

2019/2020

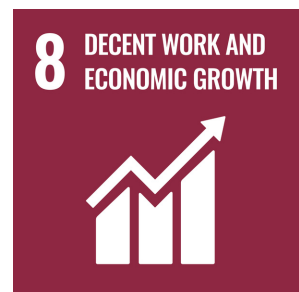


# Bangor University SDG Progress Report

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# SUSTAINABLE DEVELOPMENT GOALS



# Introduction

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## The Sustainable Development Goals

**The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity**

United Nations Development Program

At Bangor University we are working to be a force for good. Our goal is to inspire our academic community, our Professional Services teams, and our students to create a more sustainable world in alignment with our vision to drive success through transformative, innovative, impact-driven research and teaching.

We believe this University has a role to play in society, building on our focus on discovery, sustainability, safeguarding the environment, and promoting economic, social, bilingual, and cultural vibrancy. As a research-led University and as individuals who care deeply about the world we live in, we want to contribute to solving the world's challenges, such as climate change, health inequalities, and workforce development.

We are passionate about promoting a culture and scholarship of environmental stewardship, living in harmony, and caring for the world in ways that meet our economic, social, environmental, and cultural needs. Underpinned by our world-renowned research, we will support the development of Wales as a bilingual learning country with a knowledge driven economy for the benefit of the world and future generations.

### **Professor Iwan Davies**

Vice-Chancellor (*Strategy 2030*)





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## Sustainability reports are not just about looking back

This Report presents our first annual published SDG report to show the many ways in which we are contributing through research, public engagement, learning and students, and operational elements, towards the 17 UN Sustainable Development Goals. This SDG Progress is a continuous work in progress - a way for Bangor University to track its impact and improvements over time.

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Owner: Sustainability Strategy Group

## RESEARCH

**An evidence-based approach reduces the local costs of biodiversity conservation in low and middle-income countries**

Bangor-led research has demonstrated the negative social impacts that conservation can have for some of the poorest people in the world.

It has profoundly altered how governments, industry, and donors implement conservation: one of the world's largest nickel mines (Ambatovy, Madagascar) has changed how it approaches biodiversity offsets, the Ugandan government has incorporated recommendations into its national offset strategy, and the US government has used research findings in funding decisions for a mine in Myanmar.



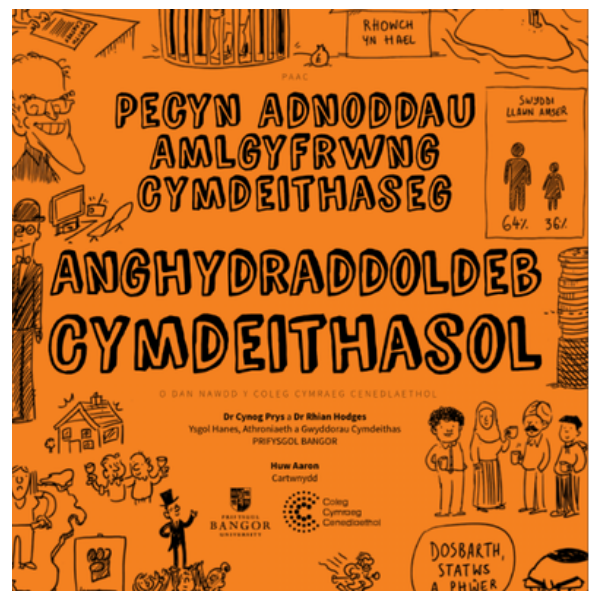
**Goal: End Poverty in All Its Forms Everywhere**

## PUBLIC ENGAGEMENT

**New teaching resource looks at social inequalities through a Welsh lens**

We have developed and published a new bilingual multimedia teaching resource on Social Inequalities in partnership with Coleg Cymraeg Cenedlaethol.

It includes statistics on how the Covid-19 pandemic has highlighted some of the social inequalities which exist in Wales, and some of the interventions being put in place to tackle them.



### Homelessness - a Comparative Analysis

A wide range of academic staff, guest speakers, and postgraduates contributed to a showcase on how social science research and analysis can help explain events and offer evidenced-based solutions, with a specific focus to Wales.

# LEARNING AND STUDENTS

## Undergraduate Modules

World Poverty & Inequality, run by School of Medical and Health Sciences, provides students with a knowledge of the debates about the definition, causation, incidence, and effects of poverty and social exclusion in both the UK and a comparative context, and provides an analysis of the policy initiatives currently employed to address the problem.

Poverty and Inequality, run by the School of History, Law and Social Sciences, considers many aspects including gender and poverty; ethnicity and poverty; crime and poverty, and regional poverty. It also has a focus on global poverty and the billion people living on less than 2 dollars a day.



Our Social Policy degrees are all about teaching students about the world in which we live and how our needs for security and welfare are met, looking from a global perspective ranging from its roots in Victorian Britain to the challenges of world poverty today.

Students look for answers to questions such as:

How do we address poverty and inequality?  
What are the solutions to the housing crisis?  
What will be the impact of climate change on social policies?

What is the role of the State, voluntary and private sector organisations, and civil society in meeting Social Policy goals?

# OPERATIONS

## Student Financial Support

A number of bursaries, scholarships, crisis grants, and hardship funds are available for students through Student Services. Bursaries and scholarships worth over £3.4M are available for new and returning students, these include Merit Scholarships of up to £3,000 for those who excel in the annual Entrance Scholarships.

The University provides targeted financial support for students from low-income backgrounds, additional financial support for students facing unexpected financial hardship whilst they study, start-up funds for care leavers, foyer residents, students with carer responsibilities, and the homeless, means-tested grants to support students with children to find suitable family accommodation, and means-tested funding for field trips for students currently unable to take part due to financial restrictions.

We have signed up to the Stand Alone Pledge to help support estranged students and offer a comprehensive student welfare service.



## Commonwealth Scholarships

A postgraduate distance-learning programme in Tropical Forestry is eligible for international students awarded a scholarship by the Commonwealth Scholarship Commission (CSC). Applicants are from the following developing countries: Ghana, Guyana, India, Kenya, Lesotho, Malawi, Mozambique, Nigeria, Rwanda, Sierra Leone, Sri Lanka, Tanzania, The Gambia, Uganda and Zambia.



Owner: Sustainability Strategy Group

## PUBLIC ENGAGEMENT

### Increasing the food supply and reducing food waste

Academics at Makerere University in Uganda are working with Bangor University to look at developing sustainable food packaging alternatives.

It is estimated that 30-40% of Uganda's fruit and vegetables are wasted before reaching the market, as they aren't adequately protected, this rises to 60% for tomatoes and contributes to food hunger in Uganda, where 41% of the population is undernourished. Further, bruises on such foods increase contamination which reduces the quality of foods and may lead to food poisoning.



We are working with female-led smallholders in Uganda to use their waste maize to create biodegradable food packaging and provide smallholders with a new income stream.

## Goal: End Hunger, Achieve Food Security and Improved Nutrition and Promote Sustainable Agriculture

## RESEARCH

### Improving the lives of millions of people

The knowledge of and access to suitable rice varieties for resource-poor farmers in India and Nepal has long been an issue. Pioneering research led by Bangor University has improved the livelihoods of more than 5 million households across these countries.

This involved developing new varieties of rice which provide a 15-40% yield advantage over the varieties grown traditionally, and in India, the two Ashoka rice varieties alone are estimated to provide benefits of £17 million annually to the poorest farming households. These new varieties were superior in their good taste, drought tolerance and had high pest-resistance properties.



### The moral maze of foodbank use

The foodbank symbolises a changing landscape of social insecurity and welfare conditionality. Attending to decision-making within the foodbank system, this article argues that foodbanks, and their referral-system creates a bureaucratic 'moral maze' identifying people as 'deserving' or 'undeserving' of help.



## LEARNING AND STUDENTS

### Healing Garden - Student Volunteering

A student-led allotment and garden is located in the heart of Upper Bangor. In 2010 the students started to transform a quarter of a hectare of disused University land into a productive, beautiful, and biodiverse organic garden.

Partnered with Headway Gwynedd, the Brain Injury Foundation, the garden features raised beds, living willow structures, Welsh heritage fruit trees, and a sensory spiral and bog garden. The garden promotes relaxation and mindfulness, whilst volunteers also develop their gardening skills.



### Hungry Dragon Bangor

Hungry Dragon is a student-led food project, working out of a University building, saving surplus food in Bangor. Recently partnered with Bangor Fair-Price Café, they convert surplus fruit and veggies from local supermarkets into preserves and meals.

### Food Security MSc Programme

The Agroforestry and Food Security MSc provides students with a detailed understanding of the principles and processes of agroforestry as part of a sustainable food production system, including the environmental, economic and social aspect of agroforestry in the context of food security and the changing environment.

