS
Ocean Science is the study of the global marine environment, encompassing all aspects from estuaries and coasts to the deep ocean. It combines direct observation of these environments with a systematic search to understand the processes that control it. Ocean scientists are both explorers and scientists, and much of the world’s oceans are yet to be explored. Because of the range of scientific knowledge required to understand all of the processes involved, ocean science encompasses a variety of disciplines: biology, chemistry, geology and physics. This course is strongly fieldwork based.

Physical Geography and Oceanography BSc F840 BSc/PGO
This course focusses on the coastal zone which is the interface between land and ocean. It is controlled by land-ocean interaction, being influenced by processes on land, such as rainfall, land use and industrial activity. It is also influenced by processes in the ocean, notably waves, tides and sea level change. This combination makes the coastal zone especially complex. Understanding the coastal zone therefore requires an integrated view of terrestrial and marine processes that constitutes a new approach in environmental science.

What is the Foundation Year?
The Foundation Year programme provides an excellent introduction to studying a science subject at university and will provide you with the knowledge, skills and confidence required to study at degree-level.

During the Foundation Year, you will focus on developing your academic skills and subject-specific knowledge. You will do this by completing modules focusing on IT and Communication Skills, Essential Mathematics and through undertaking a subject-specific research project. In addition, you will also study modules related to your degree subject.

Foundation Year degrees are ideal for applicants who do not quite meet the entry requirements for the 3-year degree or who would benefit from a further year’s study.”

FYI we offer them for BSc Marine Biology and BSc Geological Oceanography.
MSci DEGREES

MSci Physical Oceanography F734 MSci/PO
The four-year Physical Oceanography MSci degree is concerned with the physics of the ocean and understanding the forces which shape the global climate by moving heat around planet Earth. Oceanographers are in great demand and are required to tackle subjects such as predicting future climate and sea-level change, marine pollution dispersion, offshore engineering and exploitation of marine renewable energy. In your fourth year, you will undertake advanced MSc-level modules in physical oceanography and undertake your own research project which could lead to a peer reviewed publication.

MSci Geological Oceanography F652 MSci/GO
The four-year MSci Geological Oceanography degree builds on the three-year BSc in Geological Oceanography but providing further hands-on practical experience using industry-standard survey equipment. It will also involve the development of specialist knowledge about sediment engineering properties, combined with the geophysics. Both of these topics are in high demand by industry. You will also undertake an individual practical project, culminating in the production of a professional scientific article. All will place you in a strong position for a career in industry or to carry on to a PhD.

MSci Marine Biology C167
MSci Marine Biology and Zoology C169
MSci Marine Vertebrate Zoology C168
MSci Marine Biology and Oceanography F712

These extended undergraduate degrees are designed to produce graduates who have significant research skills in biology-based courses, and for which you are awarded a Masters degree.

Following the three years of the appropriate bachelor’s degree, the 4th year of the extended undergraduate Master’s degree allows you to carry out a significant piece of scientific research as part of an active research group, supervised by one of our expert marine biologists or oceanographers.

Alongside your research project you will take modules that equip you with the skills to plan experiments, undertake fieldwork, review literature, understand important ethical and safety regulations, and communicate scientific work in different formats [e.g. research papers and presentations]. You will also have the opportunity to attend seminars on a range on interdisciplinary subjects given by world leading researchers.
We take advantage of our unique setting to teach students in the field. Anglesey is a UNESCO designated Geopark reflecting 180 million years of Earth history fashioned in more than 100 different rock types. Anglesey’s rural coastline is designated an Area of Outstanding Natural Beauty and offers a wide variety of coastal environments. Across the Menai Strait, Snowdonia is one of the best examples of a glaciated environment in the UK.
Once students have completed their undergraduate degree, some choose to continue their study by pursuing a Higher degree, either an MSc or a PhD. Our MSc courses provide extra training that can help students enter their desired graduate career. The School of Ocean Sciences offers five taught MSc degrees across our subject disciplines. Each MSc is a full-time one-year course, consisting of 9 months taught course and 3 months research project. These are assessed by coursework and on some courses, examinations.

