



**UNDERGRADUATE  
PROSPECTUS SUPPLEMENT**  
**NEW COURSES AND SPECIALISMS**

**2021**



# A Future for the Bold at DCU

At DCU, we know big problems need innovative solutions. Equip yourself to tackle challenges such as fighting climate change, exposing fake news and preventing future pandemics with one of our 10 bold new undergraduate courses and specialisms.

In an era of change, we need transformative thinking on education. Our world is developing so quickly that many of us who start university this year may graduate and be hired in jobs that look incredibly different to how they do now.

Opportunity is everywhere. While there's rapid growth in the power of technology, such as artificial intelligence and blockchain, we also face pressing global challenges, like climate change, inequality, and the threat of further pandemics. More than ever, we need to understand how humans behave, respond and grow at the forefront of change.

Work has also become more complex and fast-moving, and organisations need career-ready graduates who are 'human Swiss army knives', innovative, adaptable thinkers with a well-stocked toolkit of hard and soft skills.

## Ten future-proofed offerings

That's why DCU is introducing 10 bold new undergraduate courses and specialisms starting in September 2021. Each has been created to equip you with the agility, expertise and skills needed to thrive in the dynamic world of work in an ever-changing world.

## Hardwiring transferable skills

To enjoy real career mobility and to be able to collaborate across disciplines, as is often

crucial now, 21st century graduates need to be creative, critical thinkers with a wide range of what are known as 'transversal skills'. These include data analytics, digital literacy, entrepreneurship, multilingualism and more.

## Practical learning opportunities

All 10 new offerings will include expansive opportunities for learning in exciting and innovative ways, in a very practical sense, where you will be working on real relevant problems, team based challenges, industry-led hackathons and design sprints, final year capstone projects and internships.

## Deep industry partnerships

In keeping with its enterprising culture, DCU is working with industry leaders to design, develop and deliver the new course offerings. Together, we're ensuring graduates will be primed to innovate and collaborate across disciplines, so that as a society, we can meet local, national and global challenges and make the best use of emerging technologies.

## Real choices for a changing world

Our ten bold new offerings will give you the skills to flourish in the real world. Read on to see how we'll prepare you for the future, and explore courses and experiences that are open to you at DCU.

# BSc in Digital Business and Innovation

## Learn how companies leverage digital technologies to innovate, transform and succeed

### Why DCU?

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- Benefit from a deep understanding of how key enabling technologies work, as well as their business, economic, and social impacts
- Combine practical knowledge and experience in applying digital technologies in a range of contexts to achieve business objectives
- Develop an innovation mindset and insights into how to ideate and create new products, services, and markets that leverage digital technologies
- Gain the ability to acquire the knowledge and skills needed to support digitalisation and digital transformation initiatives
- Year-long work placement (INTRA) in Year 3

### About You

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Do you want to be prepared for an exciting and rewarding career in a dynamic and growing field developing smart, connected products, experiences and services? Do you see yourself applying digital knowledge and skills in projects with real world clients whilst learning about and through technology? Then this exciting course is for you.

### Additional Requirements

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In addition to the general entry requirements for admission to the University (see pages 39), the following entry requirements apply:  
O4 or H6 in Mathematics.

### Understanding: Digital Business and Innovation

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This new four-year course is designed to prepare graduates with the competencies and skills to leverage digitalisation to innovate and transform businesses and succeed in a future world of work permeated by digital technologies. This course, designed in conjunction with industry, will help future proof you with an innovation mindset and industry-relevant knowledge and skills in emerging technologies including: Cloud Computing; Social Media; Big Data Analytics; Mobile Technologies; The Internet of Things; Smart Contracts and Block chain; and Augmented and Virtual Reality.



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**Visit Us Online**  
[business.dcu.ie/course/  
digital-business-and-  
innovation](https://business.dcu.ie/course/digital-business-and-innovation)

CAO code  
**DC241**

Years  
**4**

Places  
**15**

Internship  
**Yes**

## Course Structure

Unlike more conventional undergraduate degrees, the BSc in Digital Business and Innovation will give you practical learning opportunities through the use of technology. It will provide you with regular opportunities to gain experience applying your digital knowledge and skills on projects with real world clients including a full-year immersion experience through paid work placement (INTRA) in Year 3. The course will equip graduates with two highly in-demand skills of innovation and digital agility to exploit the ever-increasing opportunities in digital business. The course will prepare you for an exciting and rewarding career in a dynamic and growing field developing smart, connected products, experiences and services.



## **What Will I Study?**

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### **Year 1\***

Business 101 | Introduction to Digital Business Environment | Introduction to Digital Tools | Critical Thinking for Business

### **Year 2\***

Digital Tools for Innovation | Evidence Based Management | Analytics | Digital Marketing

### **Year 3**

INTRA

### **Year 4\***

Digital Transformation | Challenge Based Project | Strategy | New Enterprise Development

**\*Includes core modules. This list will be added to as new information comes available.**

## **Future Careers**

- Digital Business Analyst
- Digital Innovation Management
- Technology Consultant
- Starting your own Business
- Cloud computing
- Mobile technologies

## **In These Areas**

- Consultancy
- Technology
- Entrepreneurship
- E-Commerce
- Digital Transformation
- Software and IT
- Telecoms

Look online (website details at top of page) for more information about future careers in your chosen field.

# BEng and MEng in Sustainable Systems and Energy

## Engineer a better future for all

### Why DCU?

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- Industrial experience as part of the course, with the option of a 10 month paid work placement under the MEng programme
- Lots of hands-on experience in labs with state-of-the-art facilities
- Great employment prospects upon graduation
- Option to select Integrated Masters in Year 3 and obtain a Masters degree
- Sustainability is at the core of DCU's University Strategy

### About You

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Do you have a passion to engage with and solve some of the greatest global challenges, including climate change, for future generations? Are you interested in understanding how to implement knowledge and technology in a creative and ethical way for long term sustainability? Similar to most engineering degrees, ability in mathematics is a key requirement. An interest in problem solving, how things work, a logical mind and an eye for detail are also important qualities.

### Additional Requirements

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In addition to the general entry requirements for admission to the University (see pages 39), the following entry requirements apply: minimum of H4 in Mathematics or H4 in Applied Mathematics with H5 in Mathematics.

