



Welcome to UCD Science!

An information session for parents, guardians & partners
Professor Joe Carthy & Assoc. Professor Tara McMorrow



www.ucd.ie/science

[@ucdscience](https://twitter.com/ucdscience)

asdean.science@ucd.ie



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UCD Science

- Flexible Curriculum
- World Class Facilities and Teaching
- Dynamic Campus
- Internship Opportunities





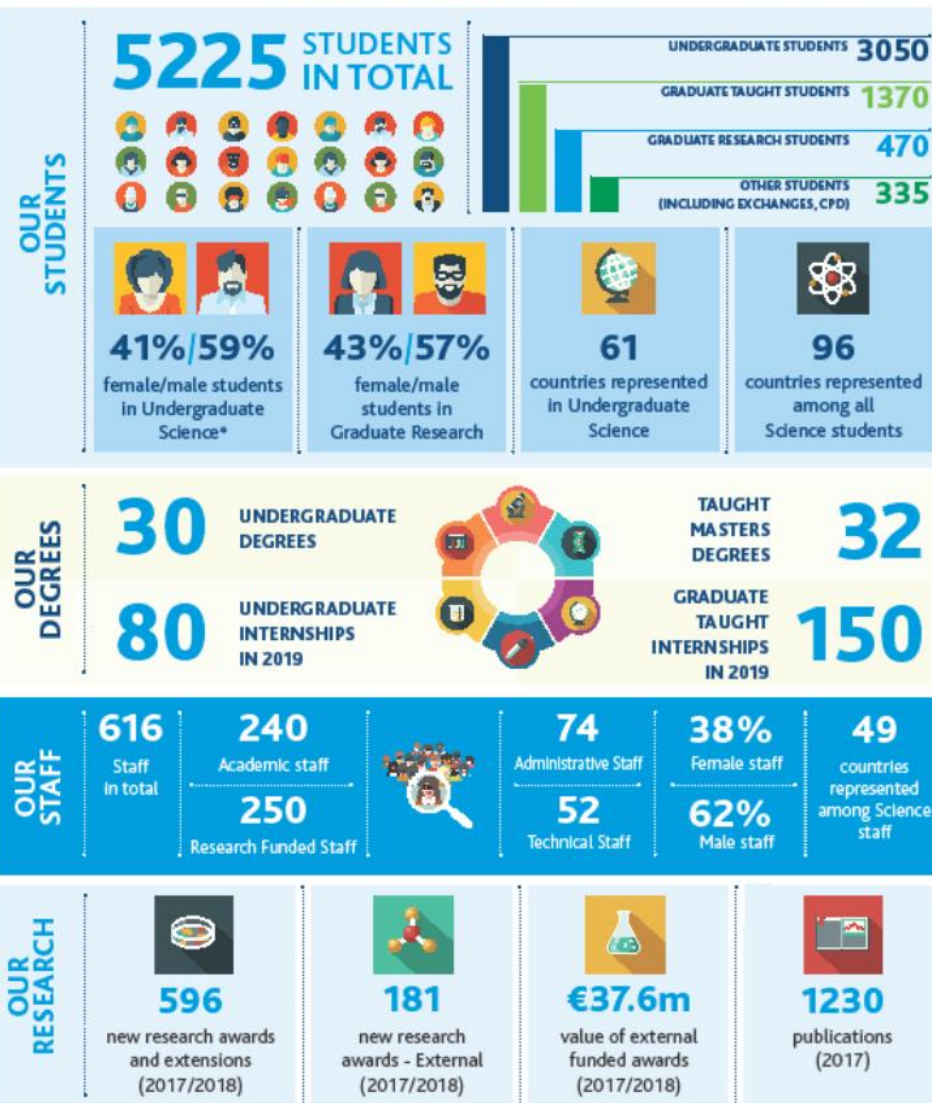
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FACTS & FIGURES 2019



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UCD COLLEGE OF SCIENCE



All totals as of April 2019

*In line with UCD's Gender Identity and Expression Policy, a small number of students (~0.1%) have chosen not to identify a gender.