## OPERATIONS

### Fairtrade University and College Award

The University has signed up and is working towards the 2021-23 Fairtrade Universities and Colleges Award programme. We understand our role in teaching the local community and also students and staff to explore the social and environmental impacts of their decisions, and making ethical and sustainable choices.



### Food Recycling

The University's food recycling is sent to a local Anaerobic Digestion facility. We send our food waste to this facility rather than an in-vessel composting plant as it is recognised by the government as one of the best methods for food waste recycling, producing electricity and heat as well as biofertiliser, making it a closed-loop system. This biofertiliser is then used on local farmland.

### Foodbank donations

The University has many food bank collection bins across the site, with Student Volunteering Bangor (SVB) collecting the donated items from staff and students and taking them to be distributed by the Bangor Cathedral Foodbank which provides emergency food packages for local people within our community. In addition, the SVB Big Give is a project that takes place during the months of May and June and enables students leaving for the summer to donate any unwanted food.

# 3 GOOD HEALTH AND WELL-BEING



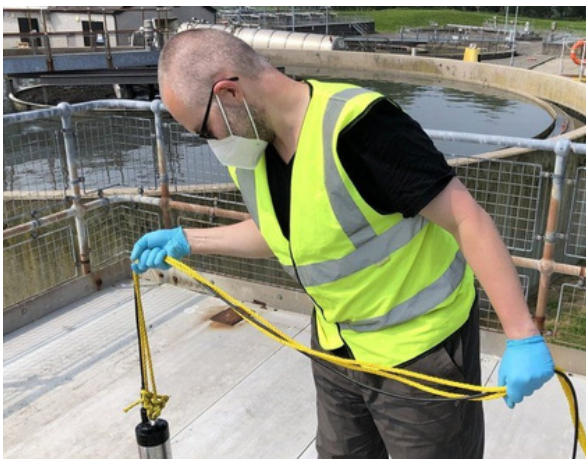
Owner: Professor Nichola Callow / Tracy Hibbert

## RESEARCH

### Tracking COVID-19 and other viruses in wastewater

Bangor University has been instrumental in the development and application of [Covid-19 monitoring in wastewater](#), and this is providing real-time evidence of levels of community infection.

We are now working with partners in South Africa and Nigeria on scaling up techniques and protocols developed for the surveillance of SARS-CoV-2 and other viruses throughout their regions, enabling communities, public health agencies, and governments to work towards risk reduction and management of national and global health risks.



## Goal: Ensure Healthy Lives and Promote Well-being for All at All Ages

## PUBLIC ENGAGEMENT

### Centre for Mindfulness Research and Practice

Our [Centre for Mindfulness Research and Practice](#) not only provides research and sessions internally for staff and students but offers over 90 free audio downloads for anybody to access. Their vision is to cultivate mindfulness to alleviate the effects of ill health, to enhance wellbeing, and to create the conditions in which people can flourish.



### CALIN (Celtic Advanced Life Science Innovation Network)

This [network](#) for life-science businesses gives them the opportunity to engage with University centres of excellence, health boards, multi-national business firms, and other life-science businesses.

We host life science conferences and webinars to provide information on the latest trends and innovations in advanced medical and pharmaceutical science, nanotechnology and biotechnology. These are open access and an opportunity to learn and engage with world-leading research and development.

# LEARNING AND STUDENTS

## School of Medical and Health Sciences

Our School of Medical and Health Sciences offers a range of medical science degrees and funded NHS programmes for Nursing (Adult, Child, Learning Disability, Mental Health), midwifery, radiography, and physiotherapy, as well as and short courses for healthcare and allied professionals. A recent addition is the part-time nursing degree aimed at NHS support workers.



## School of Human & Behavioural Sciences

The School is home to Psychology and Sport, Health & Exercise Sciences. Psychology at Bangor regularly ranks among the top 10 departments in the UK in the National Student Survey, for overall student satisfaction. With over 1,000 students, we're also one of the largest departments in the UK.

Sport, Health & Exercise Sciences generates world-leading scientific research and an outstanding teaching and learning experience. We empower students to make an evidence-based yet innovative and positive contribution to Sport, Human Performance and Health within Wales, the UK and the World beyond.

## Student Mental Health Strategy Group

The Student Mental Health Strategy Group is made up of students, staff, members from the NHS, North Wales Police, and the University Chaplaincy. They support those who experience mental health difficulties in order to create an inclusive community.

# OPERATIONS

## Student Wellbeing Services

The Student Support and Wellbeing Service has professionally qualified counsellors, mental health professionals, and information specialists that are experienced in helping students to deal with all kinds of practical and emotional issues such as study-related matters, trauma, relationships, emotional regulation, mental health disability-related issues, accessibility, harassment, and inclusion.

## Staff Health and Wellbeing

In addition to an in-house Occupational Health Practitioner, Bangor has an Employee Assistance Program (EAP) to help staff and their families deal with work-life stressors, family issues, financial concerns, relationship problems, and other wider concerns through speaking to professional counsellors. The Zest program within this scheme offers staff access to a weight management programme and personal training programmes too.



## Sport Bangor

Our indoor and outdoor sports facilities on-site offer a range of activities and services to students, staff, and members of the public. Campus Sport is a free programme of sports available to all students, and the Active Staff programme offers a wide range of fitness activities specifically for University staff.





*Owner: Professor Oliver Turnbull*

## RESEARCH

### Preparing tomorrow's teachers post-Covid

Researchers have been investigating the effects of Covid-19 school closures on learners, teachers, and families. The research seeks to explore Covid-related challenges learners and schools have experienced and how to best prepare tomorrow's teachers to meet these challenges.

### Diagnosing literacy skills in various monolingual and bilingual settings

Low literacy attainment affects one in five 15-year-olds in Europe, with consequences for a range of long-term prospects, but may be averted with early diagnosis of risk and timely interventions.

A Bangor-led international group of researchers developed the Multilanguage Assessment Battery of Early Literacy (MABEL) - the first freely available, web-based resource, uniquely offering a battery of tests across five languages for assessment. Primary beneficiaries in 22 countries previously lacking objective, high quality, evidence-based assessments for early detection of children's risk for, and manifestations of, literacy failure.

**Goal: Ensure Inclusive and Equitable Quality Education and Promote Lifelong Learning Opportunities for All**

## PUBLIC ENGAGEMENT

### Bangor Science Festival

An annual Bangor Science Festival showcases the latest in science, technology, and engineering as part of the British Science Week. The aim is to enthuse and inspire young people about science; to empower them as citizens, and to create the next generation of scientists and engineers.

### Services to Schools

Bangor University's Talent Opportunities Programme (TOP) aims to widen participation into Higher Education. Bangor TOP is active in schools across north Wales, with over 2,000 Year 9, 10, and 11 pupils involved in a comprehensive programme of activities, with the aim being to raise both their aspirations and awareness of Higher Education.



### Welsh for Adults

Over the last 40 years, Bangor University has developed a structured and effective programme for adult learners of Welsh. Tens of thousands of students have benefited from the combination of carefully graded courses, highly experienced and committed tutors, and first-class backup services.



# LEARNING AND STUDENTS

## Teacher Training

The School of Educational Sciences has an established reputation in the field of teacher training, with well-established partnerships with Primary and Secondary Schools to provide varied and supportive training environments. The School also offers a BA in Childhood and Youth Studies.

The Applied Design Centre trains both design and technology teachers and product designers on our BSc Product Design course, MSc Applied Innovation Design and PGCE Design and Technology degree course. They also run workshops, short courses and competitions for schools, teachers and pupils.



## Miles Dyslexia Centre

The Miles Dyslexia Centre is a nationally and internationally renowned, specialised Centre. A team of specialist teachers provide additional teaching support for dyslexic children in local schools in partnership with Local Authorities.

The Centre's Teaching Service also trains students with an interest in education, and specialisms in language and literacy tuition. Student volunteers can work on the Leap into Literacy program, delivering one-to-one mentoring to primary school-aged children experiencing language/literacy difficulties.

# OPERATIONS

## Student Skills and Employability

The University's Skills and Employability Service provides a wide range of resources to help students achieve graduate ambitions. Developing personal skills and enhancing employability while at university is becoming increasingly important in today's job market.

Undergraduate and postgraduate internship schemes run twice a year, allowing students to work in a professional environment while learning relevant skills and earning money. A wide range of internships from medical research to marketing and promotion, offer valuable experience in the workplace.

## Staff Development Opportunities

Human Resources offer a wide range of development opportunities for staff. There are schemes available to staff interested in undertaking coaching and/or mentoring and also language classes in Welsh, French, German, Italian, Spanish, Mandarin and Japanese.

The Centre for the Enhancement of Learning and Teaching identifies opportunities from data and sector drivers in order to create and deploy informed and research-led solutions to drive forward innovate learning and teaching. We are also fully committed to the Concordat to Support the Career Development of Researchers, developing research staff at every career stage.