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CAO code  
**DC194**

Years  
**4**

Places  
**15**

Internship  
**Yes**

### Understanding: Sustainable Systems and Energy

This course prepares graduates with the knowledge and competence to meet the changing world of sustainability and the growing global challenge of transitioning to zero carbon and environmentally sound, reliable, affordable sustainable energy systems. The focus is on how materials, energy systems, factories, transport and technology of the future are developed and deployed in a sustainable way. The combination of sustainable systems and energy offers a unique opportunity to engage with the Sustainable Development Goals while trying to solve some of the greatest global challenges for future generations. This degree offers an impressive background in engineering, which opens the door to many exciting career opportunities. This course enables you to apply the most sophisticated life cycle analysis tools to solve the challenges of a sustainable future for all.

### Course Structure

This four-year BEng Degree (with the option to undertake an integrated Masters degree from Year 3 subject to achieving H2.2 or higher in Years 1 and 2) has a range of academic themes, with each theme addressing a particular aspect of sustainable systems and energy engineering. These themes are:

- Energy Storage and Recovery
- Renewable Sources of Energy
- Whole Life Cycle Analysis
- Thermofluid Sciences
- Replacement of Polluting Substances, Recycling and Upcycling
- Mathematics and Computing
- Sustainable Design and Manufacture
- Project Management and Professional Development
- Control and Automation





The course places a strong emphasis on both academic performances in examinations and continuous assessment throughout the five years. In Year 3, you will undertake a paid work placement (INTRA) for six months (10 months for Integrated MEng students). This is usually with a business in Ireland but there are also opportunities to work abroad.

### What Will I Study?

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#### Year 1

Engineering Mathematics 1 and 2 | Engineering Mechanics: Statics | Project and Technical Drawing | Materials Engineering | Introduction to Electronics | Fundamentals of Professional Development | Numerical Problem Solving | Basic Sciences | Software Development

### **Year 2**

Maths | Renewable Energy and Thermodynamics | Power Cycles | Fluid Mechanics | Mechanics of Machines 1 | Pneumatics and Control | Whole Life Cycle Analysis and Energy Modelling | Introduction to Economics

### **Year 3**

Mechanics of Machines 2 | Measurement and Signal Processing | Fundamentals of Control | Data Analytics for Engineers | Heat Transfer and Fluid Mechanics | Energy Regulation | Pumping Systems | Project and Quality Management | Energy System Modelling 1 (Buildings etc.) | INTRA

### **Year 4**

Energy System Modelling 2 | Energy System Auditing | Whole Life Cycle Analysis | Application and Case Studies | Manufacture Automation | Control Systems Analysis | Energy Policies (National and Global) | Sustainable Systems and Energy Project

### **Additional Modules**

Supply Chain | Technologies for the Future | Transport Technologies

### **Look online for Year 5 modules:**

[dcu.ie/DC194](http://dcu.ie/DC194)

### **Future Careers**

- Sustainability Engineering
- Sustainable Industrial Designer
- Renewable Energy Engineer
- Energy Audit Engineer
- Project Manager
- Energy Analyst

### **In These Areas**

- Transport
- Energy
- Pharmaceutical
- Food and Beverage
- Design
- Manufacturing
- Business

Look online (website details at top of page) for more information about future careers in your chosen field.

# BA in Climate and Environmental Sustainability

Develop unique skills to tackle climate and environmental issues facing industry and policy makers today

## Why DCU?

- Classes will be smaller than is typical with only twenty ambitious students admitted in Year 1
- Collaborative work in class and for assessment purposes will be emphasised
- Engage with environmental and climate issues at a local scale and learn from visiting with case studies where real-life environmental challenges happen
- Engage with challenges based on real issues encountered by industry, the public sector and non-profit sector
- Enhance employability skills by developing knowledge across multiple areas related to two of the most important societal issues this century - climate change and environmental sustainability
- Spend a full academic year at a partner university abroad or on a work placement (INTRA)

## About You

You will study modules in climate science, geography, environmental policy, Geographical Information Systems (GIS) and remote sensing. During the course, you will gain analytical, research, teamwork and problem-solving skills that will be attractive to a range of employers. You will be studying innovative modules such as sustainable food security, environmental change and human health, natural ecosystem solutions and complementary modules that are drawn from the geography offering on other courses. You will also engage in a residential field module as an integral part of this course, which provides an opportunity to collect environmental data and engage with environmental and climate issues at a local scale, as well as encouraging learning from seeing real-life challenges. This includes visiting case study sites where environmental change is occurring and examining the main challenges facing Ireland. Some of the issues you can expect to engage with relate to improving water quality, managing biodiversity, and dealing with climate change from both physical and human geography perspectives.

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School of History and Geography  
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CAO code  
**DC294**

Years  
**3 or 4**

Places  
**20**

Internship  
**Yes**

### Additional Requirements

The general entry requirements for admission to the University apply (see page 39)

### Understanding: Climate and Environmental Sustainability

Through the lens of geographical sciences, this course will develop your skills and knowledge to prepare you for work in climate and environment-related fields. The scale and pace of change caused by humans to all aspects of the environment globally in the last 100 years is so significant that we now threaten our very own existence. Issues such as climate change and biodiversity loss are having extensive environmental, economic and social impacts worldwide. These are issues that already affect current generations and are set to have major implications for future generations. Organisations are increasingly relying on location intelligence to make decisions and students on this course will gain invaluable skills to learn how to gather and analyse spatial and climate data. You will also engage with such topics as climates and climate change, environmental history, the evolution of Ireland's physical landscape and sustainable environments and policy.

Furthermore, you have the possibility of studying for a year abroad or you can opt to apply for a year-long work placement (INTRA) in Year 3. This opportunity provides you with excellent experience and a valuable professional network while still in university.

### Course Structure

The course structure is designed to enhance learning related to climate change and environmental sustainability across multiple disciplines (e.g. Geography, Earth Science, Political Science, Psychology, Sociology, Biology and Physics). Specifically, you will be studying innovative modules such as Biogeography, Historical Climates, Sustainable Food Security, Environmental Change and Human Health, Natural Ecosystem Solutions and complementary modules that are drawn from the Geography offering on other courses. The BA in Climate and Environmental Sustainability is unique in that modules each year will comprise a largely balanced approach to both natural and social science modules related to geography, climate and environmental sustainability.



### Year Abroad

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Studying abroad provides a wonderful opportunity to experience the culture of another country and greatly enhances your language skills. Those who meet certain criteria and wish to go abroad will spend Year 3 studying at one of our partner universities. After you complete the year abroad, you will do the final year of study at DCU.