**Applied Marine Geoscience MSc**
The MSc in Applied Marine Geoscience has a 50 year pedigree of placing graduates, predominantly in the offshore industry and oceanographic research. The course concerns itself with unconsolidated sediments of the seafloor: the controls on depositional environments, their geotechnical (engineering) properties, and how to map their occurrence. There is emphasis on modern-day sedimentary processes complemented by high resolution marine geophysics. Graduates are sought-after in industry because they are known to have a strong combination of practical skills and theoretical understanding. The course is unique in the UK in bridging the gap between geophysics and geotechnics; and that’s an area of particular demand for the future.
**Marine Biology MSc**
The course provides theoretical and practical training in the field and laboratory to provide advanced marine biological training and aims to elevate students to the level of being capable and independent marine biologists. You will study a variety of practical and theoretical modules, including taxonomy, statistical analysis and experimental/survey design. Specialist training is centred on fisheries, invertebrates, marine mammals and ecology. Typically, graduates have entered employment in the following career paths: PhD research, research assistants, teaching, private sector or public sector employment, and non-governmental organisations.

**Marine Environmental Protection MSc**
The Masters in Marine Environmental Protection was established in 1988 and has developed a reputation for its high quality multidisciplinary training. The course recognises diverse threats to the earth’s life support systems through a range of anthropogenic impacts. It is important to predict impacts accurately and mitigate those impacts accordingly. The course provides graduates with field skills and advanced techniques needed to operate in the marine environment, quantitative skills, a realistic understanding of commerce and governance and communication and interpersonal skills to work together to bring their findings before the decision makers so that future development is more likely to be sustainable.

**Marine Renewable Energy MSc**
This MSc was developed in response to climate change and the finite nature of fossil fuels. There is an urgent need to support our electricity generating capacity through the development of low carbon technologies. The ocean represents a vast and largely untapped energy resource that could be exploited as a form of low carbon electricity generation, and there is much commercial and R&D activity in this sector. The aim of this MSc is to equip students with the skills necessary to identify and quantify potential regions for marine renewable energy installations, with an emphasis on the resource, time series analysis, numerical modelling, and the challenges faced when placing arrays of devices in the marine environment.

**Physical Oceanography MSc**
Run since 1965, this course is specifically designed for those who want to pursue careers as scientists forecasting the impacts of future climate change, in the renewable energy industry or in natural resource exploration. This course is specifically aimed at those with a background in numerical or environmental sciences who have an interest in developing their theoretical knowledge of the oceans and gaining practical skills working at sea. Practical skills are gained through participation in survey work. You also learn to program in MATLAB, and study the development and testing of numerical models. Theoretical modules cover waves, dynamics and tides, oceanic processes and climate.
Once students have completed their Undergraduate degree, some choose to continue their study by pursuing a Higher degree. Options include a taught MSc (see previous pages) or a research based degree, such as an MSc by Research, MPhil or a PhD. This provides extra training that can help students enter their desired graduate career, and can be important for those wishing to enter into a research environment.

As a research student, you will be based in your chosen School, but also embedded within the College of Environmental Sciences and Engineering Graduate School. This route provides support for students by providing the finest environment for personal and academic development. We run our own quality assured taught and support courses as well as postgraduate conferences and welcome events. In addition postgraduates have access to generic courses from the University’s Doctoral School which provides intellectual and social contact between students of different disciplines and from a variety of backgrounds and countries. MSc by Research, MPhil and PhD are research degrees awarded after the examination of a candidate’s thesis, produced following a period of research. MSc by Research degrees are usually of one year duration, MPhil usually two years and PhD usually three. All options can be taken part-time.
WORK PLACEMENTS & INTERNATIONAL EXPERIENCE

The School of Ocean Sciences offers a wide variety of opportunities for work experience and international experience, beyond the many fieldwork opportunities that arise during our degree programmes. These include summer internships, UK based work placements and international experience years, which can be either academic in nature or linked to industry.

Recently, SOS students have taken years abroad in China, USA, Norway, New Zealand, Spain and Australia. The successful completion of a year abroad is formally recognised by the addition of “with International Experience” to your degree title.