Owner: Professor Andrew Edwards

## RESEARCH

### Research reveals need for flexible, tailored support for domestic abuse survivors

A four-year evaluation has revealed the need for flexible domestic violence and abuse services that are tailored and responsive to survivors' changing needs.

Researchers found that survivors of domestic abuse valued services that were survivor-centred and enabled them to choose the pace and type of support they received, and that many needed help with parenting as well as support in their own right.

When direct support was provided for children who had lived with domestic abuse, it could assist their mood, sleep, physical health and reduce their fear and anger. The study found examples of children who received support from Roadmap services successfully navigating key transitions in their lives.



## Goal: Achieve Gender Equality and Empower All Women and Girls

## PUBLIC ENGAGEMENT

### Enhancing spatial ability to help close the gender gap in STEM

Bangor University is to contribute expertise to a new Europe-wide project to improve children's spatial abilities, with the aim to help close the gender gap in science, technology, engineering and mathematics (STEM).

The large gender gap in spatial ability in favour of males means that women are over-represented in the low spatial ability group and more disadvantaged in STEM learning. Over four years SellSTEM will recruit and train 15 PhD students to develop innovative and practical approaches to improve spatial ability among young people in Europe, so they are better prepared for learning science, technology, engineering and mathematics (STEM) subjects.



### International Women's Day

To mark and celebrate IWD 2021 an online presentation by Marian Wyn Jones, the University's first female Chair of Council entitled Choose to Challenge was held. As well as a series of personal reflections on her career journey to date, she also talked on how continuing to challenge is key to ensuring the University achieves gender equality.

# LEARNING AND STUDENTS

## Inclusive Bangor Scholarships

Inclusive Bangor Scholarships are awarded to exceptional Bangor University graduates. The scholarships support students who are continuing their studies at Bangor. The aim of the scholarships is to highlight and celebrate the diversity and inclusivity of our student population, to ensure the student voice and experience is embedded in our Equality, Diversity, and Inclusivity and Athena Swan agendas, and to support the career development of our students contributing to these important agendas.

## Student Data 2020/2021

Women continue to make up the majority of students studying at Bangor with 60.9% of all students identifying as female, slightly higher than the UK figure of 57.2%.



## Undergraduate Modules

Gender Perspectives run by the School of History, Law, and Social Sciences, focuses on the private/public spheres, the body, media, gender identity, masculinity, ethnicity, disability, and class.

The Race & Gender module run by School of Arts, Culture and Language, focuses on the role that sex, gender, ethnicity, and race have played in the creation, reception, and theoretical construction of various forms of film and visual culture. Students are encouraged to question the role of Race and Gender in film and visual culture.

# OPERATIONS

## Athena SWAN

We are focused on achieving real cultural change within the University and our individual Schools and Departments. Our Athena Swan awards demonstrate an ongoing commitment to the advancement of gender equality and diversity: representation, progression, and success for all.

In recognition of this, the University already holds a Bronze institutional Award and the following Schools have all been awarded Athena Swan Bronze in recognition of their ongoing commitment to gender equality for staff and students: Computer Science and Electronic Engineering, Psychology, Business, Ocean Sciences, Natural Sciences, Health Sciences, Sports, Health and Exercise Sciences.



## Gender Pay Gap Reports

The University is fully committed to addressing the gender pay gap at Bangor University. Since we first reported on this three years ago, the University's median gap has reduced by almost 4%.

## Employee Support Policies and Procedures

Bangor University has an extensive suite of employee support policies, such as maternity, adoption and parental leave, time off for dependants and emergencies, and flexible working.



## 6 CLEAN WATER AND SANITATION



Owner: Sustainability Strategy Group

### PUBLIC ENGAGEMENT

#### Infection Prevention Best Practice and Behaviours MOOC

Our [distance learning 8-week course](#), shortlisted for the Nursing Times Awards 2020, is focused on promoting best practice and behaviours in infection prevention.

#### Dŵr Uisc

The project aims to improve the long-term sustainability of water supply, treatment, and end-use in Ireland and Wales through the development of innovative technology platforms, undertaking economic and environmental impact assessments, and developing policy and best practice guidelines to facilitate integrated low-carbon and smart energy solutions for the water sector.



### Goal: Ensure Availability and Sustainable Management of Water and Sanitation for All

### RESEARCH

#### Global study of 48 cities finds nature sanitizes 41.7 million tons of human waste

The [study](#) estimates that more than 2 million cubic meters of the cities' human waste is processed each year without engineered infrastructure.

Wastewater treatment infrastructure that converts human feces into harmless products is an important tool for global human health. However, more than 25% of the world's population did not have access to basic sanitation facilities in 2017, and another 14% used toilets in which waste was disposed of onsite.



#### Study shows a link between agricultural land grade and river water quality in rural catchments

A [study by a team of researchers](#) from Bangor has shown that water quality in the Conwy and Clwyd rivers in North Wales is strongly related to the grade of agricultural lands in their respective catchment areas.

# LEARNING AND STUDENTS

## Undergraduate Modules

Water, air & soil pollution is a module run by the School of Natural Sciences. A major part of this requires an understanding of how manmade pollutants affect the biosphere and the impact on humans, and also their impact on plants. It deals with major global environmental topics such as heavy metals, microplastics, pesticides, human pathogens, biodiversity loss from rivers, acid rain, salinity, and water scarcity.

## Period Poverty

Period products are a necessity not a luxury. That's why our student-led Period Poverty scheme provides students with free access to period products. We want to ensure students' academic and general university experience isn't compromised by a lack of access to products or support around menstruation.



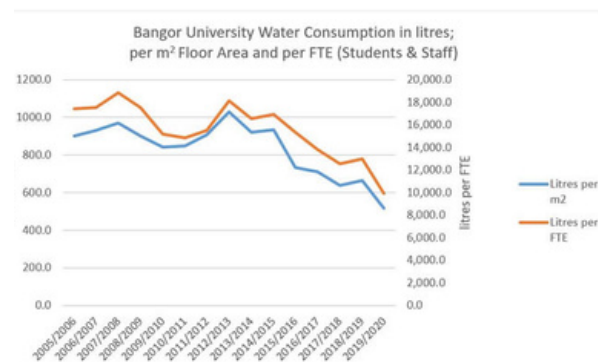
## Drinking Water

All University catering outlets can refill reusable water bottles for free, and there are also water dispensers located around campus.

# OPERATIONS

## Water Management

The University sets itself targets to reduce water use as part of its Environmental Management System. Between 2005 and 2020, total water use was reduced by 42.9% per m<sup>2</sup> floor area. Our annual targets aims to reduce water consumption by 2% compared to the previous year.



## Water Reduction and Recycling

Our Environment Centre Wales building was designed with a rainwater harvesting system. The water collected by the building is used to supply water for all the toilets in the building. Modelling based on the roof area of the building and average annual rainfall project that the building will collect 315,000 litres of water per year.

Treborh Botanic Garden and Henfaes Research Centre/Bangor Forest Garden both make use of waterbutts to collect rainwater for the purposes of watering plants. Treborh has a total waterbutt capacity of around 3000 litres which is used to offset the use of clean water for watering plants.

New installations or refurbishment programmes have meant the installation of some higher water efficiency low flow taps, low flush toilets, waterless urinals, use of automatic sensors. All the Halls of Residence showerheads are efficient models reducing water consumption by more than 18%.

## 7 AFFORDABLE AND CLEAN ENERGY



*Owner: Professor Paul Spencer*

## RESEARCH

### Research leads to re-focusing of the tidal energy industry

Research led by the University's ocean energy research group has pioneered an understanding of the opportunities and challenges faced by the international tidal energy industry, of less energetic 'second-generation' tidal energy sites.

It has directly informed the development of new wave-tide interaction engineering models, the design of state-of-the-art laboratory facilities, the selection of second-generation tidal energy sites, and tidal turbine design. The research has re-focussed the tidal energy industry, towards the development of less energetic tidal sites that are complementary in terms of the timing of power output.



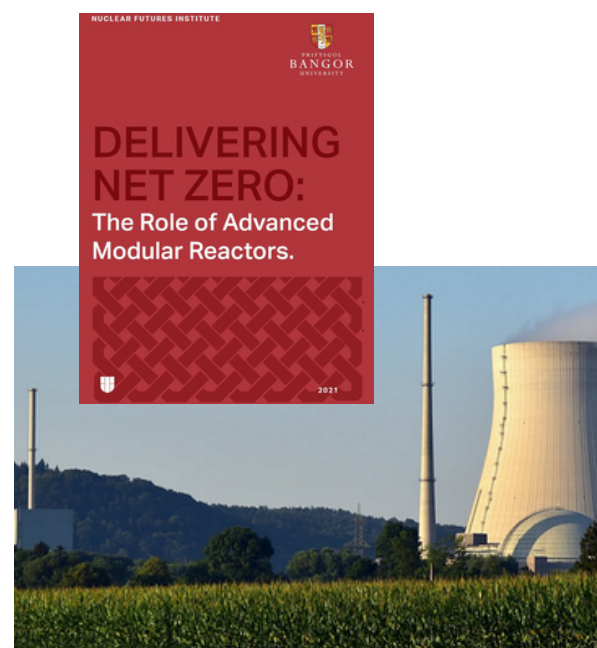
## Goal: Ensure Access to Affordable, Reliable, Sustainable and Modern Energy

## PUBLIC ENGAGEMENT

### Nuclear Futures Institute - Delivering Net Zero: The Role of Advanced Modular Reactors

The delivery of carbon Net Zero will depend on the successful deployment of a range of low carbon technologies – including nuclear.