### INTRA

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INTRA will provide you with a chance to work in a real world environment giving you a unique opportunity to enhance your CV, increase your employability and experience the relevance of your study. For more information on the INTRA programme at DCU, please visit [dcu.ie/intra](https://dcu.ie/intra)



## Indicative Content

While content of the course may change over time, these modules are indicative of what you will be studying in each year.

## What Will I Study?

### Year 1

Fundamentals of Geographical Information Systems | Introduction to Sustainable Development | Introduction to Biogeography and Ecology | Sustainable Environments and Policy | Introduction to Human Geography | Introduction to Physical Geography | Geographical Interpretation and Communication | Geographical Fieldwork and Observation Skills

### Year 2

Evolution of Ireland's Physical Landscape | Climate Change: Causes and Consequences | Politics of Climate

Change | Palaeoclimates | Introduction to Oceans and Marine Environment | Natural Ecosystem Solutions | Sustainable Food Security | Quantitative Environmental Data Analysis | Skills for Physical Geography | Global Urbanism | Residential Field Trip

### Year 3

Optional Year Abroad / INTRA

### Year 4

Advanced Environmental Geography | Water Resources of Ireland | Research Skills for Catchments | Citizens as Environmental Collaborators | Dissertation | Urban Sustainability | Environmental Remote Sensing | Oceans and Marine Environments Sustainability | Environmental Change and Human Health

## Future Careers

- Environmental Consultant
- Sustainability Manager
- Corporate Social Responsibility Manager
- Climate Scientist
- Conservation Manager
- GIS Manager
- Health Geographer
- Environmental Resource Manager

## In These Areas

- Environmental Consultancy
- Community Development
- Diplomatic Service
- Environmental Conservation
- NGO

Look online (website details at top of page) for more information about future careers in your chosen field.

# BSc in Global Challenges

Take on global challenges through challenge-based learning

**Subject to final accreditation**

## Why DCU?

- Classes will be smaller than is typical with only twenty-five ambitious students admitted in Year 1
- Collaborative work in class and for assessment purposes will be emphasised
- Engage with challenges based on real issues encountered by industry, the public sector and non profit sector
- We will guide you in selecting your own team challenges
- Industry placement in Year 3 allows you to gain valuable work experience (INTRA)
- Project-based learning tackling real world problems

## About You

If you are interested in studying modules such as climate change, politics, design thinking, international development, data analytics, public policy, artificial intelligence, security and peace studies, ethics, social science with opportunities to study the politics of China, Africa, Western and Eastern Europe, as well as the USA, then this course is for you. You will study technology options, such as sustainable design, the Internet

of Things, digital interaction and opportunities for rapid prototyping of technological solutions. The highlight of each year will be an extended team challenge, which requires the integration of social science and technology skills.

## Additional Requirements

In addition to the general entry requirements for admission to the University (see pages 39), the following entry requirements apply: O2 or H5 in Mathematics.

## Understanding: Global Challenges

The BSc in Global Challenges is for people who want to challenge themselves to take on the world's problems. This new and unique course integrates social science and technology studies through challenge-based learning. Employers are already demanding technology-savvy, quantitatively strong generalists and this course will produce the sort of fit-for-the-future graduates required. Technology is changing at a rapid rate, organisations need to adapt to keep up in this digital era whilst technological advances can bring about huge changes to the way we live. You will explore the societal and economic impacts of new and emerging

**Additional Information**

This course will be jointly delivered by the Faculty of Humanities and Social Sciences and the Faculty of Engineering and Computing

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**Visit Us Online**

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CAO code**DC189**

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Years

**4**

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Places

**25**

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Internship

**Yes**

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technologies, and their effect on the future of work, environmental impacts and community interaction. You will engage in areas such as climate change, sustainability and renewable energy, gender stereotypes, fake news, global health, global inequality, environment, social cohesion, and security. Solutions to these problems will be explored through simulations, hackathons and interdisciplinary team-work. Challenges will be inspired by examples from the public, private, and NGO sectors, as well as student-generated challenges.

This degree will equip you to develop socially effective technological solutions to real problems and you will have the skills to work across many disciplines, crossing traditional boundaries in solving complex real world problems whilst gaining the ability to plan and manage projects involving multiple stakeholders. This will be based on an understanding of the full societal, economic and political impacts of implementing novel technological solutions.

**Course Structure**

In each year of the course your modules will cover fundamental technical knowledge of electronic engineering, computer science and data science, and also the fundamental theories of social science, policy and politics, with an international context of these topics. Each year there will be an interdisciplinary project related to a global challenge. This project will involve creative problem solving by proposing technological solutions while taking into account the social implications of the proposed solutions. Work placement (INTRA) in Year 3 will provide you with a chance to work in a real work environment in private and public sectors. Assessment each year will be mainly project based through simulations and hackathons for a more engaging learning experience involving industry partners.



## What Will I Study?

### Year 1

Introduction to Social Science Methods | Introduction to Global Challenges | The Mathematics of Change | Data Analysis and Problem Solving | Science for a Sustainable World | Modern Technology for a Changing World | Introduction to the Politics of a Changing World | Global Development | Project Planning and Management | Global Challenges Project | Public Engagement and the UN Sustainable Development Goals

### Year 2

Computational Statistics | Sensing the World | Internet of Things Technologies | Innovation and Entrepreneurship | Qualitative Research for Global Challenges | Global Governance | Conflict, Peace, and Security or Climate Change: Politics, Policy, and Behaviour | Modelling the Changing World | Technology Systems Design | Political Ideas in the 21st Century OR International Law and Contemporary Issues | Multidisciplinary Project – Real-world Design Challenge



### **Year 3**

Transforming Society with Artificial Intelligence | Data Privacy and Security | Applied Quantitative Social Research | Gender and Politics OR Politics in South Asia | Analysing Public Policy Challenges | Challenge Based Project – Using AI for Global Challenges | INTRA

### **Year 4**

Renewable Energy | New Techniques in Social Research | Chinese Politics and Foreign Policy OR Post-Soviet Politics of The Politics of the Middle East and North Africa | Digital International Relations | Middle East and North Africa | Multidisciplinary Project – Challenge Based Project Based on UN SDG (year-long)

### **Choose 2 of 3:**

Decarbonisation for a Sustainable Future | Introduction to Smart Healthcare Technologies | Manufacturing Systems

### **Future Careers**

- Business Consulting
- Technology
- Healthcare
- Local Authorities and Planning
- International Development
- Civil Service
- Diplomatic Service
- Non-Profit Sector
- Policy Evaluation

### **In These Areas**

- Project Leader
- Project Director
- Innovation Strategist
- Business Innovator
- Digital Innovation Strategist
- Sustainability Manager
- Smart Cities Specialist
- Corporate Social Responsibility Manager
- Politician
- Researcher

Look online (website details at top of page) for more information about future careers in your chosen field.



