

ø

School of Biological, Earth and Environmental Sciences

BEES STRATEGIC PLAN

2020-2025

SEPTEMBER 2020



SCHOOL OF BEES (BIOLOGICAL, EARTH AND ENVIRONMENTAL SCIENCES) UNIVERSITY COLLEGE CORK, NORTH MALL CAMPUS, CORK

(021)4904650

HTTP:/BEES.UCC.IE HTTPS://TWITTER.COM/UCCBEES HTTPS://WWW.FACEBOOK.COM/UCCBEES/



School of Biological, Earth and Environmental Sciences



CONTENTS

04	OUR SCHOOL
05	OUR VALUES
06	WHO WE ARE
11	AT A GLANCE
12	STRATEGIC GOALS

OUR SCHOOL

OUR MISSION IS:

"TO ADVANCE AND APPLY OUR UNDERSTANDING OF THE NATURAL WORLD THROUGH EXCELLENCE IN RESEARCH, TEACHING AND INNOVATION"

The School of Biological, Earth &

Environmental Science (BEES) is one of the largest and most active academic units within the College of Science, Engineering and Food Science (SEFS) at University College Cork (UCC). Despite its relatively recent formation (2010), it has a long history of teaching and research within the University through its cognate disciplines of Environmental Science, Geology, Plant Science and Zoology & Ecology. This history stretches back to the establishment of Natural Sciences, Geology, and Agriculture at the inception of our University in 1849 and soon thereafter.

Our Mission is:

"To advance and apply our understanding of the natural world through excellence in research, teaching and innovation"

Through this Strategic Plan we enable our Vision:

"To maintain and advance our standing as an internationally recognised centre of excellence for research, teaching and learning in the natural sciences through connected, progressive curricula. through engagement with stakeholders communities nationally and and internationally, by improving our physical and analytical infrastructure, and by developing sustainable practices in a safe and supportive environment that values diversity, inclusivity and equality"

Our School has over 60 postgraduate researchers (PhD, MSc and MRes) as well as 27 Academic Staff, 8.9 Administrative Staff (BEES including UN GEMS/ Water Capacity Development Centre and 8.6 Technical Staff (full-time equivalents). We also have 23 Associated Staff (Emeritus, Adjunct, Retired and Senior Demonstrator), 2 Research Professors, 15 Postdoctoral Researchers, 10 Research Assistants and 5 Research Support Officers (July 2020).

We are research active, being one of the most successful Schools in UCC in terms of numbers of PhDs graduated and research grant income captured, resulting in productive research of international quality. We hold 3 ERC awards (July 2020), an overall turnover of approximately €3.5m annually in research funding and publish in top international journals such as Nature and Science.

We run a diversity of taught and researchbased educational programmes involving strategic partnerships with Teagasc, Minzu University of China and the University of Montana. Research-led, student focussed teaching is at the core of our ethos.

OUR VALUES

The School of Biological, Earth & Environmental Sciences (BEES) takes pride in the pastoral care of undergraduate and postgraduate students. The School has fully embraced a strong student-centred ethos in learning and teaching, by creating a culture where students are valued, and can positively engage with staff.

We strive to maintain and enhance a collegiate and friendly atmosphere within the School community. We proactively support equality, diversity and inclusivity and are working towards an Athena SWAN Silver Award. The School of BEES is a model of best practice when it comes to the successful amalgamation of diverse, yet ultimately related, disciplines within the university setting.

We strive to produce impactful, innovative research to the highest standards, and which is enriched through our national and international collaborations. Our research is funded through national and international funds, by industry and government. Our research strives to enrich our society economically, culturally and by helping create a healthy environment for all. This is achieved by working directly with policymakers, industry stakeholders, and the general public.



We strive to connect to the global community through our research outlook, impact and direct collaborations and also through our learning and teaching programmes where international student exchange and participation are encouraged. We are particularly pleased to be teaching Environmental Science and Management to students from across China with our partner University, Minzu University of China, in Beijing.

In line with the University's Academic Strategy, we aim to develop and enhance our students to become creators, evaluators and communicators of knowledge, and independent thinkers, to be digitally fluent, socially responsible, and effective, global citizens who recognise and challenge inequality. In this way, we wish to develop and enhance respect, ambition, compassion, and integrity in our students.