The Government's Ten Point Plan for a green industrial revolution includes growth in renewable technologies, green hydrogen as well as delivering new and advanced nuclear power for electricity production and other suitable applications.



Delivery of the first Small Modular Reactor (SMR) and Advanced Modular Reactor (AMR) demonstrators is targeted to be in the early 2030s. Given this ambitious target, Bangor University's Nuclear Future Institute (NFI) hosted a workshop to discuss the role that AMRs can play in the delivery of the Government's plan.



## LEARNING AND STUDENTS

### Study

The Marine Renewable Energy postgraduate course introduces students with a first degree in the physical, mathematical, or other numerate sciences to the subject of Marine Renewable Energy. As well as providing an overview of marine renewable energy, the course enables students to research in detail those aspects of the subject in which they are particularly interested. The course places particular emphasis on assessing the wave & tidal energy resource, and geophysical nature of sites, providing students with the necessary skills for marine renewable energy resource and site characterisation from a theoretical, technical, and practical perspective.

The undergraduate module on Sustainable Renewable Energy aims to provide students with an understanding of renewable energy supplies, the engineering that supports them, and related concerns.

The University is making a particular contribution to advancing the higher level nuclear skills agenda, preparing the next generation of graduates for the nuclear sector. Its partnership with Horizon Nuclear Power has given rise to careers workshops, opportunities for student Interns to visit Horizon's parent company Hitachi-GE Nuclear Energy Ltd at Hitachi City in Japan, and placements for Bangor Graduates.

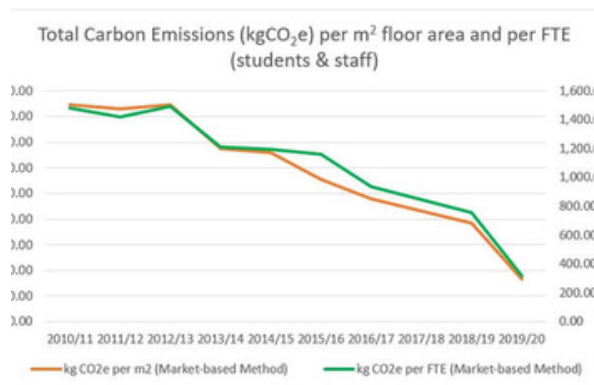


## OPERATIONS

### Energy and Carbon Emissions

As a University, we understand that our use of fossil-fuel-derived energy is contributing to global climate change. In 2019, we declared a Climate Emergency and announced that 100% of our electricity is now supplied from guaranteed renewable sources.

Since 2005, the University has been working to reduce energy use and associated carbon emissions. Between 2005 and 2020, we have reduced our total energy use per m2 floor area by 44.3%.



### Energy and Carbon Emissions

Between 2018 and 2019, the University invested £2.5 million in energy efficiency improvements as part of the Welsh Government's ReFit Cymru scheme. In total, the scheme is projected to reduce energy consumption by around 12%.

Some of the funding was used to install solar panels on 5 buildings to generate renewable electricity on-site. The panels are expected to generate more than 140,000 kWh of electricity per year and reduce carbon emissions by more than 56 tonnes CO<sub>2</sub>e per year.

### Campus Services Fleet goes Electric

In its drive to become a resource-efficient institution, the University now has 16 electric vehicles in its fleet within Campus Services.

## 8 DECENT WORK AND ECONOMIC GROWTH



*Owner: Sustainability Strategy Group*

## RESEARCH

### **Post-Covid shift away from global supply chains could boost North Wales economy**

A backlash against globalisation in the wake of the Covid-19 crisis can kick-start North Wales's powerful manufacturing sector with a boom in cutting-edge technologies like 3D printing boosting the recovery.

A [Bangor University economics lecturer](#), predicts more businesses and governments will want to have their supplies closer to home as they emerge from months of unprecedented lockdown.

### **Wales could save billions of pounds a year through investing in a healthier workforce**

A [report](#) by the Centre for Health Economics and Medicines Evaluation, has brought together evidence of the economic arguments for investing in the health and wellbeing of the workforce in Wales. Collating the latest economic evidence, the report estimates that economic inclusion benefits the economy, with every person moving from unemployment into sustainable work adding around £10K per year to the local economy rising to £24K to Wales as a whole.

**Goal: Promote Sustained, Inclusive and Sustainable Economic Growth, Full and Productive Employment and Decent Work for All**

## PUBLIC ENGAGEMENT

### **Skills Academy to assist young people into careers in the digital sector**

The challenges companies across the region, and indeed Wales as a whole face in recruiting to the digital sector are well known. [Bangor University's M-SParc](#), working with the Regional Skills Partnership, hope to help tackle those issues by forming this academy, offering people the work experience and guidance to take advantage of the well-paid careers available in the sector.

The Skills Academy provides opportunities not only for graduates, but for undergraduates in the form of degree apprenticeships, work opportunities for people who are under-employed or who wish to upskill, and those wanting a career change.



### **Science Park**

Our three-year-old Science Park on Anglesey, [MSParc](#), is thriving and has ambitious plans to grow further. With 200 people working in the building and 50 new careers created, the average earnings for those working for a company at MSParc is higher than the averages for Anglesey, Gwynedd, & Conwy.



# LEARNING AND STUDENTS

## Skills and Employability

Our Skills and Employability Service work with graduate employers and other organisations to assist with the development, vetting, and promotion of graduate jobs, internships, placements, and other work experience opportunities.

They work with employers of all sizes, from large multi-national companies to small-scale businesses, and source opportunities for students at an international, national regional, and local level.

The GO Wales Team provide one-to-one support to students facing barriers, to explore the best work experience options, providing support throughout the placement/experience, and helping them grow in confidence.

Our B-Enterprising Team provides students at Bangor University and graduates in Wales with a range of services to help develop their enterprise skills or to support them in starting a new business.

The Graduate Support Programme is available for graduates and includes a range of support to graduates who need support to enter the world of work. The programme offers a range of events, 1:1 support, training, and work experience to help increase their chances of gaining graduate-level employment.

The KESS (Knowledge Economy Skills Scholarships) supports collaborative research projects with external business partners.

Bangor University also has a portfolio of fully funded degree apprenticeship qualifications covering Software Engineering, Cyber Security, Data Science, and Mechanical and Electrical Engineering, to access and develop talent and skills.

# OPERATIONS

## Living Wage Employer

We are a Living Wage employer, accredited by the Living Wage Foundation. The real Living Wage is the only UK wage rate that is voluntarily paid by over 7,000 UK businesses who believe their staff deserves a wage that meets everyday needs - like the weekly shop, or a surprise trip to the dentist.

## Dignity at Work and Study

The University is committed to developing an environment in which everyone is treated with dignity and respect and protected from harassment, bullying, victimisation, and discrimination at work and study. We have staff equality champions and a Student Equality and Diversity Officer.



## Non-profitmaking Nursery

Our on-site Tir na n-Og Nursery is open to university students and staff and members of the public, with part-time and full-time places available. We also provide staff with parental responsibilities more affordable childcare via our salary exchange arrangement.

## Slavery and Human Trafficking Statement

The University is committed to preventing slavery and human trafficking in its corporate activities, and to seeking to ensure that its supply chains are free from slavery and human trafficking.

## 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



*Owner: Professor Paul Spencer*

### RESEARCH

#### **Turbulence research improves ocean forecasting and marine energy infrastructure**

New techniques for measuring, and novel measurements of, turbulence in continental shelf seas and estuaries, developed by the University, have revolutionised the representation of key vertical exchange processes within state-of-the-art numerical ocean models.

These measurements have directly improved modelling accuracy of coastal sea mixing dynamics. This measurement of marine turbulence has also provided critical information in determining the effective siting of marine renewable energy plants.



### **Goal: Build Resilient Infrastructure, Promote Sustainable Industrialisation and Foster Innovation**

### **PUBLIC ENGAGEMENT**

#### **Encouraging healthy eating in children**

The School of Psychology devised The Food Dudes addresses the major public health challenge of encouraging healthy eating in children. Psychologists used a unique combination of role modeling, rewards, and repeated tasting to get long-lasting results in children's intake of fruit and vegetables.