In addition to a variety of paid summer internships available in the School of Ocean Sciences, some students opt for opportunities with industry and overseas. Recent examples include internships with Horizon Geosciences, UAE, and with the Department of the Environment of the Cayman Islands Government.

SOS students have completed work experience years at the National Oceanography Centre, Liverpool; Natural Resource Wales; Norwegian Institute for Water Research; IMEDEA, Majorca, Spain and the Australian Institute for Marine Sciences.

Ben Blackridge (3rd year Physical Oceanography) joined a research cruise with the SCRIPPS Oceanographic Institution (USA) to look at the processes responsible for mixing Mediterranean water into the Atlantic Ocean.

Jake Davies (BSc Applied Marine Biology) “I took a placement year with Natural Resources Wales where I gained a variety of experience and skills in both field and computer work. As part of the year I did a range of field work including habitat mapping and ship based survey work, both of which I already had experience of from my studies at Bangor.” This has led directly to Jake’s current role as Project Coordinator for Angel Shark Project: Wales.”

Mikolaj Jankowski (MSci Physical Oceanography) undertook a summer internship at the Alfred Wagner Institute in Germany where he worked with satellite data and oceanographic measurements to examine the impact of the changing global climate on the Arctic Ocean, one of the most rapidly warming regions on the planet.

Tim Elton (BSc Marine Biology and Zoology) “Having attended the Virginia Institute of Marine Science field work module (VIMS), I was invited back post-graduation for a two-month research internship. During the internship I applied all of the skills I’d learnt through my course; from leading an experiment, presenting data to the research group, to contributing to the subsequent paper in the Journal of Experimental Marine Biology and Ecology.”
One of the most important considerations when choosing a degree is the selection of a possible career path. At Ocean Sciences, we place great emphasis on employability, ensuring that you learn the skills needed by employers and that you will be competitive in the modern jobs market.

The marine science sector has continued to grow over recent decades, fuelled partly by the expansion of marine renewables, aquaculture, conservation and the fact that the ocean is an integral part of life on earth.

A degree from Ocean Sciences can open doors into a fascinating career. For example, some of our recent graduates have entered into the following careers:

- Marine science research
- Fisheries and aquaculture
- Environmental consultancy
- Civil Service
- Offshore engineering
- Oil and gas exploration
- Water industries
- Public aquaria
- Marine renewables

You may choose to cross disciplines, for example into terrestrial environments, go into management or charity work. It is the skills that you have learnt that makes you employable, along with a good degree.

Approximately 80% of our graduates find work or enter further education within six months of graduation. We continually work towards enhancing the career prospects of our students. Through discussion with employers we ascertain the skills our students require and tailor our teaching to bring out these skills in our graduates.

Marine science is a challenging and rewarding career path. A marine scientist has a broad range of skills which can make a valuable contribution towards issues like climate change, sustainable resources and environmental protection. By choosing the right degree and studying hard, you will put yourself on the path to a fulfilling career.

To help prepare you, we actively contribute to the University’s Bangor Employability Award, as well as providing support for CV writing and interview practice. We regularly invite companies to give lectures on career paths and to provide advice. Ocean Sciences also runs an annual student-focussed career fair, with large multinational companies in attendance. We also provide a competitive test with the Ocean Sciences Summer Bursary Scheme, where students must apply and succeed in interview in order to gain a £1000 bursary to support them during a summer research project.

See page 33 to learn more about career support and the Bangor Employability Award at Bangor University.
WHERE ARE THEY NOW?

Over the years we have produced many graduates who have achieved great success in marine science, including some who now are active in major companies or renowned professors at Universities around the world. Our alumni provide a valuable resource for current graduates, as many return to inspire current students.

Starr Sams (BSc Marine Vertebrate Zoology)

Occupation:
Intern at Bimini Biological Field Station (Sharklab)

I have always been crazy about sharks and I chose to come to Bangor because of the specific Marine Vertebrate Zoology degree programme that enabled me to focus my studies on the areas that interested me most. The quality of teaching exceeded my expectations and I feel very fortunate to have been taught by active researchers who are experts within their fields.