WHO WE ARE

Visit our website: http://bees.ucc.ie Follow us on Twitter: https://twitter.com/uccbees Engage with us on Facebook: https://www.facebook.com/uccBEES/

DISCIPLINES AND UNITS

The School of BEES is organised into the disciplines of Environmental Science, Geology, Plant Science, and Zoology & Ecology which oversee teaching and research, with interactions across and between disciplines strongly encouraged. The School of BEES also comprises the Aquaculture & Fisheries Development Centre (AFDC) and the UN GEMS/Water Capacity Development Centre.

ACADEMIC PROGRAMMES

The School offers a wide variety of programmes across the disciplines. It currently offers nine undergraduate programmes, (NFQ Level 8), four diplomas (NFQ level 8), two Postgraduate Certificates and one Postgraduate Diploma (NFQ level 9) leading to three taught MSc programmes (NFQ Level 9) and 4 taught MRes programmes (NFQ Level 9).

These are:

- BSc Agricultural Science
- BSc Applied Plant Biology
- BSc Earth Science
- BSc Ecology & Environmental Biology
- BSc Environmental Science
- BSc Environmental Science with
- Environmental Management (dual degree with Minzu University of China)
- BSc Geology
- BSc International Field Geosciences (with University of Montana, USA)
- BSc Zoology
- Diploma in Geology (through ACE)
- Diploma in Environment, Sustainability and Climate (through ACE)
- Diploma in Biological Sciences
- Diploma in Environmental and Geological Sciences

- PGCert / MSc Applied Environmental Geoscience
- PGCert / MSc Marine Biology
- PGDip / MSc Freshwater Quality Monitoring & Assessment
- MRes Plant Biology
- MRes Animal Behaviour & Welfare
- MRes Environmental Science
- MRes Geological Sciences

RESEARCH THEMES



Research in the School of BEES spans across organisational scales (from crystal structures to ecosystems to Earth systems), combines laboratory and field studies, and integrates biological, geological and environmental research.

The five research themes within the School of BEES (aligned with the UN Sustainable Development Goals) are:

Biodiversity and Sustainability

(ecology and evolutionary biology, biodiversity, vegetation science, animal behaviour and welfare, circular economy, marine science, and management & conservation)

Climate and Resources

(impacts of climate change, palaeoenvironmental studies, energy resources, and raw materials)

Food Security

(crops and model systems, biotechnology, fisheries, and aquaculture)

Geosystems

(Earth processes, palaeobiology, and geohazards)

Environment and Health

(water quality, soils, pathogens & pathology, and toxicology)

Research infrastructure and platform technologies include a suite of research laboratories, including the Mary Ward Microbeam Lab with SEM, RAMAN and FT-IR facilities, plant tissue culture, physiology and molecular biology facilities, a postmortem facility for inter alia cetacean and seal studies, chemical analysis facilities including HPLC, GC-MS and genome sequencing facilities, marine and freshwater holding facilities, plant growth rooms, glass houses, rock cutting and thin sectioning and a School workshop with dedicated high-pressure experimental and micro-welding facilities.

Staff in the School are also active in a number of dedicated research centres, including the UCCs Environmental Research Institute (ERI) and Food Institute, and the National SFI Research Centres iCRAG (Irish Centre for Research in Applied Geosciences) and MaREI (Marine & Renewable Energy Institute).



ATHENA SWAN

Our School holds a Bronze Athena SWAN award for its ongoing commitment to promoting good employment practices for women in science in higher education. As part of its Bronze application, the School identified obstacles in the career progression of women and developed specific actions as to how these obstacles can be overcome and how working conditions can be improved for everyone in the School.

The School of BEES is one of the first three UCC academic units to achieve a Bronze Athena SWAN award, doing so in April 2018. We are currently working towards a Silver Award to improve equality, diversity and inclusivity in the School.

GOVERNANCE

The School of BEES committee and governance structure is enshrined in the School Rules. The Head of School (HoS) is responsible for all academic and administrative functions within the School. The four Heads of Discipline (HoDs) report directly to the HoS, as do the School Manager and the Chief Technical Officer. The HoS consults on management issues with the School Executive Management Committee (SEMC) comprising the HoS, Deputy HoS, HoDs, Chairs of stakeholder School Committees, the School Manager and the Chief Technical Officer.