The Roll-out of the Food Dudes programme internationally and spin-out has seen more than 500,000 four- to eleven-year-old children participate across Europe and the U.S.A. and continues to attract significant funding from public health agencies internationally.



#### **Digital Signal Processing (DSP) Centre of Excellence**

The DSP Centre of Excellence is a research centre undertaking highly specialised research into digital communication systems such as 5G networks and ecosystems. Innovative DSP algorithms embedded in network devices are a cost-effective way of speeding up networks, dynamically and optimally sharing network resources and implementing power managed devices for low-carbon networks. .

## LEARNING AND STUDENTS

### Study

Design thinking can be employed to change the world. Our Applied Innovation Design course offers a pathway for individuals who wish to lead innovation through creativity and applied design thinking, in a variety of related industries. The course is designed to offer advanced study in innovation design, with an emphasis on application of creativity and innovation tools, alongside the skills needed to lead, collaborate and facilitate in areas that require innovation.



### Bangor Entrepreneur walks away with Judges Award from Santander Universities Emerging Entrepreneurs Awards 2020

With over 80 entries, MSc student Jan Lloyd Nicholson was one of four semi-finalists to represent Wales but the only one to succeed in scooping an Award. Henry's Cushion, a non-verbal educational aid, was born out of a conversation with Jan's autistic son Henry and with the invaluable support of the University's B-Enterprising team, the School of Psychology, Big Ideas Wales, M-SParc, and the Enterprise Hub.



## OPERATIONS

### Business Facilities and Networks

Arloesi Pontio Innovation (API) exists to stimulate economic growth, connecting the region's innovators, inventors, and entrepreneurs with world-leading know-how, skills, and research. Business activities include product development, design and prototyping, training, and support to identify new thinking, methods, and processes.

The BioComposites Centre undertakes collaborative research projects to develop sustainable bio-based technologies that will minimise the impact of materials on the environment, working with Large Multinationals, SMEs, micro-businesses, and Research Institutes interested in lowering their Global Warming Potential (GWP).



CALIN (Celtic Advanced Life Science Innovation Network) is a network for life-science businesses which gives them the opportunity to engage with University centres of excellence, health-boards, multi-national business firms, and other life-science businesses.

The Centre for Photonics Expertise (CPE) is funded by the European Regional Development Fund through the Welsh Government to collaborate with businesses in Wales providing technological solutions to their manufacturing processes or potential product innovations through the application of photonics technology.

fabLAB gives businesses access to training and self-help prototyping.





Owner: Professor Andrew Edwards

## RESEARCH

### Turning back migrant boats: what does the international law of the sea say?

This published [article](#) looks at the legal and human rights issues regarding the use of “turnback” tactics in the English Channel, with the border force compelling small boats carrying migrants to return to French waters.



### American slavery and the Welsh

America Gaeth a'r Cymry, a documentary about the Welsh in America and their relationship with slavery, was televised as part of the Black Lives Matter movement. The series tells the story of the involvement of Welsh-Americans (Welsh-speaking Americans) with slavery, from its inception to the end of slavery in the USA in 1865.

## Goal: Reduce inequality within and among countries

## PUBLIC ENGAGEMENT

### Inspiring Social Change through Race Equality Event

Racial equality is one of the most important issues facing society today. This [partnership event](#) between Race Council Cymru and Bangor University offered an insight into the work of academics, public figures, grassroots activities, and students, who are committed to racial justice.



### Reaching Wider - Increasing HE participation

Bangor University is home to the North and Mid Wales Reaching Wider Partnership, part of a Wales-wide scheme that aims to increase participation in Higher Education from those living in low-participation areas in the region, in particular those designated as Communities First areas.

Their mission is to engage with Primary and Secondary schools, adults 21 and over with no Higher Education qualifications, from the bottom two quintiles of the Welsh Index of Multiple Deprivation. They also work with care experienced individuals and carers to help reduce barriers to education faced by these groups.

## LEARNING AND STUDENTS

### Student Data 2020/2021

22.2% of all Bangor University students identified as BAME. 23.8% of Bangor University students registered during the period 2019/20, were recorded as having a disability. This is much higher than the UK figure of 13.9% and Wales figure of 14.9%.

### LGBT+ Society

The Students' Union's Bangor LGBT+ Society provides a safe and welcoming environment for members of the LGBT+ community. As well as focusing on social aspects, they also run campaigns and collaborations with various other societies at Bangor University.



### Study

We offer 4 postgraduate degrees on the subject of Criminology and Criminal Justice. Research which focuses on comparative study at several cross-cultural levels: national, international, and rural-urban comparisons.

### Student Support

The Student Services team consists of many services and support for Disability, Dyslexia and other specific learning differences, Chaplaincy and Faith, Mature students and families, International Societies, and an International Education Centre.

## OPERATIONS

### The Strategic Equality Plan 2020 – 2024

The University continues to support and promote equality, diversity, and inclusion. To do this we have worked closely with staff and students to support our diverse community to deliver an outstanding student experience and excellent teaching and research.

The Strategic Equality Plan 2020 – 2024 was published after consultation with staff and students about their views regarding equality in the University and what actions they wish to see implemented. The Plan has four themes: The Whole University, Student-focused, Staff-focused; and Community and Civic.

### Mandatory Training

The University requires all staff to undertake mandatory training on Equality and Diversity and Unconscious Bias, to identify, tackle and eradicate unlawful discrimination, and to help the University develop an inclusive workplace.

### Staff Data

In 2019/20 the University's population of BAME (Black, Asian, Minority Ethnic) staff was 6.49%, higher than Wales HEIs at 4.5%.

We continue to be a Disability Confident Employer and work with the DWP and others to improve access to workplaces for disabled staff. 8.7% of staff have self-identified as disabled, compared with 6.1% of staff working in Wales Higher Education Institutions (HEIs).

### LGBTQ Network

The Bangor University staff and post-graduate LGBTQ Network was established in 2018. It's open to anyone who works at the University and postgraduate students who identify as lesbian, gay, bi, trans, queer, or questioning, plus friends and allies of our community.



Owner: Lars Wiegand

## RESEARCH

### Emotional AI in Cities: Cross-Cultural Lessons from UK and Japan on Designing for An Ethical Life

As Emotional Artificial Intelligence (AI) starts to be rolled out in smart cities, the University is to study ways in which citizens can live harmoniously with technologies that sense, learn and interact with their emotions, moods, attention, and intentions.



### Prehistoric communities off the coast of Britain embraced rising seas - what this means for today's island nations

The findings provide a stark reminder of the effects sea-level rise can have on coastlines and communities. Importantly, response plans must be designed with both local environments and local cultures in mind.

## Goal: Make Cities Inclusive, Safe, Resilient and Sustainable

## PUBLIC ENGAGEMENT

### Museum and Collections

The general public can visit our Art and Ceramic collection during opening hours and the Natural History Museum holds a number of Open Days throughout the year.

The Art Collection consists of approximately 600 works dating from the 17th to the 21st centuries, whilst the Ceramic collection consists of 500 pieces of porcelain and china. The Natural History Museum houses our Zoology Collection of 500 items, a selection of our Geology collection, a Timber Collection of 5400 samples, and the Damaged Wood Collection of around 500 samples.



### Pontio - Arts and Culture, Innovation, Education and Community

Pontio adds significantly to the amenities within Bangor and the surrounding areas for the economic, social, and cultural benefit of both the University and of the wider community. The centre boasts a theatre, cinema, numerous dining areas, interactive lecture rooms, the Students' Union and an entire floor dedicated to innovation and the use of cutting-edge technology.



## LEARNING AND STUDENTS

**Bangor University ranked 1st in the UK for lowest cost of living for students - TotallyMoney 2019**

The cost of living is lower than in larger city universities. Accommodation costs are much lower and with no need to pay for public transport - students can save up to 50% on living costs. Bangor is not an industrialised city, pollution levels are low, so it's a clean and healthy place to live.

### Study

The module Settlement Systems - Sustainable Communities examines the main forces which have shaped sustainable rural and urban communities mediating the places and spaces in between these. Fieldwork focuses on issues relating to the restructuring of rural and urban communities and responses to the challenges of sustainability.

Discovering Cities is a module providing an interdisciplinary and transnational overview of the study of the city, focusing both on specific cities and, more broadly, on the construction and cultural representation of urban space.

### Student Volunteering Bangor

There are 11 sustainability community service volunteering projects for students to contribute towards such as Beach Cleans, Greener Gwynedd, and Elwy Working Woods.



## OPERATIONS

### Sport

In addition to 55 student clubs, the University also provides sports facilities for around 50 local clubs, teams, and groups, providing bursaries for local athletes to enable them to train in the facilities completely free of charge. We work closely with other local sporting providers to capitalize on funding opportunities.