# BSc in Psychology and Disruptive Technologies

Study psychology in combination with disruptive technologies that are transforming lives and driving behavioural and societal change

## Why DCU?

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- A unique opportunity to study psychology and understand human behaviour in combination with disruptive technologies that are fundamentally transforming lives and driving behavioural and societal change, sometimes raising challenges
- An accredited pre-professional route to further training in Psychology and applied progression routes in Disruptive Technologies
- High-quality research laboratories and research skills training supports
- Small class sizes that allow for individual attention, delivered by a dynamic interdisciplinary, research-active lecturing team, with innovative teaching methodologies and students supports
- Work experience (INTRA) providing practical expertise in various fields

## About You

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You should possess very good verbal, written and interpersonal skills, be flexible, hard-working, creative, with an enquiring mind and the ability to think critically. Do you have an interest in studying Psychology and applied progression routes in Disruptive Technologies, coupled with employment opportunities in careers where high level digital innovation, transformative and problem-solving skills are prized, where the advanced interpretation of data and human behaviour is critical; where an awareness of how to address challenges posed by disruptive technologies are key, and where you have the collaborative and transferable skills required to move forward in a society filled with digital and technological innovation.

## Additional Requirements

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In addition to the general entry requirements for admission to the University (see pages 39), the following entry requirements apply: minimum of O4 or H6 in Mathematics.

### Additional Information

This course has been developed in line with pre-professional Psychological Society of Ireland (PSI) accreditation principles and is currently pending accreditation.

### Contact Details

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### Visit Us Online

[dcu.ie/DC210](http://dcu.ie/DC210)

CAO code

**DC210**

Years

**4**

Places

**20**

Internship

**Yes**

## Understanding: Psychology and Disruptive Technologies

Develop an understanding of the human mind and behaviour and the way in which disruptive technologies are enhancing, eliminating and creating entirely new solution spaces for societal issues, and the opportunities and challenges these present for contemporary society.

We are living through an era that has seen accelerated technological innovation and advancement with global reach and transformative impacts on every aspect of daily living. This is an exciting age of disruption reshaping how we think, behave and also engage with our environment. You will learn the skills, expertise and values needed to be able to work in a rapidly changing and diverse technological environment in behaviour change, mental wellbeing, health, enhancement and rehabilitation, and innovation. DCU's four-year BSc in Psychology and Disruptive Technologies course is structured to cover introductory to advanced levels of psychology across the five core pillars of across the five pillars of undergraduate training: development and lifespan psychology; biological psychology and neuropsychology; social psychology; cognitive psychology and the

psychology of individual difference. A core focus running throughout the course is research literacy supported by a combination of practical and virtual laboratory activities and digital innovation based on cutting edge technologies that positively disrupt the status quo and underpin societal change. The course will cover a dynamic range of applied areas of cutting edge options from the Psychology of Innovation and Disruption across diverse education, health, business and industry settings. Throughout the course, you will also develop a detailed understanding of the theories and innovations of disruptive technologies that significantly reshape the world that we live in, and also examine mechanisms for building trust in digital interactions.

## Course Structure

The course will cover a dynamic range of applied areas and cutting edge options from the Psychology of Innovation and Disruption across diverse education, health, business and industry settings. Throughout the course, you will also develop a detailed understanding of the theories and innovations of disruptive technologies that significantly reshape the world that we live in, and also examine mechanisms for building trust in digital interactions.



In Year 3, you will complete an internship in various fields including digital technology and learning, digital therapeutics, and other applied areas within education, health and wellbeing, industry and community sectors.

In Year 4, you will have an exciting opportunity to complete a final year project bringing together your advanced and unique training in Psychology and Disruptive Technologies.

### **Future Careers**

- Data Management
- Data Visualisation
- Further Study - Teacher
- Further Study - Professional Psychologist
- Researcher
- Behavioural Scientist

### **In These Areas**

- Telehealth and Diagnostics
- Information Technology
- Healthcare
- Cognitive Science and Cognitive Technologies (Artificial Intelligence)
- Social Robotics
- Mixed Reality
- Human Technology Interaction (HTI)
- Education
- Industry / NGOs / Academia

# BSc in Psychology and Mathematics

## Develop numeracy, analytic and problem-solving skills to further the scientific study of the human mind and behaviour

### Why DCU?

- First integrated Psychology and Mathematics course in Ireland. Uniquely meets industry demand for graduates with the knowledge of how to apply numeracy and analytical skills to interpret how humans think, act, react and interact
- Small class sizes that allow for individual attention, delivered by a dynamic interdisciplinary, research-active lecturing team, with innovative teaching methodologies and student supports
- Work experience (INTRA) providing practical expertise in the application of mathematics and psychology to examine real-world problems in industry, clinical, education and other relevant settings
- Student-centred learning philosophy that places major emphasis on gaining digital, analytical, problem-solving and transferable skills
- High-quality research laboratories and research skills training supports with a capstone independent final-year project working with academic supervision in Psychology and Mathematics to deliver research-driven solutions

### About You

You have an interest in human behaviour and an aptitude for high-level mathematics and scientific inquiry. You should possess very good verbal, written and interpersonal skills, be flexible, hard-working, creative, with an enquiring mind and the ability to think critically.

### Additional Requirements

In addition to the general entry requirements for admission to the University (see pages 39), the following entry requirements apply: minimum of H3 in Mathematics.

### Understanding: Psychology and Mathematics

The BSc in Psychology and Mathematics is the first course in Ireland to integrate these subjects for students interested in a career that combines the interpretation of human behaviour with high-level numeracy, analytical and problems solving skills. DCU is uniquely positioned to offer this course, building on core strengths in both disciplines. 'Psychology' is concerned with all aspects of behaviour, including the thoughts, feelings and motivations underlying such behaviour. While psychologists differ in their interests



**Additional Information**

With appropriate choices of final year modules, graduates will meet the subject requirements of the Teaching Council in relation to Mathematics.