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DN200 Science

In 2019 minimum CAO points were 521

BBB	Neuroscience	CCS	MPG	Physics
Biochemistry & Molecular Biology	Pharmacology	Chemistry	Applied & Computational Mathematics	Physics with Astronomy & Space Science
Cell & Molecular Biology	Physiology	Chemistry with Biophysical Chemistry	Financial Mathematics	Theoretical Physics
Environmental Biology	Plant Biology	Chemistry with Environmental & Sustainable Chemistry	Mathematics	Geology
Genetics	Zoology	Medicinal Chemistry & Chemical Biology	Statistics	
Microbiology	Biology Maths Education	Chemistry Maths Education	Physics Maths Education	Applied Maths Maths Education



DN201 Computer Science and Computer Science with Data Science

DN201

Computer
Science

CAO 2019
Min. Points
488

- Emphasis is on programming/software engineering – theory and practice
- Learn programming languages such as Java, Python and Ruby; software development tools and methodologies such as Git and Scrum; web technologies such as JavaScript; and the latest techniques in Big Data programming.
- Suitable for students who have programmed and those with no programming experience
- First Year is 70% Computer Science and 30% Mathematics - Mathematics is tailored for Computer Scientists
- At the end of Second Year students can choose either to major in Computer Science or in Computer Science with Data Science
- International study opportunities in Fudan University, Shanghai, China and University of Auckland, New Zealand and University of California, USA



DN230

Actuarial &
Financial
Studies

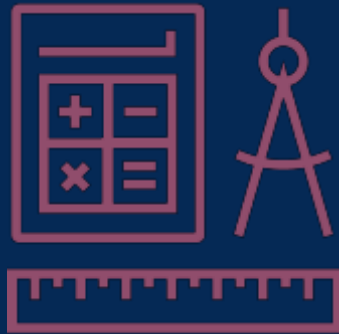
CAO 2019
Min. Points
577

- This degree is aimed at students with a very high proficiency in Mathematics
- Ideal for students considering a career in the actuarial or financial professions
- The Institute and Faculty of Actuaries, which accredits this course, has modified the syllabus. The Actuarial and Financial Studies degree at UCD covers the Core Principles subjects (CS1, CS2, CM1, CM2, CB1, CB2) and Core Practicals subject CP1 of the examinations of the Institute and Faculty of Actuaries, UK.
- In third year there is a **6 month** professional placement in insurance or financial institutions in Ireland, UK or the USA. This forms part of the degree.



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Internships



Internship Programmes

Professional Science Placement

- 3 months Summer internship
- 5-6 months industry placement

Companies include Sanofi, Abbott, TopChem, Pfizer, Google, Amazon, Deloitte, Baxter, Henkel



- Chemistry
- Biomolecular and Biomedical Science
- Biology and Environmental Science



- Computer Science
- Mathematics
- Earth Science
- Physiology
- Actuarial & Financial Studies (6 months built in)



DN200 Key Decisions and Pathway to Graduation

- Students choose their **degree subject** (i.e. one of the 27 possibilities)– after they have studied it for a while
- 1st year – **engage with the principles**
 - Students don't have to study a bit of everything.
 - Cover at least 2 subjects
- End of 1st year – choose 2 to 4 subjects
- End of 2nd year – **choose their degree subject/major**
- 3rd and 4th year – focus on chosen subject

Degree Pathways summarised in brochure for all 27 subjects including information on careers etc.