My experiences as an Undergraduate in Bangor gave me the confidence and skills required to pursue my dreams and go to work with Sharks in the Bahamas after graduation. The diversity of modules within my degree course gave me so many beneficial skills, from statistics and data collection to practical lab skills that I have used every day within this role. Working as a Peer Guide and assisting with University Open Days really boosted my confidence when interacting with potential students and parents, which prepared me well for giving tours and talks to the public here at the Sharklab.

It still amazes me that within a year I have gone from sitting in a lecture theatre learning as much as I could about sharks to taking measurements and samples from 3.5m Tiger Sharks and freediving with Great Hammerheads on a regular basis! I know that without the support I received at Bangor I would not be where I am today.
Charlotte Angove (MSci Marine Biology)

Occupation:
PhD student at University of Helsinki, Finland.

“I am currently based at a research station in southern Finland whilst doing a PhD at the University of Helsinki. My research is focussed on aquatic plants. As a benthic ecologist my work is primarily with data collected from the field, which involves a lot of scuba diving! ”

“I have had the privilege to travel for work; joining a field campaign which surveyed the western coast of Australia and co-leading a field campaign in Sweden. I have also presented my research at major international conferences.”

“When I came to Bangor I loved living in the vibrant student community with so many activities to take part in. It was a hive of activity for student clubs, sports and events. I really enjoyed how the course taught us to think like scientists. It was very hands-on, with lots of fieldwork and I learnt many skills which are very useful for the work I am doing now.”

Tilly Painter Jones (MSci Marine Biology and Oceanography)

Occupation:
Works in aquaculture industry in Scotland.

“I loved this course for its breadth of topics, ranging from fish biology and animal behaviour to sediment dynamics and glaciology. Its interdisciplinary nature has set me up well for the world of work. For me the best thing about studying at Bangor is the high level of support you receive from the School of Ocean Sciences.”

“This included great supervisors, enthusiastic lecturers, mentoring tutors and helpful technical staff. This has given me the confidence and opportunities for overseas travel and to present my fourth year research work to an international audience at a conference, as well as the independence to do my current job.”

“I am now working as an environmental specialist in the aquaculture industry in Scotland, making good use of the practical skills I gained at Bangor including the opportunities for ship based fieldwork.”
Emmer Litt (BSc Geological Oceanography, MSc Physical Oceanography)

Occupation: Marine and Coastal Physical Scientist with Natural Resources Wales

“After an access course at Plymouth University I decided the city wasn’t for me and saw that Bangor University had an Ocean Sciences department which looked a lot more approachable and had nearby mountains and sea to play in, in my spare time.

When moved to Bangor I found it very easy to integrated into the community (not only the university but also the local community) and felt at home instantly. That was 15 years ago and now have a family and home in the mountains and don’t plan to leave!

Although the course was theoretical course it had lots of practicals to bring the subject to life with plenty of ‘hands-on’ time. This included going out on the boat and field courses locally shores as well as a week long residential field course in South Wales. In my job I now put these skills to good use in looking at evidence, strategy and policy regarding marine and coastal physical science in Wales.

I would recommend Ocean Sciences at Bangor University to anyone who has a genuine desire to learn and be a part of a small nurturing community, but one with a world-wide reputation.”
MEET THE TEAM

You will be taught by leading academics in the major marine disciplines of biology, chemistry, geology and physics. Our activities encompass fundamental, strategic and applied research, and active knowledge transfer. Our research has been recognised for world-leading impact in fisheries, marine genetics and ocean physics.

Ocean Sciences has over 30 academic staff who are active researchers and teaching staff. We have around 60 research staff including post-doctoral researchers, who work on a variety of projects funded by government, industry and Research Councils.

Check out some short research profiles from academics in our core disciplines of biology, chemistry, geosciences and physics.

You may also be taught by experts in Geography, Zoology, Computing and Electronics from elsewhere in the College of Environmental Sciences and Engineering.

https://www.bangor.ac.uk/oceansciences/research
Dr Jonathan King primarily researches the growth of bivalve aquaculture and fisheries, with a focus on environmental sustainability.