In 2014 Bangor University part-funded the new all-weather "3G" pitch at Bangor City's Bangor University Stadium, providing a valuable community resource for an even wider range of local clubs, and a netball and tennis dome is prioritised for local netball use by adult and junior clubs.



### Travel, Transport, and Green Space

Cycle racks are available near to every building on site for use by staff, students, and the public, in addition, a map showing shower locations is available.

To reduce traffic to other parts of the campus, we have mapped and encourage walking, and also encourage all to access our 18 hectares of free grounds at Treborth Botanic Garden which also houses a section of the Wales Coastal through the mixed woodland.

Our Biodiversity and ecosystems plans aim to positively enhance biodiversity across city sites.



*Owner: Sustainability Strategy Group*

## PUBLIC ENGAGEMENT

### Innovation in biomaterials for industry

Since 1989 the [BioComposites Centre](#) has been at the forefront of research, development and the commercial application of bio-based alternatives to synthetic materials in manufacturing and industry.

Providing knowledge and technical alternatives to lower costs, increase productivity and make activities more environmentally and socially responsible. They are able to help with energy monitoring capability, accessing the world's largest database of lifecycle inventory data, and small-scale scoping reports – ideal for hotspot identification work to full cradle-to-grave research-based analyses.

### From Plants to Products

[BEACON](#) builds integrated 'Green Supply Chains' with a focus on developing new routes to functional, cost-competitive products using biomass rather than oil. This is done by understanding and engaging with businesses to cultivate and deliver 'Green Technology Solutions' to benefit a range of industry sectors.

## Goal: Ensure Sustainable Consumption And Production Patterns

### RESEARCH

#### Crop rotations offer more sustainable and nutritious food production

Growing more legumes, like beans and lentils, is potentially a more sustainable and nutritious approach to European agriculture. This study presents some of the first holistic evidence that adding legumes to traditional crop rotations (typically including barley, wheat, and rapeseed) offers significant environmental benefits as well as increased nutritional value for humans and livestock.



#### Planned UK planting of forests expected to be the equivalent of 14 billion fewer kilometres being driven

A [study](#) demonstrates the important role that planting new commercial and conservation forests could play in the fight against climate change. The planned UK planting of 600,000 hectares could sequester 0.5 to 1.7 billion kg of carbon dioxide equivalent by 2120 (cumulative), roughly the same as up to 14 billion fewer kilometres being driven over that same time.





# LEARNING AND STUDENTS

## End of Term Halls Reuse Drive

The End of Term Halls Reuse drive provides students with the opportunity to donate unwanted reusable items to a local charity. Items including, crockery, pots, and pans, clothes, shoes, kitchen utensils, can all be donated.

## Waste Awareness Week

Waste Awareness Week is the University's annual week-long waste campaign, which increases awareness about waste reduction, reuse, and recycling, inform students about possible career opportunities in the sector, and engages students and staff in resource efficiency events and activities.

## Study

The Sustainable Manufacturing Management module aims to provide students with an appreciation of the concerns that manufacture on an industrial scale faces with regard to environmental impact, waste, and efficiency which all factor into whether a process is sustainable.

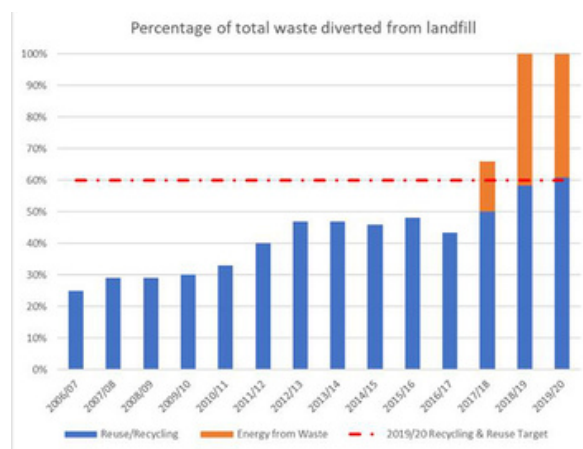
Sustainable Development: from Global to Local is an inter-disciplinary module that presents an introduction to the development of the concept and broad practice of sustainable development arising from global population change, inequity, uneven development, and natural resource management focussing mainly on global North contexts.

Carbon Footprinting and LCA is designed to provide knowledge, understanding, and capacity to undertake carbon footprinting (CF) and life cycle assessment (LCA) for professionals concerned with the sustainable and efficient management of land resources.

# OPERATIONS

## Waste Data

In 2019/20 the University diverted 100% of its waste from landfill. Out of the waste diverted, 2% was reused, 59% was recycled and 39% was recovered. 617T of waste was generated in total, a 196T (24%) reduction from the previous year. We aim to reuse/recycle 70% of our waste by July 2025, as laid out in Wales' overarching waste strategy - Towards Zero Waste.



## Sustainable Food Policy

We have already adopted a significant number of best practices within the kitchens and catering outlets of the University, notably;

- Seasonal menus with healthier options
- No fish is served from the Marine Conversation Society (MCS) 'fish to avoid list'
- Fairtrade accreditation
- Recycling banks in all restaurants, and composting of all food waste, and cooking oil
- Reduction in the use of disposable cups in favour of crockery and glass
- Food Packaging for sandwiches/ salads/ fruit pots prepared on site is biodegradable or recyclable.





Owner: Sustainability Strategy Group

## RESEARCH

### Climate change will impact future water availability for hydropower and public water supply in Wales

Wales could face public water supply challenges and lower hydropower generation potential in the future according to research. Wales is often considered a country plentiful in water supply. However, this work has shown that this may change in the future, with obvious important social, economic, and environmental impacts and that water availability in Wales will become more seasonal under future climate change.

### Eight ways to make your climate change social media posts matter – from a communication expert

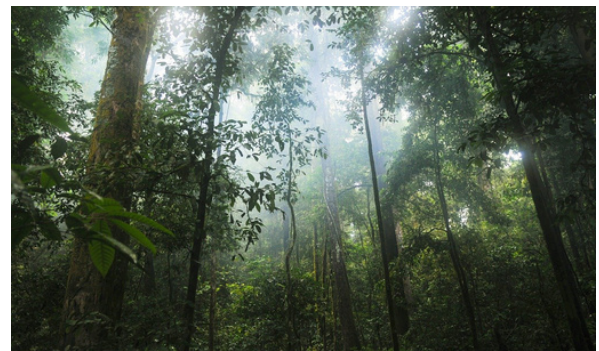
Social media gives everyone the opportunity to argue with the world. Environmentally conscious Instagram hashtags like #zerowaste boast 4 million posts and counting. Noted are some key insights from recent research on communicating how to get posts about climate change to cut through the noise – and inspire positive climate-related behaviour change and support for policies that mitigate the climate crisis.

## Goal: Take Urgent Action to Combat Climate Change and Its Impacts

## PUBLIC ENGAGEMENT

### **Addressing Marine Plastic Waste as a Climate Change Adaptation Priority in Indonesia**

A 'Climate Challenge' Workshop "Addressing Marine Plastic Waste as a Climate Change Adaptation Priority in Indonesia" was aimed at stimulating innovative research connecting the interlinked issues of climate change and plastic waste ahead of the UNFCCC's COP26. Climate change and marine plastic waste are endemic issues facing Indonesia, affecting approximately 187 million people living on the Indonesian coast.



### Tropical Forests and Climate Change: Why any solution to climate change must include tropical forest conservation and why it is so difficult to achieve

Any solution to climate change must involve tropical forests. These include the UN policy known as REDD+ (Reducing Emissions from Deforestation and forest Degradation) which seems like a straightforward idea (poorer tropical forest countries receive funding to reduce their deforestation) but has been highly controversial. This public lecture explores the problems with REDD+ and examines why it is important issues are addressed.

# LEARNING AND STUDENTS

## Study

Zoology with Climate Change Studies - Sir David Attenborough has called climate change humanity's greatest threat; resulting in the loss of civilisations and the extinction of much of the natural world. This degree equips you with the knowledge and skills to be an essential part of the solution David Attenborough has called for.

Climate Change: Science and Impacts is understandably concerned with how climate is changing now and what the future holds. The module aims to place the contemporary climate change debate in a longer-term scientific context and explore debates around the causes and consequences of historic and contemporary climate change.

The Oceans, Atmosphere, and Climate module aims to introduce the student to the external forcing factors and internal processes which modulate and control the Earth's climate system. Major issues include the primary external forcings of natural climate variability (tectonic, orbital, and solar), internal processes and feedbacks within the Earth system, anthropogenic drivers of climate change, impacts of climate change, future climate change, and mitigation and adaptation strategies.