The standing committees in BEES comprise the following:

- 1. Teaching and Learning, Student Experience & Curriculum Development Committee
- 2. Research Committee
- 3. Graduate Studies Committee
- 4. Equality, Diversity and Inclusivity Committee
- 5. Education and Public Engagement Committee
- 6. Health and Safety Committee
- 7. 'Space' Working Group

The key decision making and approval bodies are the Academic Staff Meeting and the School Staff Meeting. The disciplines each have their own Discipline Meetings and report directly to the Academic Staff Meeting as do a number of the standing committees. The remaining standing committees report to the School Staff Meeting. The Administrative Team and the Technical Officers also report to the School Staff Meeting. Two Timetable Officers and one Exams Officer have been appointed and they report to the Academic Staff Meeting.

The School Assembly meets once a year and is a forum for sharing and celebrating achievements, news and activities.

EXTERNAL ENGAGEMENT

Our School has a strong track record of lifelong learning, community-based research and learning, volunteerism, work with schools, and engagement with online networking tools, social media and the press, and sees public engagement, in its many forms, as an essential element of our work.



INFRASTRUCTURE

The School of BEES is predominately located on UCC's North Mall Campus on the Distillery Fields, on the north bank of the River Lee, approximately 1 km from the main UCC campus. The School operates from three main buildings: the Cork Enterprise Centre (shared with the School of Applied Psychology), the adjoining Butler Building, and the Cooperage Building. The School also has storage facilities in the on-site Bottling Plant warehouse and long-term freezer storage 2.5 km away at Pouladuff. The School operates off-site facilities at the world-renowned Lough Hyne Marine Nature Reserve (5 km southwest of Skibbereen and 70 km from Cork city) which include 3 research laboratory facilities that were recently renovated.

Our School conducts collaborative research at various national locations including at the Environmental Research Institute (Lee Road, Cork), the Centre for Marine and Renewable Energy (Ringaskiddy, Co. Cork), the Marine Institute Research Facility in Furnance (Newport, Co. Mayo), the Irish Centre for Research in Applied Geosciences, Fota Island Wildlife Park (Fota Island, Co. Cork) and the AquaMona fishfarm (Mt Lucas, Co. Offaly).

We have our own dedicated learning spaces for lectures, practicals and workshops:

- Butler Building BB1-3 87 students
- Ted Nevill Lab 70 students
- Cooperage G12 80 students
- Cooperage G13 70 students
- Sweetman Lab 30 students
- Jackson Lab 48 students

We house a number of advanced research facilities with analytical equipment. These include:

- Mary Ward Microbeam Lab and Microscopy Suites
- Experimental Petrology Laboratory
- Genetics Laboratories
- Histology Laboratory
- Molecular Biology Laboratories
- Palaeobiology Laboratory
- 3-D plant imaging laboratory
- Plant tissue Culture Laboratories
- Analytical Plant Science Research Lab
- Fish Tank and Aquaculture Rooms
- Aviary
- Palynology and Rock Digestion Laboratory
- Rock cutting, thin-sectioning and fabrication workshops
- Zoological and Geological Museum Collections

AT A GLANCE

The Schools activities in numbers*:

*data as of July 2020





We set 9 goals underpinned by 68 actions to advance our school mission over the next 5 years. Through the implementation of these actions we will maintain and advance our standing as an internationally recognised centre of excellence for research and learning in the natural sciences.

The nine goals are:

Goal 1: Research - To promote and facilitate excellence in research, aligned where possible with University, National and European research priorities.

Goal 2: Learning & Teaching – To continue to provide the best possible scientific education and student experience through aligned curricula, effective delivery and progressive practice.

Goal 3: Equality, Diversity, Inclusivity & Staff/Student Wellbeing - To promote EDI (equality, diversity & inclusivity) and staff & student wellbeing by enhancing the School's cultural and physical environment.

Goal 4: Graduate Studies - To continue to develop an environment that is conducive to a positive and fulfilling experience for our graduate students and to their successful personal development and career progression.