Dr Martyn Kurr is a marine biologist, who specialises in invasive species and algal ecology.

Dr Yueng-Djern Lenn is interested in ocean eddies and mixing and how they impact stratification at in high latitude oceans.

Prof Lewis LeVay has a background in aquaculture, fisheries and ecology across a wide range of temperate and tropical environments.

Dr Shelagh Malham’s research focuses on impacts of anthropogenic change on sustainable shellfish production.

Dr Ian McCarthy’s research interests are in physiological and behavioural ecology primarily using fish species.

Prof Tom Rippeth focusses on the role of the winds and tides in processes linking the ocean to the atmosphere and sea-ice.

Dr Peter Robins uses computer models to simulate shallow seas including interactions between oceanographic and biological processes.

Dr Margot Saher has a background in climate reconstruction using marine microfossils on various timescales.

Dr Martin Skov has interest in the ecological functioning of coastal wetlands: salt marshes, mangroves and seagrasses.

Dr Jenny Shepperson is interested in the sustainable management of fisheries, to balance food production with environmental impacts.

Prof David Thomas is a biologist who works on the ecology and biogeochemical processes of sea ice including dissolved organic matter.

Dr Simon Neill investigates a wide range of oceanographic processes with particular focus on marine renewable energy.

Prof John Turner researches marine ecology and coastal zone management, especially coral reef ecosystems and conservation through Marine Protected Areas.

Dr Katrien Van Landeghem studies fundamental glacial, hydrodynamic and sediment transport processes on the shelf and the shelf margin.

Dr James Waggitt researches whales, dolphins and seabirds, including the impacts of human activities on vulnerable populations.

Dr Gareth Williams studies marine ecology and focuses on the natural and anthropogenic drivers of coral reef communities.

Dr Sarah Zylinksi is interested in the visual ecology of marine animals, particularly how they camouflage and communicate in different habitats.

Dr Katrien Van Landeghem studies fundamental glacial, hydrodynamic and sediment transport processes on the shelf and the shelf margin.

www.bangor.ac.uk/oceansciences
The compact size of Bangor means that student facilities - including halls of residence, the Sports Centre and the Students’ Union - are within easy walking distance of the University buildings. High Street shops, banks, supermarkets, restaurants, pubs, and theatre are also in close proximity and help to keep travel costs to a minimum.

The cost of living is lower than in most urban areas, so you can make the most of your money in what is a very pleasant environment in which to live and study. Also worth bearing in mind is the fact that Bangor is considered to be a relatively safe place to study (the crime rate for North Wales is one of the lowest in the country).

The mixture of students from all over the world means that Bangor is always a vibrant, colourful and interesting city. Bangor is also very much a University City - the entertainment and night life is student-orientated and student-led, and there is always something going on. In addition to entertainment, the Students’ Union also organises a large number of student clubs and societies, covering a wide range of sporting, social, cultural, religious and political interests.

While Bangor itself is compact and convenient, the surrounding area offers plenty of wide open spaces. The mountains and coastline of Snowdonia are areas of outstanding natural beauty, offering wonderful recreational opportunities, whether you are interested in outdoor pursuits, or just want to enjoy the scenery.

For the sports enthusiast, climbing, sailing, rowing, canoeing, surfing, fishing, and diving are just some of the outdoor pursuits available in some of the most dramatic landscapes in the UK. Indoor sports are also well catered for at Canolfan Brailsford, the University’s Sports Centre, and Bangor swimming pool.

“Pontio is a £42m Performing Arts and Innovation Centre, home to cutting-edge teaching and learning facilities, a theatre with a capacity of 450 seats, cinema space, and a studio theatre as well as social facilities including bars, dining and park areas.”
Choosing a University is one of the most important decisions a person can make. At Bangor we try to make it as simple as possible, offering help and advice throughout the application process. On the right is an “Application time line” that shows the most common procedure for applying for University.

The very first port of call is to visit the School and the University. We hold a number of Open Days throughout the year to give you a better idea of what to expect if you decide to come and study with us. Staff and current students will be on hand to answer any of your questions and to give you detailed information about your course of interest.