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CAO code

**DC207**

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Years

**4**

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Places

**10**

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Internship

**Yes**

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within the field of psychology and in the type of work that they do, they all approach the study of psychology in a scientific way. 'Mathematics' is key to understanding the modern world and mathematical training develops both specific numeracy skills and broad analytical expertise, which are valued in many professions. The course provides the opportunity to gain an in-depth knowledge and understanding of each discipline alongside a broad critical perspective on key areas of contemporary society. It is designed to develop a diverse set of transferable skills including an understanding of human behaviour, critical thinking, problem-solving, research methods, communication, and the ability to disseminate findings to varied audiences; skills increasingly demanded by national and international employers.

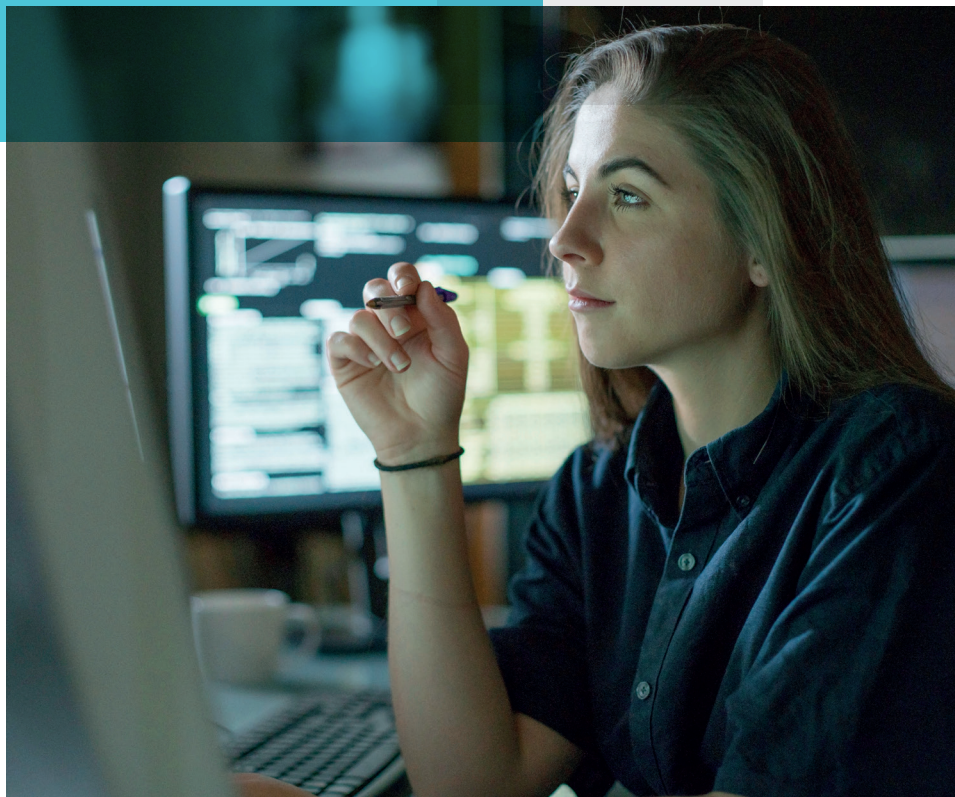
### Course Structure

The four-year BSc in Psychology and Mathematics course is structured to cover introductory to advanced levels of Psychology across the five pillars of undergraduate training: development and lifespan psychology; biological psychology and neuropsychology; social psychology; cognitive psychology and the psychology of individual difference;

in combination with introductory to advanced levels of Mathematics including calculus, probability, computing, statistics and data analysis. Research literacy is a core focus of the course and it is supported by a combination of practical and online laboratory activities.

The course covers an existing range of applied subjects (e.g. Psychological Assessment and Measurement, Social Psychology and Contemporary Issues, Coding and Cryptography, and Deep Learning) and offers cutting-edge options specifically designed for this course. Thanks to our extensive networks with industry, business, partner hospital/clinics, schools and researchers, we are the first to have established integrated credited undergraduate Psychology and Mathematics internships.

Our Year 3 work placements (INTRA) can be in various fields including clinical, behavioural and cognitive neuroscience; financial and health-related industries, organisational and corporate psychology; and applied behaviour analysis.



In Year 4 the course offers the exciting opportunity to conduct and independent final-year research project combining psychological and mathematical tools and techniques to address a contemporary real-world psychological question.

**Additional Information**

The BSc in Psychology and Mathematics course has been developed in line with pre-professional Psychological Society of Ireland accreditation principles and is currently pending accreditation.

Graduates of this course will be well placed to undertake further studies and research in Psychology and Mathematics.

The course provides a pathway to a postgraduate qualification in teaching.

## What Will I Study?

### Year 1

Philosophy of Psychology | Personality | Cognition | Psychology Research Skills 1 | Social Psychology | Linear Mathematics | Calculus | Programming for Mathematics | Introduction to R Programming

### Year 2

Child Development | Psychology Research Skills 2 | Biological Psychology | Probability | Calculus | Statistics | Psychological Assessment and Measurement | Sequences and Series

### Year 3

Cognition across the Lifespan | Lifespan Development | Psychology Research Skills 3 | Financial and Actuarial Data Analysis | Discrete Mathematics | Working in Psychology | INTRA

### Year 3 Options

Linear Algebra | Abstract Algebra | Modelling with Differential Equations

### Year 4

Social Psychology and Contemporary Issues | Psychological Health, Difficulties and Disorders | Neuropsychology | Psychology Research Project

### Year 4 Options

Numerical Methods | Analysis | Partial Differential Equations | Coding and Cryptography | Geometry | Optimisation | Deep Learning

## Future Careers

- Market/Sales Analyst
- Financial Analyst
- Information Technology
- Business Consultancy
- Statistical Analysis
- Further Study – Professional Psychologist
- Teaching

## In These Areas

- Healthcare
- Finance
- Industry
- Non-Profit
- Clinical
- Education
- Sport

Look online (website details at top of page) for more information about future careers in your chosen field.

# Entry via DC111

## Bachelor of Business Studies

### Additional option - Business Analytics within BSc in Business Studies

#### General Information

The data-driven economy requires new types of evidence-based managers and analysts equipped with the latest techniques to capture, analyse and make strategic and real-time decisions. To this end, the new data analytics pathway on our Business Studies degree provides students with business analytics capabilities that are in high demand in every sector.

#### Why Is It Exciting?

Business Analytics provides enriched understanding about the nature of a business and key business decisions. Understanding analytics and asking the right questions of data is a critical foundation for success in this data-driven era.