- Available on line www.ucd.ie/science/ucdscience.pdf



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Genetics

CAO code: DN200 Option: Biological, Biomedical and Biomolecular Science (BBB)

Sample pathway for a degree in Genetics *

YEAR 1

ENGAGE WITH THE PRINCIPLES

BIOLOGY Topics Include:

- Biology in Action
- Life on Earth
- Cell Biology & Genetics
- Biomedical Sciences

CHEMISTRY Topics Include:

- The Basis of Organic and Biological Chemistry

MATHEMATICS Topics Include:

- Mathematics for the Biological & Chemical Sciences

- Two Elective modules
- One Small-Group Project

YEAR 2

CHOOSE YOUR SUBJECTS

GENETICS Topics Include:

- Chemistry for Biologists
- Molecular Genetics and Biotechnology
- Plant and Animal Genetics
- Metabolic and Immune Systems
- Biomolecular Laboratory Skills

MICROBIOLOGY Topics Include:

- Principles of Microbiology: Medicine, Environment and Biotechnology

ZOOLOGY Topics Include:

- Biological Systems
- Principles of Zoology
- Animal Behaviour
- Molecular Genetics and Biotechnology

- Two Elective modules

YEAR 3

FOCUS ON YOUR CHOSEN SUBJECT

GENETICS – Topics Include:

- Regulation of Gene Expression
- Bioinformatics
- Genome Structure
- Genetics

- Animal Development
- Genomics & Proteomics
- Genetic Basis of Disease
- Evolutionary Biology

- Two Elective modules

YEAR 4

REFINE YOUR KNOWLEDGE

GENETICS – Topics Include:

- Epigenetics
- Genetics Disease & Behaviour

- Gene Regulation
- Systems Microbiology

- Model Organism Genetics
- Genetics Research Project

BSc (Honours) Genetics

MSc (Taught)

- MSc Biotechnology
- MSc Biotechnology and Business
- MSc Evolutionary Biology
- MSc Plant Biology and Biotechnology
- MSc Biotherapeutics

PhD

- Students can pursue a PhD in universities in Ireland or abroad in areas as diverse as biotechnology, cell biology, biomedical and health science and bioinformatics

Industry

- Biotechnology, pharmaceutical, and genomics companies
- Hospital labs
- Forensic Science labs
- Agribiotech and horticulture

Conversion Courses

- Professional Master of Education (PME)
- Graduate Veterinary Medicine
- Graduate Medicine
- Master of Business Administration
- Master in Management



These are transgenic zebrafish larvae (5 days old, 3mm long) that express green fluorescent protein in all their blood vessels. The zebrafish is our animal model to study retinal development and disease.

Image by Dr Yolanda Alvarez © UCD

- Explore molecular genetics and molecular biology, which are core components of modern biology and medicine, and form the basis of biotechnology

“

The most valuable part of the course was the thesis project I undertook in my final year. Although this was, at times, a really challenging placement I found great satisfaction and enjoyment from optimising experiments, learning new skills and making new discoveries. I knew that this was the career path I wanted to take and I am now a PhD student in Infectious Disease at the University of Cambridge.

Amle Regan, Graduate

”

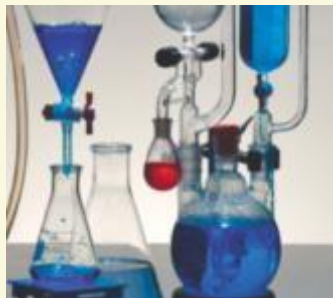
*See page 43 for more information on subject choices. Potential combinations shown here are examples only and are not guaranteed by UCD. Topics are subject to change each year.



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What are the opportunities for Science graduates?

Pharma/Biotech,
Medical Devices,
Hospitals, Chemical
Industry



Computing, Risk,
Finance & Analytics



Energy, Conservation
Wildlife &
Environment



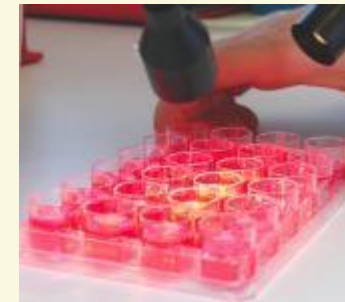
Semiconductor,
Nanotech & Space
Industry



Natural
Resources



Further Education
& Research





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What are the opportunities for Computer Science graduates?

Computing,
Analytics,
Entrepreneurship



Software Developer,
Quality Insurance
Engineer



Further Education
& Research





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What are the opportunities for Actuarial and Financial Science graduates?