Goal 5: Internationalisation - To enrich our School through international collaboration in research and learning.

Goal 6: External Engagement & Perception - To further develop a vibrant and inspirational Education and Public Engagement (EPE) programme in order to engage with diverse stakeholders and the community at large, and to create impact.

Goal 7: Building and Infrastructure - To significantly improve and expand the available space within our School in order to meet research, teaching, social and office needs.

Goal 8: Environmental Sustainability and Green Practice – To enshrine environmental responsibility and environmental sustainable practice in all our activities.

Goal 9: Governance, H&S and Compliance - To improve the effectiveness, efficiency, fairness and transparency of management practices in the School, and to foster and maintain a positive and proactive engagement with regulatory programmes.

STRATEGIC GOALS



Goal 1: Research

To promote and facilitate excellence in research, aligned where possible with University, National and European research priorities.

Goal 3: Equality, Diversity, Inclusivity & Staff/Student Wellbeing

To promote EDI (equality, diversity & inclusivity) and staff & student wellbeing by enhancing the School's cultural and physical environment.



Goal 5: Internationalisation

To enrich our School through international collaboration in research and learning.

Goal 2: Learning & Teaching

To continue to provide the best possible scientific education and student experience through aligned curricula, effective delivery and progressive practice.



Goal 4: Graduate Studies

To continue to develop an environment that is conducive to a positive and fulfilling experience for our graduate students and to their successful personal development and career progression.



Goal 6: External Engagement & Perception

To further develop a vibrant and inspirational Education and Public Engagement (EPE) programme in order to engage with diverse stakeholders and the community at large, and to create impact.



Goal 7: Building and Infrastructure

To significantly improve and expand the available space within our School in order to meet research, teaching, social and office needs.

Goal 8: Environmental Sustainability and Green Practice

To enshrine environmental responsibility and environmental sustainable practice in all our activities.





Goal 9: Governance, H&S and Compliance To improve the effectiveness,

of management practices in the School, and to foster and maintain a positive and proactive engagement with regulatory programmes.



GOAL 1: RESEARCH

To promote and facilitate excellence in research, aligned where possible with University, National and European research priorities.



Strategy

Provide comprehensive supports and training to researchers to improve research quality, impact and outputs.

Increase research income and support the development of the School research infrastructure.

Engage in interdisciplinary research within the University and beyond, to the benefit of the community.

Actions

Increase citation of papers through targeting higher impact factor journals supported through paper writing workshops, peer support proofing and Open Access publications (Year 2)

Raise investment in research infrastructure through an internal strategic school research fund, and managed applications to targeted infrastructure calls (Year 2)

Identify and promote strategic research funding calls for all levels of researchers and disciplines (Year 2)

Support researcher training needs and requirements (Year 2)

Maintain and promote a dedicated Staff Development Fund to facilitate staff engagement in networking initiatives, staff training and initiate research both nationally and internationally (Year 2) 13 Increase access to research-support staff that can assist with grant writing, staff hiring, financial, and other management of projects (Year 3)

Actively address staff workloads (academic, admin and technical) and timetables to facilitate quality research time (Year 3)

Construct a supportive research network to promote interdisciplinary research through active engagement with research institutes across UCC and Ireland (Year 3)

Engage with the equality, diversity and inclusion committee to provide a research environment that will be inclusive, effective and attractive to both current and new staff (Year 3)

Present research at, and host, high calibre (international) conferences to promote our research and to enrich our research networks (Year 5)

Strengthen collaboration and engagement with external stakeholders including public and private sector bodies (Year 5)

Strive towards an effective balance of postgraduate and postdoctoral researchers (Year 5) Develop links between learning and research through research-based teaching at all levels (Year 5)

Strengthen collaborations with external stakeholders including public and private sector bodies (Year 5)



GOAL 2: LEARNING & TEACHING

To continue to provide the best possible scientific education and student experience through aligned curricula, effective delivery and progressive practice.



Strategy

Fully implement the UCC Connected Curriculum in BEES and assist the University in driving change.

Continue to development an effective curriculum in response to societal demands and scientific progression.