#### What Will I Study?

Students on our business analytics pathway will learn about converting business data into valuable information through the use of statistical techniques and advanced software. The pathway will commence with a solid foundation in statistics in Year 1. The analytics modules will teach you how to deal with large quantities of data, through combined tools of statistical analysis and software, to solve problems and

make sound business and management decisions. Through the specialist modules in final year, you will be equipped with the tools of the trade, learning about, through and with a wide range of software technologies and dashboards, including R, Tableau, SPSS and programming languages like Python. You will also gain experience in evidence based logic and data visualisation.

#### Student Outcomes

On completion of this specialism you will have obtained:

- A solid grounding in the statistical and technical methods of data analysis
- Practical skills and experience in using business analytics to support a range of business processes, problems and contexts
- The ability to articulate how Big Data and advances in analytical techniques including machine learning, deep learning and artificial intelligence can generate and capture business value and support effective business strategies

### Additional Information

To study Business Analytics, you must join our Bachelor of Business DC111 and choose this option at the end of Year 3

### Contact Details

DCU Business School  
**T** +353 (0) 1 700 5265  
**E** [business.dcu@dcu.ie](mailto:business.dcu@dcu.ie)

### Visit Us Online

[business.dcu.ie/business-analytics-stream/](https://business.dcu.ie/business-analytics-stream/)

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CAO code  
**DC111**

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Graduates will benefit from enhanced employability in the management consulting sector in Ireland or in roles as business analysts in a wide range of industries driven by digital transformation, all of which are major sources of employment. Future roles include those of Business Analyst, Business Intelligence Analyst, Management Consultant and Business/

Data Analytics Project Manager. These industries require workers with diverse analytical, technical, social and strategic mind-sets and skills, as well as hands-on experience.

### How To Apply

Applicants to this course must apply via DC111 Business Studies.





# Entry via DC175

## Physics General Entry

### BSc in Physics with Data Analytics

#### General Information

The BSc in Physics with Data Analytics is run by the DCU School of Physical Sciences in collaboration with partners across DCU and industry.

Here in the School of Physical Sciences in DCU we are always looking for more ways to push the boundaries of learning. In this groundbreaking degree, you will combine the skills and knowledge of a Physics degree with the advanced data analytics tools you need to solve real-world problems in new and exciting ways.

#### Why Is It Exciting?

Physics is the most fundamental science. It explains the mysteries of the universe and has fuelled many of the scientific and technological developments that we take for granted. Physicists have pioneered modern technologies as diverse as the internet, digital cameras and MRI scanners. Today physicists continue to generate new knowledge about our world and lead innovation in yet-to-be-exploited realms such as quantum information and communications technology, nano-systems design, ultrafast molecular switching and terahertz medical imaging while also

spearheading research on sustainable energy production and other global challenges. Our technology-infused world generates massive amounts of data and physicists are among those working to interpret that data and revolutionise how technologies are harnessed. The methods to process data are not only used in physics but applied across disciplines and sectors, including the semiconductor industry, pharmaceutical industry, finance, and software development giving you an exciting range of options.

To study Physics with Data Analytics, you must join our Physics General Entry DC175 and choose this option at the end of Year 1.

#### What Will I Study?

You will begin studying a variety of physics topics in Years 1 and 2. This degree combines lectures, tutorials and stimulating laboratory work and projects with fundamental physics concepts and exciting, real-life technological skills and applications. The basic foundations of physics, maths, and programming will be laid in Years 1 and 2, while in Years 3 and 4, more specialist topics on machine learning, artificial intelligence and quantum computing are introduced.

### Additional Information

To study Physics with Data Analytics, you must join our Physics General Entry DC175 and choose this option at the end of Year 1.

### Contact Details

School of Physical Sciences  
T +353 (0) 1 700 5023  
E [karsten.fleischer@dcu.ie](mailto:karsten.fleischer@dcu.ie)

### Visit Us Online

[dcu.ie/DC175](https://dcu.ie/DC175)

CAO code

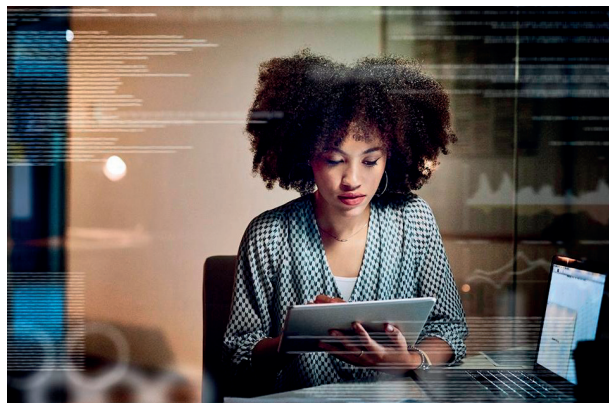
**DC175**

Years

**1+3**

Internship

**Yes**



In Year 4, your choices include: nanotechnology, plasma physics and physics of medical diagnostics. Throughout your degree, you will also explore mathematics, statistics, programming, cloud and high-performance computing. You will then learn how to apply these computational tools to industry-relevant physical and societal scenarios using real-world data from industry partners and learn to communicate the results.

In Year 3, you will have the opportunity to work in industry as part of our industrial training programme (INTRA) or optionally spend your placement working in one of the research groups in the School of Physical Sciences or DCU affiliated research centres, where you will assist with cutting-edge research projects.

You will conduct your Year 4 project in DCU's world-class laboratories and research centres, experiencing the excitement and personal achievement associated with scientific research. A second part of the final year project will team you up into interdisciplinary teams tackling industry led real life problems in a collaborative manner.

### How To Apply

Applicants to this course must apply via DC175 Physics General Entry. Upon successful completion of Year 1 the degree choices are:

- BSs in Physics with Data Analytics
- BSc in Applied Physics
- BSc in Physics with Astronomy
- BSc in Physics with Biomedical Sciences

# Entry via DC163

## Chemical Sciences General Entry

### BSc in Chemistry with Artificial Intelligence

#### General Information

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The BSc in Chemistry with Artificial Intelligence is run by the DCU School of Chemical Sciences in collaboration with the DCU School of Computing.

In this ground-breaking degree, one of the first of its kind, you will learn both the chemistry and computing skills needed to harness the enormous potential of applying artificial intelligence to chemistry.