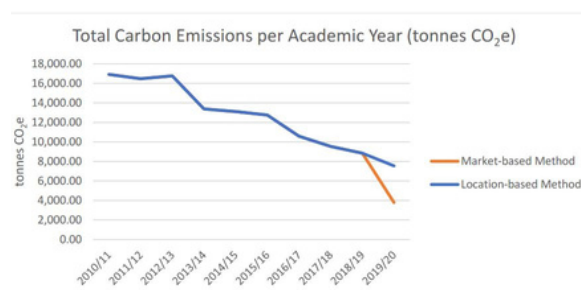


# OPERATIONS

## Carbon Management

As a University, we understand that our use of fossil-fuel-derived energy is contributing to global climate change. In 2020 approved a target to reach net-zero carbon by 2030. We are now working to develop our action plan on how to achieve this ambitious target.

For the 2019/20 academic year, the University's carbon emissions were calculated to be 7,348 tonnes CO<sub>2</sub>e. This is a reduction of 56.6% in absolute terms, compared to our baseline in 2010.



## Bangor University joins organisations declaring climate emergency

Not only are students and young people concerned about the environment, but they have succeeded in raising the public's awareness and we are proud to support our students by declaring a climate emergency. Collectively, as a group, we are rightly challenged to address the issues pertinent to society in a changing climate.

## Mapping the Sustainable Development Goals (SDGs) within Bangor's Curriculum

During 2019/20, academics and Ph.D. students in the College of Arts, Humanities, and Business undertook a module review to map the curriculum against the 17 SDGs. This mapping exercise will be rolled out to all three Colleges in 2021/22 so the extent to which sustainability is taught across Bangor University can be recognised and enhanced going forward.



*Owner: Professor Paul Spencer*

## PUBLIC ENGAGEMENT

### **Lee Waters, Deputy Minister for Climate Change at the BlueFish conference**

The conference summarised the [BlueFish](#) project research and output recognises that climate change has many potential implications for coastal fisheries, aquaculture, and the coastal communities within the Irish and Celtic Seas. Through the combination of art and science BlueFish has set out to demystify climate change, build resilience and raise awareness of the effects on the coastal communities.

### **A new research centre to study the growing problem of plastic waste**

A new research Centre has been established at Bangor University to study the growing problem of plastic. [The Plastic Research Centre of Wales \(PRC Wales\)](#) is the first of its kind in the country and brings together a wide variety of academics, students, organisations and industries.

PRC Wales is at the forefront of tackling one the planet's greatest environmental issues: plastic waste and the overuse of single-use plastic.

## **Goal: Conserve and Sustainably Use the Oceans, Seas and Marine Resources For Sustainable Development**

## RESEARCH

### **Catastrophic consequences for our oceans when climate change and plastic pollution crises combine**

The [University has revealed](#) fundamental links between the global climate crisis and plastic pollution, including extreme weather worsening the distribution of microplastics into pristine and remote areas.

Scientists have for the first time, collated evidence that the global issues of marine plastic pollution and climate change exacerbate one another, creating a dangerous cycle, and are urging governments and policymakers to tackle issues in unison.



### **Illicit drug waste found in river during Glastonbury Festival**

[Scientists](#) from the University have found environmentally damaging levels of illicit drugs in the river running through the Glastonbury Festival site. The team found that MDMA concentrations quadrupled the week after the festival, suggesting long-term release from the site, and cocaine concentrations rose to levels known to affect the lifecycle of European eels, a protected species.



# LEARNING AND STUDENTS

## School of Ocean Sciences

We are one of the largest university [Marine Science departments](#) in Europe, located on the shores of the Menai Straits.

Undergraduate degrees focus on Applied Marine Biology, Geological Oceanography, Marine Environmental Studies, Marine Vertebrate Zoology, Ocean and Geophysics, Ocean Science, Physical Geography, and Physical Oceanography. Postgraduate students can study Applied Marine Geoscience, Marine Biology, Marine Environmental Protection, Marine Renewable Energy, Physical Oceanography, and Ocean Sciences.



## Research Vessel Prince Madog

The Prince Madog is a state-of-the-art, purpose-built research vessel commissioned by Bangor University using a £3.5 million Joint Infrastructure Fund grant. Managed and operated by O.S.Energy, delivered and in service July 2001.

The vessel enables the UK's marine scientists to study the biology, chemistry, geology, and physics of our seas. Designed to take up to ten scientists and 20 students. The School of Ocean Sciences and other university departments in the UK also use the vessel as a teaching platform, training the next generation of marine scientists.

# OPERATIONS

## Catering and Conferencing

We maintain the availability of fish from the MCS "Fish to Eat" list, never serving any fish on the 'fish to avoid' list, and also work to reduce single-use plastics for instance by decreasing the use of disposable cups in favour of crockery and glass and ensuring all our food packaging for sandwiches/ salads/ fruit pots prepared on-site is biodegradable or recyclable.

## Lab Plastic Recycling

Where lab plastics cannot be washed and reused in our labs, we have implemented a lab plastic recycling collection to prevent waste entering the general waste stream.



## Marine Centre Wales

[Marine Centre Wales](#) (MCW) is a national resource designed to meet the need for integration of research, innovation, commerce and policy in the marine sector. Located on our School of Ocean Sciences site, it provides access to specialist facilities including conference and meeting rooms, offices, laboratories, aquaria and research vessels including the RV Prince Madog.

MCW is also home to the SEACAMS2 project that supports developing economic opportunities in the Low Carbon, Energy and Environment through specialisation in commercial application of research and innovation in marine renewable energy (MRE), climate change resilience, and resource efficiency in Wales.



*Owner: Professor Paul Spencer*

## PUBLIC ENGAGEMENT

### Treborth Botanic Garden

Treborth Botanic Garden maintains a strong programme of educational outreach activity and engagement with the local community. It hosts field excursions, educational workshops, specialist seminars, technical training sessions, and social events for over a hundred local organisations and societies.

The Garden is a haven for biodiversity, from native plant species, 165 species of fungi, many species of marine, woodland and garden birds, breeding red squirrels, a heronry, a plethora of small mammals and orders of invertebrates.

In 1997, the Friends of Treborth Botanic Garden, a charity and a not-for-profit company was founded, with a remit to help improve the gardens and facilities.



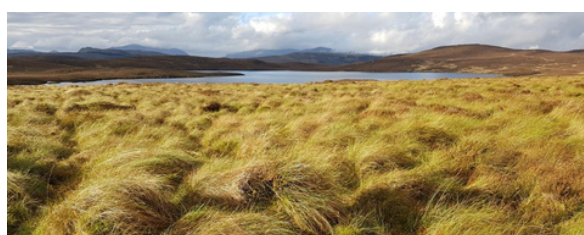
**Goal: Protect, Restore and Promote Sustainable Use of Terrestrial Ecosystems, Sustainably Manage Forests, Combat Desertification, Halt and Reverse Land Degradation, and Halt Biodiversity Loss**

## RESEARCH

**Nature has enormous potential to fight climate change and biodiversity loss in the UK**

The report finds that nature-based solutions (NbS) can provide a valuable contribution to climate change mitigation and can also protect and enhance biodiversity, improve human wellbeing, bring economic benefit, and provide a wide range of ecosystem services.

Despite the huge range of benefits NbS have, the report makes clear that they should be seen as complementary to other climate and conservation actions, not as a replacement to them. A priority NbS identified in the report is the restoration of the UK's peatlands.



**Huge ecosystems could collapse in less than 50 years**

The findings show humanity now needs to prepare for changes in ecosystems that are faster than we previously envisaged through our traditional linear view of the world. Large iconic ecosystems like the Amazon rainforest or the Caribbean coral reefs are likely to collapse over relatively short "human timescales" of years and decades once a tipping point is triggered.

# LEARNING AND STUDENTS

## School of Natural Sciences

**“Bangor University has a superb reputation in the study of environmental science. The world needs people skilled in the expertise needed to play a crucial part in solving the world’s problems.” - Sir David Attenborough.**

Conservation - The breadth of the discipline ranges from the ecology of threatened species to the institutional and economic aspects of conservation working globally from the forests of Madagascar to the savannahs of Africa, from the mountains of Snowdonia to the primeval woodlands of Poland.

Environmental Science - working across a range of disciplines, such as soil and water pollution, greenhouse gas emissions from wastes, environmental economics, hydrological modelling, carbon footprinting, and pathogens.

Forestry - We pride ourselves in being the UK's longest-standing Forestry department, with programmes accredited by the Institute of Chartered Foresters.

Zoology, Biology and Geography - We offer a wide range of degrees in the Biological Sciences and Geography encompassing “traditional” disciplines, with snake, lizard, and fish collections.



# OPERATIONS

## Field Facilities

The University owns two parcels of land, constituting approximately 221.5 hectares, which are within the boundary of Snowdonia National Park; Henfaes Ffridd and the Centre for Hill and Upland Management (CHUM).

CHUM, is managed as a commercial sheep unit with 1,650 purebred Welsh Mountain ewes, cattle, and pedigree (Section A) Welsh Mountain ponies. It includes the sessile oak woodland statutory conservation feature within the Coedydd Aber Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR) and Special Area of Conservation (SAC). The feature is the largest contiguous extent of this habitat type along the north Wales coast.