Facilitate development of core values and scientific skills in all BEES students in line with the University's Academic Strategy

Actions

Develop a framework to systematically review and rationalise the programme portfolio based on accurate data, and in order to assess programme design and currency, targets for recruitment, assessment and student workload, industry links and employability, and assuring that excellence is evidenced across all programmes (Year 2) Ensure that students are central when considering communication, coordination and coherence of programmes, and value student feedback (e.g. from 10:20 review process) in curriculum development (Year 2)

Re-establish staff : student liaison committee (Year 2)

Develop a consistent School-wide policy around the quality, timing and delivery of student feedback to be shared with students. (Year 2)

Encourage staff and postgraduate training in Teaching and Learning through engagement with CIRTL (Year 2)

Review the use of Panopto for all classes (Year 2)

Review the procedure for electronic submission of all assignments (Year 2)

Inspire the next generation of scientists through a further development of research-based teaching (Year 3)

Developed more inter/trans-disciplinarity in the curriculum, and enhance exposure to sustainability concepts and practice (Year 3)

Enhance community engagement in the curricula (Year 3)

Develop and enhance the following graduate attributes in our students:

- Creators, evaluators and communicators of knowledge,
- independent thinkers,
- digitally fluent,
- socially responsible,
- effective, global citizens who recognise and challenge inequality (Year 5)

GOAL 3: EQUALITY, DIVERSITY, INCLUSIVITY AND STAFF/STUDENT WELLBEING

To promote EDI (equality, diversity & inclusivity) and staff & student wellbeing by enhancing the School's cultural and physical environment.



Strategy

Develop and implement a progressive School EDI strategy

Improve School staff and student wellbeing using peer support networks, through increased social activities and by improving the working and learning environment.

Actions

Establish a series of peer support School wide networks to improve School staff and student wellbeing (Year 2)

Implement a transparent School workload model (Year 2)

Apply for and attain an Athena SWAN Silver award (Year 3)

Improve the School working and learning environment to enhance staff and student wellbeing (Year 3)

Establish a calendar of School-wide social activities to improve staff and student wellbeing (Year 5)

GOAL 4: GRADUATE STUDIES

To continue to develop an environment that is conducive to a positive and fulfilling experience for our graduate students and to their successful personal development and career progression.



Strategy:

Develop a successful strategy for improved postgraduate training incorporating postgraduate attribute development.

Continue to improve our processes for effective administration and support of the postgraduate community.

Establish and maintain clear paths of communication between postgraduates and other members of the School and wider university.

Actions:

Provide a forum for communication between graduate students, School staff and the wider university in order to pursue opportunities and enhance the graduate student experience (Year 2)

Monitor and review the progress of graduate students in order to ensure that their needs are identified and met (Year 2)

Improve the effectiveness of the postgraduate orientation session and devise a procedure to facilitate a training needs analysis for postgraduate students (Year 2)

Provide up-to-date and relevant information to graduate students via the School Postgraduate Handbook (Year 2)

Promote training for graduate students to develop as scientists and in order to prepare them for their future career (Year 3)

Encourage graduate students to disseminate their research by (a) providing practical assistance for graduate students to attend conferences and training opportunities via the School Student Travel Fund and (b) rewarding students for publication of their research in high impact journals through the Delap Prize for graduate student publications of the year (Year 3)

Create a new Postgraduate forum. welcome to all graduates including those remotely located (Year 3)

GOAL 5: INTERNATIONALISATION

To enrich our School through international collaboration in research and learning.



Strategy

Promote and facilitate both inward and outward mobility of staff/students to and from international partners.

Foster a cosmopolitan school community that produces internationally relevant research outputs and globally-minded students.

Actions

Quantify and maintain the international outlook of research in the School of BEES (Year 2)

Ensure the School's international grade translation and credit transfer protocols are fair, transparent and straight forward to implement and in line with that of the College of SEFS (Year 2)

Increase the number of BEES staff/student participating in EU and international staff/student mobility programmes (Year 3)

Increase the number of international students taking modules in the School of BEES (Year 3)

Develop and establish strategic joint MSc degree programmes with key international partners (Year 5)

GOAL 6: EXTERNAL ENGAGEMENT & PERCEPTION

To further develop a vibrant and inspirational Education and Public Engagement (EPE) programme in order to engage with our diverse stakeholders and the community at large, and to create impact.