You can also have a look around the city and we’ll take you on a tour of the halls of residence to give you a taste of what life is likely to be like at Bangor. For more information and to book a place please visit our website (links to the right).

ENTRY REQUIREMENTS
At Bangor, we accept students with a wide range of qualifications and backgrounds, and we consider each application individually. We consider applications from prospective disabled students on the same grounds as all other students. We also consider applications from mature students who can demonstrate the motivation and commitment to follow a university programme and have relevant science-based experience.

To study a degree course with us, you’ll be asked for a minimum of UCAS Tariff points. GCE/VCE A and AS levels can be used to calculate your overall points, excluding general studies. We consider other equivalent qualifications on an individual basis, so please contact us with any questions.

You can find more specific details on entry requirements on the individual course pages on our website: www.bangor.ac.uk/oceansciences/undergraduate-courses

HOW TO APPLY
UK and EU students must apply through UCAS and applications should be made as early as possible, quoting the course code.

International students may apply directly to us by following the procedure on the International Education Centre website.

MORE INFO
Visit: www.bangor.ac.uk/openday for information on University Open days. We highly recommend visiting our department and seeing the area.

Visit: www.bangor.ac.uk/international for information relevant for students based overseas who are interested in studying at Bangor.

Application timeline
Choose your College subjects. Read our entry requirements before choosing. Mature students and those taking non-traditional courses should contact our Admissions Officer for advice (See back of booklet).

Come to one of our University Open Days to see our department, meet the staff and learn more about our courses.

Choose your chosen degree course and apply through the UCAS system. You will receive an offer from us, setting out the grades required for entry to one of our courses.

A few months after receiving an offer, you will be invited to one of our UCAS Open Days. These are designed to provide specific information to assist you in your choice of course and University.

Providing you meet our offer and you have chosen to come to Ocean Sciences, you will receive confirmation of a place in August after A level results are released.

www.bangor.ac.uk/oceansciences
During the residential Coastal Process field trip in Laugharne the students take a core, in order to study the history of the environment through the changing sediments over thousands of years.

Students pull in an otter-trawl in a Virginia saltmarsh creek during a residential field course in the US. The trawls are packed with fish and crustaceans, and occasionally the odd shark or snapping turtle – all released after identification.
WELSH MEDIUM

At the School of Ocean Sciences students can choose to study on several modules through the medium of Welsh. The Welsh classes are small, friendly, and very supportive, ensuring that you get a considerable amount of support and attention to facilitate the learning process.

As well as benefiting from the smaller group sessions, you will join the general group for a number of other lectures and seminars, ensuring you enjoy the best of both worlds. There are several significant benefits of studying in Welsh. Financial support is available from Bangor University, providing you study a minimum amount of credits in Welsh. You also have the chance to improve your language skills in Welsh in addition to English. Bilingual skills are an asset in terms of employment in Wales.

If you wish to learn or improve your Welsh, Bangor University offers classes to students that can be taken during your degree.

You can learn more about Welsh Medium at: www.bangor.ac.uk/courses/cymraeg

ACCOMMODATION

Bangor University guarantee you a room in halls for the first year providing you apply before the deadline and hold Bangor as your Firm Choice.

Most halls offer en-suite accommodation allowing for greater privacy. Over £35m has recently been spent redeveloping the campus, including an extensive upgrade of the main student accommodation at the Ffriddoedd Village and the new St Mary’s Village. Of course, if you prefer, there is also a broad range of private accommodation to be found in and around Bangor, and the Student Housing Office can help you find what you require.