#### Why Is It Exciting?

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Artificial Intelligence (AI) is revolutionising how drugs and materials are discovered, developed and produced. For example, it is helping drug development scientists bring Covid-19 vaccines to market faster, by rapidly accelerating potential vaccine discoveries, identifying potential side effects, and making the production process faster. That's not all, as globally, scientists are beginning to unlock the power of AI to help them find new medicines and sustainable materials. In fact, they are creating a new tomorrow.

#### What Will I Study?

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You will begin studying a variety of chemistry topics in Years 1 and 2. You will study the fundamental basics of chemistry, and build on this to learn how medicines work, what causes climate change, how to drive reactions to go faster, how to determine the source of a water pollution event, and so much more.

Our student-focused laboratory practical sessions are a combination of wet labs and virtual components. In these you will learn in small student groups, assisted by fully trained laboratory tutors and our award-winning technical team, getting hands-on experience on the instruments and techniques used in industry. The AI strand begins in Year 2, with modules in programming and machine learning throughout Years 2-4.

In Year 3 you will have the opportunity to work in industry as part of our industrial training programme (INTRA). In Years 3 and 4 you will also study the skills and theory you need to apply AI to chemistry. A major element of final year is the capstone research project, in which you get to pursue independent research in an area of applied chemistry.

**Additional Information**

To study Chemistry with Artificial Intelligence, you must join our Chemical Sciences General Entry DC163 and choose this option at the end of Year 1.

**Contact Details**

School of Chemical Sciences  
**T** +353 (0) 1 700 5312  
**E** emma.coyle@dcu.ie

**Visit Us Online**

[dcu.ie/DC163](https://dcu.ie/DC163)

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CAO code**DC163**

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Years

**1+3**

Internship

**Yes**

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The use of AI is only going to further increase in drugs and materials firms, and the course has been designed to ensure graduate employability into the future. Industry partners will be actively involved throughout the four years, helping to develop the course, deciding skill sets, suggesting software, providing assignments and offering assessments.

**How To Apply**

Applicants to this course must apply via DC163 Chemical Sciences General Entry. Upon successful completion of Year 1 the degree choices are:

- BSc in Chemistry with Artificial Intelligence
- BSc in Analytical Science
- BSc in Chemical and Pharmaceutical Sciences



# Entry via DC180

## Biological Sciences General Entry

### BSc in Bioprocessing

#### General Information

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The BSc in Bioprocessing is an interactive and dynamic course that will develop your knowledge and appreciation of the conceptual and factual bases for bioprocess design and operation.

#### Why Is It Exciting?

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Bioprocessing is at the heart of the biopharmaceutical and related industries.

Bioprocessing involves the integrated application of biological sciences and bioprocess engineering principles to the manufacturing of pharmaceuticals, enzymes, food, and related products, on a commercial scale. This course will develop your understanding of the fundamental biological principles and methods involved in the development of new drugs and related products.

You will also come to understand the problems posed by the demands of large-scale production, and you will develop the bioprocess and biomolecular engineering knowledge and skills to solve those problems.

As a budding bioprocessing specialist, you will have a unique appreciation of the integrated nature of bioprocessing and you will be able to combine your knowledge of biochemistry, microbiology and genetics with your expertise in bioprocess control, data analysis and process modelling and simulation.

Your strong knowledge of both biology and bioprocess engineering, and your ability to integrate these disciplines, will place you in the perfect position to work, research and innovate in the rapidly changing bioprocessing sector.

#### What Will I Study?

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At the start of the BSc in Bioprocessing, you will be introduced to the basic sciences, mathematics and data analytics. As you progress, you will delve more deeply into the fundamentals of both biology and bioprocessing, putting in place the foundations to be able to integrate these disciplines.

In Year 3, you will begin to focus on real-world bioprocessing problems and have the opportunity to spend nine months in industry as part of our industrial training programme (INTRA).

### Additional Information

To study Bioprocessing, you must join our Biological Sciences General Entry DC180 and choose this option at the end of Year 1.

### Contact Details

School of Biotechnology  
**T** +353 (0) 1 700 5284  
**E** [biotechnology@dcu.ie](mailto:biotechnology@dcu.ie)

### Visit Us Online

[dcu.ie/DC180](http://dcu.ie/DC180)

CAO code

**DC180**

Years

**1+3**

Internship

**Yes**

In Year 4, you will continue to develop your ability to integrate biology and bioprocess engineering. You will complete an industry-focused research project and take part in a team-based product innovation challenge. You will also contribute to a research-focused journal club with your fellow students and your lecturers.

### How To Apply

Applicants to this course must apply via DC180 Biological Sciences General Entry. Upon successful completion of Year 1 the degree choices are:

- BSc in Bioprocessing
- BSc in Biotechnology
- BSc in Genetics and Cell Biology







# Course Requirements

CAO CODE	COURSE TITLE	DURATION	POINTS
DC241	<b>BSc in Digital Business and Innovation</b>	4 years	N/A
<b>SUBJECTS REQUIRED</b>			
Leaving Certificate	Minimum of O4 or H6 in Mathematics		
GCE A Level	GCE A Level D or GCE AS Level C or GCSE C Mathematics		
<b>OTHER ENTRY PATHS</b>			
FET Level 5	Please refer to DCU.ie for full FET Level 5 accepted awards.		
Transfer Applications	Whilst transfer applications are welcomed from holders of qualifications in Business Studies, Marketing or related subjects for admission to Year 1 of this course, there is no advanced entry path into Year 2.		

CAO CODE	COURSE TITLE	DURATION	POINTS
DC194	<b>BEng and MEng in Sustainable Systems and Energy</b>	4 years**	N/A
<b>SUBJECTS REQUIRED</b>			
Leaving Certificate	Minimum of H4 Mathematics or H4 Applied Mathematics with H5 Mathematics		
GCE A Level	GCE A Level C Mathematics		
<b>OTHER ENTRY PATHS</b>			
FET Level 5	No entry path.		
Transfer Applications	The engineering schools consider transfer requests based on the performance of the candidate.  The overall set of guidelines which is in use for HETAC/NCEA equivalent qualifications is as follows:		

Qualification Possible	Point of Entry
Relevant HETAC/NCEA Higher Certificate/National Certificate (Distinction)	First year
Relevant HETAC/NCEA Higher Certificate/National Certificate (Merit plus Experience)	First year
Relevant HETAC/NCEA Bachelor (Ordinary) Degree/National Diploma (Merit or Better)	Second year
Relevant HETAC/NCEA Bachelor (Ordinary) Degree/National Diploma (Distinction plus a possible interview)	Third year
(** Option to complete Year 5 integrated MEng degree based on performance across Years 1 and 2)	

# Course Requirements

CAO CODE	COURSE TITLE	DURATION	POINTS
DC294	<b>BSc in Climate and Environmental Sustainability</b>	3/4 years	N/A

## SUBJECTS REQUIRED

Leaving Certificate	No additional requirements (general entry requirements only: see page 39)
GCE A Level	No additional requirements see <a href="http://dcu.ie/registry/registry-uk-applicants">dcu.ie/registry/registry-uk-applicants</a>

## OTHER ENTRY PATHS

FET Level 5	Please refer to <a href="http://DCU.ie">DCU.ie</a> for full FET Level 5 accepted awards.
Transfer Applications	No entry path.