Strategy:

Deliver and participate in engaging and inspirational EPE activities and events in order to showcase STEM, natural sciences and research at BEES to enhance public understanding, the School profile and student recruitment.

Facilitate staff and student engagement in all forms of EPE.

Analyse the reach, impact and effectiveness of EPE activities across different stakeholder groups

Actions:

Conduct an annual survey of incoming first years to assess level of engagement with BEES EPE prior to finishing school (from Year 2)

Collate systematic data on BEES EPE activities in order to identify the most impactful activities and produce an annual report (Year 2)

Enhance our presence on the web and social media (Year 2)

Facilitate needs-based training in EPE and sharing of best practise (Year 3)

Create incentives for engagement with EPE amongst all members of the BEES community (Year 3)

Link BEES EPE activities with the Connected Curriculum (Year 3)

GOAL 7: BUILDING AND INFRASTRUCTURE

To significantly improve and expand the available space within our School in order to meet research, teaching, social and office needs.



Strategy:

Protect and improve the quality and functionality of our existing space.

Expand our space footprint, including through relocation, to meet our expanding staff and student, research and teaching needs.

Optimise the use of space through improved space management processes.

Actions:

Consider competing demands for research, teaching, social and office space, and identifying priorities for ongoing works (Year 2)

Identify and prioritise improvements in space quality and functionality (Year 2)

Develop an appropriate access regime for labs and spaces (Year 2)

Optimise use of School teaching, research and office spaces and interface with other committee (Health & Safety, Timetabling Officers, etc.) to minimise inefficiencies and risks, and make best use of our limited space (Year 3)

Explore alternative models of research space utilisation (Year 3)

Ensure a transparent and flexible system of space allocation (Year 3)

Develop strategies for an expansion of space beyond our existing School footprint (Year 3)

Develop space for social interactions for staff and social/study space for students (Year 5)

GOAL 8: ENVIRONMENTAL SUSTAINABILITY & GREEN PRACTICE

To place environmental responsibility and sustainable environmental practice at the core of our operations.



Strategy:

Embed environmental sustainability in all School planning and practices.

Promote awareness of our environmental responsibilities through action.

Actions:

Actively engage with the University's Green Campus agenda, and develop a Green agenda for our School (Year 2)

Increase awareness of, and facilitate greater engagement by our students and staff in, sustainability issues (Year 3)

Minimise the local, regional and global environmental impacts of our educational, research, operations and infrastructural development (Year 3)

Help implement best practice approaches to energy use, resource and waste management in the School in partnership with our service providers (Year 3)

Increase awareness of the sustainable transport options and the impacts of the potential different modes of transport (Year 5)

GOAL 9: GOVERNANCE, H&S AND COMPLIANCE

To improve the effectiveness, efficiency, fairness and transparency of management practices in the School, and to foster and maintain a positive and proactive engagement with regulatory programmes.



Strategy:

Develop and enact effective management and governance structures within the school.

Improve communication within the school.

Foster a positive safety culture within the school.

Actions:

Comprehensively reappraise the committee and governance structure of the School to develop a more effective and efficient management and governance structure (Year 2)

Conduct a review of the School communication mechanisms, specifically communication with under- and postgraduate students (Year 2)

Formalise and standardise Health and Safety management across the School by developing new risk assessment templates and procedures (Year 2)

Oversee H&S training and to actively manage training needs assessment records (Year 2)

Develop a more effective decision making and communication pathway aligned with a revised committee and governance structure (Year 3)

Conduct an annual review of the remit, operations and progress of all committees (Year 3) Aspire to reach and maintain 100% completion of H&S training by all School personnel on an annual and ongoing basis (Year 3)

Update the School Safety Statement and develop and maintain an online searchable H&S database of training records and Risk Assessments (Year 5)



SCHOOL OF BEES (BIOLOGICAL, EARTH AND ENVIRONMENTAL SCIENCES) UNIVERSITY COLLEGE CORK, NORTH MALL CAMPUS, CORK

(021)4904650

HTTP:/BEES.UCC.IE HTTPS://TWITTER.COM/UCCBEES HTTPS://WWW.FACEBOOK.COM/UCCBEES/



School of Biological, Earth and Environmental Sciences