Henfaes Ffridd provides facilities for research and teaching in environmental science, agriculture (including arable crops and livestock grazing), forestry, hydrology, and conservation. It also has an extensive shoreline for studying coastal salt marsh processes. The site represents one of Defra's key sustainable intensification platform (SIP) sites.



## Biodiversity Targets

We have annual targets to promote biodiversity conservation and improvement and increase unimproved grassland and wildflower meadow areas across the University estate.





Owner: Professor Andrew Edwards

## RESEARCH

### Are the Amazon fires a crime against humanity?

Fires in the Brazilian Amazon jumped 84% during President Jair Bolsonaro's first year in office and in July 2019 alone, an area of rainforest the size of Manhattan was lost every day. The Amazon fires may seem beyond human control, but they're not beyond human culpability.

Given the global consequences of the Amazon fires, [this article asks](#) could environmental destruction of this nature be legally considered a crime against all humanity? Defining it as such would be unprecedented and charging individuals for environmental crimes against humanity could be an effective deterrent.



**Goal: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels**

## PUBLIC ENGAGEMENT

### Innocence Casework Unit (ICU)

Our Innocence Casework Unit's Student Caseworkers are given the opportunity to undertake pro bono casework and research on alleged miscarriage of justice cases.

They work, under supervision, on real-life cases – usually where an individual has been convicted and is serving a prison sentence. The cases are often amongst the most serious of offences, such as murder and manslaughter. In many instances, all other avenues of appeal have been exhausted – and yet the individual still seeks to maintain their innocence.



Student Caseworkers are given the opportunity to re-examine the evidence, including Witness Statements, court transcripts, and "Unused" evidence, to see if there is anything that may have been missed, or anything fresh. Caseworkers write and put questions to their clients on the case. All cases are supervised by Law Staff.

Any possible grounds for appeal can then be worked on, with the aim, if possible, being application to the Criminal Cases Review Commission or the Court of Appeal.



# LEARNING AND STUDENTS

## Bangor Law School scoop Access to Justice Foundation Award

In 2021 Bangor Law School won the Access to Justice Foundation Award, which recognises educational bodies or students who have made significant contributions to the promotion of access to justice.

The Law School was recognised for its CYMUNED initiative, which provides all students with the opportunity to contribute to access to justice through activities including public legal education, access to justice research, volunteering, internships, and more recently working with the North and Mid-Wales Law Clinic.

### Study

At Bangor Law School, you can study three types of law degree courses: LLB Law, LLB Law with another subject or a BA. All of our LLB degree courses are Qualifying Law Degrees, which denotes that they are approved by the Law Society of England and Wales and recognised for entry onto professional vocational training to become solicitors or barristers in England and Wales. In addition, five of our LLB degree courses are recognised by the Bar Council of India.

At postgraduate level we offer a range of degrees leading to LLM, MBA and MA programmes. In addition to a 2 year LLB Law conversion course for graduates who wish to train for the legal profession.

### Policing

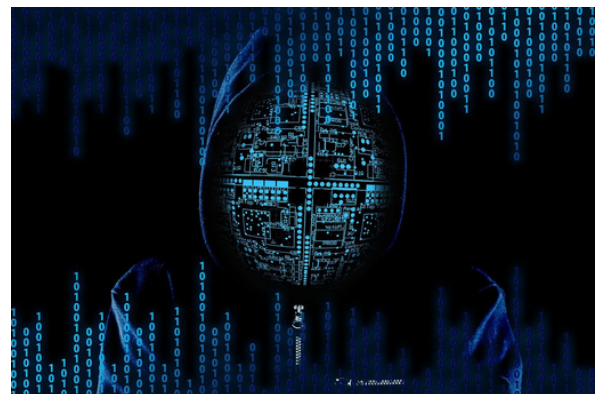
The BSc in Professional Policing is a professional academic knowledge-based degree of interest to those planning a career in policing or an interest in law enforcement as well as wider criminal justice.

# OPERATIONS

## University Management and Governance

The University is incorporated by a Royal Charter, first granted in 1885, and subsequently re-written and revised on several occasions. The Charter (and supporting Statutes and Ordinances) provide a broad framework for the legal structure and governance of the University.

Our Governance Service provides leadership, management, and support for the University in terms of legal compliance; public interest disclosure (whistleblowing); student discipline, complaints, and appeals procedures; records management; freedom of information; data protection; legal services; contracts; anti-bribery; ethics/research ethics and research governance; freedom of speech; the Prevent Duty; and various other governance and compliance issues.



## Ethical Investment and Procurement

We are committed to ensuring that our funds are invested responsibly, and as such Bangor University does not invest in controversial businesses, such as Weapons/Armaments; Alcohol; Gambling; Tobacco; and Adult Entertainment.

Our Purchasing Consortium has joined Electronics Watch, which is an independent monitoring organisation set up with the purpose of protecting the rights of workers within supply chains.



*Owner: Sustainability Strategy Group*

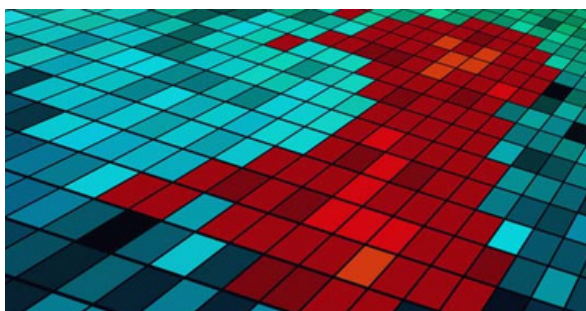
## PUBLIC ENGAGEMENT

### **Network links Public Health and Prevention Economics Research across the region**

The Public Health and Prevention Economics Research Group network links researchers working in the economics of public health and preventative interventions across the University and Betsi Cadwaladr University Health Board (BCUHB).

### **20Twenty Business Growth and Leadership Programme**

The Programme, up to 80% subsidised, has a qualification progression route from CMI Level 3 to CMI Level 7, including a Postgraduate Certificate, an Executive MBA and Chartered Manager Award. The programme is subsidised by the European Social Fund through the Welsh Government.



**Goal: Strengthen the means of implementation and revitalise the global partnership for sustainable development**

## RESEARCH

### **Bangor University academics team up with Brazil to tackle world problems**

Academics from Bangor University are sharing their expertise with collaborators at the Federal University of São Paulo (UNIFESP) in São Paulo State, Brazil, to address some of Brazil's most pressing social and environmental problems.

They hope that bringing experts from different subject areas together using different approaches and techniques will be key in developing new solutions to challenges under global agendas such as OneHealth, Agenda 2030, and the UN Ocean Decade.



### **First comprehensive assessment of climate change impacts on coasts and seas across the UK Overseas Territories**

Bangor University ocean scientists have contributed to an assessment of climate change impacts on the seas and coasts of the UK Overseas Territories with over 60 other scientists and managers working with all 14 UK Overseas Territories.

# LEARNING AND STUDENTS

## The Students' Link

This initiative supports students from international universities to work together and take the lead in developing sustainability in their universities and communities, promoting collaboration and well-being across continents. The [Bangor-Makerere Students' Link](#) with support from Hub Cymru Africa discusses campus greening in Uganda and focuses on four main areas:

- urban greening (any form of green projects and ideas from students)
- improving energy efficiency
- improving waste management & resource utilisation
- increasing awareness, communication and publicity about sustainability



## Community Engagement

Bangor University is active in its engagement with the [local community](#) and is involved in a wide variety of projects, some led by the Students' Union and others by University staff in dedicated departments.

[Student Volunteering Bangor](#) (SVB) has been providing community projects in and around the Bangor area since 1952. Since then SVB has grown to over 50 regular volunteering projects, split into the following subcategories; Mental Health Projects, Children's Projects, Environmental Projects, Elderly projects, and Community and Sports Projects.

# OPERATIONS

## SDG Accord

The University is a signatory of the SDG Accord, the purpose of which is to "inspire, celebrate and advance the critical role that education has in delivering the Sustainable Development Goals (SDGs) and the value it brings to governments, business, and wider society".

It also shows our commitment to do more to deliver the goals, to annually report our progress, whilst openly sharing on a national and international platform.

## Civic Mission

Since its foundation in 1884, partially as a result of the subscriptions of local quarrymen and agricultural workers, the University has been conscious of its debt to the region in which it is located. Equally, the university is recognised by the people of north Wales as a major asset, helping to build the economic, cultural, and social future of the region.

There is an extensive Library, the Archive department of which has the status of a 'Place of Deposit for Public Records'. The Library holdings and collections are shared with external members of the public through schemes such as 'Linc y Gogledd' which make University Library resources available in local public libraries in North Wales. The University also promotes cultural development through its Public Lecture programme.