CAO CODE	COURSE TITLE	DURATION	POINTS
DC189	<b>BSc in Global Challenges</b>	4 years	N/A

## SUBJECTS REQUIRED

Leaving Certificate	Minimum of H5 or O2 in Mathematics
GCE A Level	GCE A Level C Mathematics

## OTHER ENTRY PATHS

FET Level 5	Please refer to <a href="http://DCU.ie">DCU.ie</a> for full FET Level 5 accepted awards.
Transfer Applications	No entry path.

CAO CODE	COURSE TITLE	DURATION	POINTS
DC210	<b>BSc in Psychology and Disruptive Technologies</b>	4 years	N/A

## SUBJECTS REQUIRED

Leaving Certificate	Minimum of O4 or H6 in Mathematics
GCE A Level	GCE A Level D or GCE AS Level C or GCSE C Mathematics

## OTHER ENTRY PATHS

FET Level 5	No entry path.
Transfer Applications	No entry path.

CAO CODE	COURSE TITLE	DURATION	POINTS
DC207	<b>BSc in Psychology and Mathematics</b>	4 years	N/A
<b>SUBJECTS REQUIRED</b>			
Leaving Certificate	Minimum of H3 in Mathematics		
GCE A Level	GCE A Level B Mathematics		
<b>OTHER ENTRY PATHS</b>			
FET Level 5	No entry path.		
Transfer Applications	No entry path.		

## Specialism Requirements

CAO CODE	COURSE TITLE	DURATION
DC111	<b>Bachelor of Business Studies</b>	End of Year 3 only
<b>SUBJECTS REQUIRED</b>		
Leaving Certificate	Minimum of O4 or H6 in Mathematics	
GCE A Level	GCE A Level D or GCE AS Level C or GCSE C Mathematics	
<b>OTHER ENTRY PATHS</b>		
FET Level 5	Please refer to DCU.ie for full FET Level 5 accepted awards.	
Transfer Applications	Holders of Higher Certificate/National Certificate in Business Studies with Distinction may be considered for admission into Year 2. Holders of a Bachelor (Ordinary) Degree/National Diploma in Business Studies with Merit or Distinction may also be considered for admission into Year 2. No additional exemptions will be awarded from Year 2.	

# Specialism Requirements

CAO CODE	COURSE TITLE	DURATION
DC175	<b>Physics General Entry</b>	First year only

SUBJECTS REQUIRED		
Leaving Certificate	Minimum of O3 or H6 in Mathematics and minimum of O3 or H5 in one of Physics, Chemistry, Biology, Physics with Chemistry, Applied Mathematics or Computer Science.	
GCE A Level	GCE A Level D or GCE AS Level C or GCSE B Mathematics and GCE A Level D or GCE AS Level C or GCSE B in one of Physics, Chemistry, Biology, Physics with Chemistry or Applied Mathematics	

OTHER ENTRY PATHS		
FET Level 5	Please refer to DCU.ie for full FET Level 5 accepted awards.	
Transfer Applications	Please contact Faculty for further information.	

CAO CODE	COURSE TITLE	DURATION
DC163	<b>Chemical Sciences General Entry</b>	First year only

SUBJECTS REQUIRED		
Leaving Certificate	Minimum of O3 or H6 in Mathematics and minimum of O3 or H5 in one of Physics, Chemistry, Biology, Physics with Chemistry, Agricultural Science or Computer Science	
GCE A Level	GCE A Level D or GCE AS Level C or GCSE B Mathematics and GCE A Level D or GCE AS Level C or GCSE B in one of Physics, Chemistry, Physics with Chemistry, Biology or Agricultural Science	

OTHER ENTRY PATHS		
FET Level 5	Please refer to DCU.ie for full FET Level 5 accepted awards.	
Transfer Applications	Holders of Higher Certificate/National Certificates at Bachelor (Ordinary) Degree/National Diplomas with Merit or Distinction may be admitted into Year 2 if the relevant Programme Boards are satisfied that the candidate has achieved an appropriate standard in the major subjects covered in Year 1. Direct entry into Year 3 is possible for well-motivated students holding a distinction at Diploma level in a related discipline.	

CAO CODE	COURSE TITLE	DURATION
DC180	<b>Biological Sciences General Entry</b>	First year only
<b>SUBJECTS REQUIRED</b>		
Leaving Certificate	Minimum of O3 or H6 in Mathematics and minimum of O3 or H5 in one of Physics, Chemistry, Biology, Physics with Chemistry, Agricultural Science or Computer Science	
GCE A Level	GCE A Level D or GCE AS Level C or GCSE B Mathematics and GCE A Level D or GCE AS Level C or GCSE B in one of Physics, Chemistry, Physics with Chemistry, Biology or Agricultural Science	
<b>OTHER ENTRY PATHS</b>		
FET Level 5	Please refer to DCU.ie for full FET Level 5 accepted awards.	
Transfer Applications	Holders of Higher Certificate/National Certificates at Bachelor (Ordinary) Degree/National Diplomas with Merit or Distinction may be admitted into Year 2. Because of the special nature of the Year 2 of the course, which as Process Engineering as a major component, candidates cannot be considered for direct entry into Year 3. Suitable candidates will be required to attend for interview.	

### Note

FET Level 5 have redesigned some awards and FET codes may be subject to change. Please check the DCU website for updated information on FET entry requirements.

## General Entry Requirements

A minimum of six leaving Certificate subjects at Grade O6/H7, which must include Mathematics and English or Irish. In addition, applicants must present at least two subjects at grade H5.

### Disclaimer

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Ollscoil Chathair  
Bhaile Átha Cliath  
Dublin City University



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Find out more at  
[dcu.ie/safezone](http://dcu.ie/safezone)



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[studenthelp@dcu.ie](mailto:studenthelp@dcu.ie)  
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