A big plus is that you won’t need a car or public transport; everything is within walking distance of the halls of residence. The main accommodation site is just 10 minutes from the main University buildings and Ocean Sciences is a 30 minute walk, 15 minute cycle or 10 minute bus journey from the main accommodation.
Seagoing experience is a vital part of the skillset of a marine scientist.
CAREERS & EMPLOYABILITY SERVICE

In today’s highly competitive employment market, it is important to take full advantage of the academic, recreational and work-related activities available to you as a student. Whether or not you know what career path you want to follow, the Careers and Employability Service is committed to helping students and graduates by providing a wide range of careers guidance and employment support services, including:

- Individual and confidential careers interviews and drop-in sessions
- A year round programme of personal development, job search and employer related workshops and training sessions
- Comprehensive and appropriate careers information via our Information Centre and our Website
- A Student Employment Bureau (Job Zone), providing part-time, vacation and graduate employment opportunities
- A wide range of voluntary work opportunities including Peer Guiding and Student Mentoring
- Undergraduate and graduate paid work-experience placements
- The chance to develop enterprise skills and increased awareness of self employment via our B-Enterprising programme

BANGOR EMPLOYABILITY AWARD

The Bangor Employability Award (BEA) scheme has been designed to enhance the immediate and longer term employability prospects of Bangor University students. The scheme works in conjunction with the Careers & Employability Service, Bangor Students’ Union and private, public and voluntary sector organisations, offering accreditation for co-curricular and extra-curricular activities (e.g. volunteering, mentoring, part-time work, learning a new language); such experiences may not be formally recognised within students’ academic degree programme, yet they advance the development of skills and qualities which are valuable in the graduate jobs market.

Students returning from surveying salt marsh vegetation in the pristine area of Shell Island, Gwynedd.
Students learn about past climates by searching for fossilised organisms during the physical and geoscience field week on the Taf estuary, Laugharne, South Wales.
INTERNATIONAL STUDENTS

With students from over 79 countries world-wide, the city has a thriving international community, and provides a welcoming and supportive learning environment for international students who wish to develop their full potential through our range of high quality and well established study programmes.

Bangor University strongly believes in looking after its students, and making sure that everyone is made to feel welcome and settles in with ease. That’s why Bangor has a number of International Student Ambassadors and a dedicated International Student Welfare Adviser, who can help you adjust to living in a different country, with an unfamiliar culture and possibly a new language.

Our aim is to support international students from the application process right up to their graduation day. A special Orientation Day provides an opportunity to meet other international students and external organisations, and take a trip around the surrounding area. This helps you to make friends, settle in and get to know your way around.

Throughout the year, the International Student Welfare Adviser offers assistance and advice on a range of matters such as NHS health care in the UK, opening a bank account, immigration status, applications to extend your visa, work regulations and finding work, travelling outside the UK, police registration, accommodation, bringing your family to the UK, and nurseries and schools in Bangor. We also arrange coach trips to places of interest.

The British Council’s Regional Services Officer is an important point of contact for information, advice and support for students attending Bangor through the British Council.

All international students are guaranteed on-campus accommodation provided that they apply before the deadline of 31st July.

ENGLISH LANGUAGE COURSES

International students are generally required to provide evidence of their English language proficiency. The English language level normally required for entry is IELTS 6.0 (with no individual unit score less than 5.5) or equivalent.

Students who require English Language Study prior to starting their academic studies at Bangor may undertake pre-sessional courses at the University’s English Language Centre (ELCOS).

Additional tuition can be taken as follows:
- IELTS 5.5 / 3 MONTHS / JUN - SEP
- IELTS 5.0 / 6 MONTHS / FEB - AUG
- IELTS 4.5 / 9 MONTHS / SEP - JUN

Students receive close attention in order to ensure excellent progression and successful completion of the course. At the end, students are not required to undertake a further external English test, as our highly experienced and qualified staff will conduct a test and provide an official report for the University.

Students on academic programmes can receive English language support throughout the year in courses specially organised for international students. These include academic writing classes and English language modules. Students can also benefit from individual consultations with a language tutor.

Students wishing to undertake further external English tests can benefit from special evening classes, which focus on preparation for these examinations.

Further details of English language courses are available from ELCOS or email: elcos@bangor.ac.uk

www.bangor.ac.uk/oceansciences
ALL ENQUIRIES ARE WELCOME

For more information visit our website at:

www.bangor.ac.uk/oceansciences

or contact:

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Bangor University
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LL59 5AB, UK

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Email: oceansciences@bangor.ac.uk

The University makes all reasonable efforts to ensure the information in this brochure is correct at the time of printing (March 2020), but it may be subject to change.