**Actuary
Risk Analyst**



**Business Analyst
Financial Analyst**



**Further Education
& Research**





“Jargon Buster”

- UCD is **“trimesterised”** : each stage (year) is divided into 3 trimesters, with exams at the end of trimester 1 (Autumn) & 2 (Spring). Current trimester (15 weeks: 12 lecture weeks + 1 study week + 2 exam weeks) ends on **Friday December 20th**
- UCD is **“modularised”** : each stage is divided into 12 **modules**. Each module is worth 5 **credits** (60 credits per year)
- **Core & Optional modules** : modules within Science
- **Elective modules/UCD Horizons** : 1 in first year and 2 modules in next two years from “anywhere” (e.g. Chinese, Film studies, Philosophy...or Science)



Workload & Work Practice

- **Workload** includes Lectures, Tutorials, Laboratory classes, Workshops, Small group activity...amounts to 40 hours per week, for the 15 weeks of a trimester – it's a **full time job!**
- Most modules include **continuous assessment**
- **Work practice** : students have a wide range of resources at their disposal, we are all here to help, but they **must take responsibility for their own learning**
- Students must form critical judgements, challenge knowledge taken for granted, become **independent thinkers** and learn with and from other students & staff



Assessment and Exams

- **Grades (Grade Points)** range from A+(4.2), A(4.0),...,D- (2.0), E,..., NG.
- **Grade Point Average (GPA)** : trimester/stage average of Grade Points. GPA of 2.0 is a pass. GPA of 4.2 is “perfect” !
- **Degree GPA/Class** : 70% final year, 30% penultimate year
- **Resit examinations** : Grade Point is capped at 2.0
- **Repeat examinations** : Grade Point is reduced by 0.6
- **Extenuating Circumstances** : serious illness, accident, family bereavement, serious personal issues. Application should be made when assessment & exams are affected.
- **Communication** of results, performance etc. is **only** with the student and **not** with parents/guardians/partners.



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Student Supports

we all want our students to succeed

- **Programme Office**
 - General enquiries on academic, registration or other queries
 - Often the first port of call
- **Academic Staff**
 - Available to discuss academic and other issues
- **Student Feedback**
 - Module questionnaires
 - Staff/Student committees
- **Peer Mentors**
 - First years have been assigned a peer mentor who is a student in Stage 2 or 3 of the programme



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UCD Science Student Adviser

Ms Catriona Keane

E-mail: catriona.keane@ucd.ie

Phone: 01 716 2271

Location: E0.55 O'Brien Centre for
Science

Role of the student adviser

- Offer one to one support for students and act as the interface to other university support services is a key component of the role
- Student advisers work closely with administrative and academic staff within programmes and across the university to ensure that students are supported in the most comprehensive way, minimising the impact of their circumstances on their academic performances
- Foster a sense of belonging within UCD community
- In relation to the peer mentoring programme- offers support, debrief sessions (2 per academic year)

UCD Student Advisers Supporting Students

The graphic features the UCD Dublin logo in the top left corner. The background is a photograph of a modern, multi-story building with large glass windows, illuminated from within, and reflected in a body of water in the foreground. The sky is a deep blue, suggesting dusk or dawn.

<u>Individual level</u>	<u>Programme Level</u>	<u>University Level</u>
Any issues from practical to more serious and confidential in nature -Advice and Support (Social, Emotional Personal Financial) -Listening -Referral -Advocacy -Advisers attached to each programme	Facilitating a positive learning environment -Peer Mentoring -Staff/Student Liaison Committees -Advising on student support strategy -Co- manage complex student cases -Representation at programme and exam boards	Promoting student engagement, retention and student experience -Representation on Committees -Student Financial Aid -Orientation -Consultation on Policy development

Why would a student come to their Student Adviser?

- **Personal**-Struggling with personal difficulty, from gender to sexuality to problems within the family unit
- **Psychological**- anxiety depressive related symptoms, relationship difficulties, Sleep difficulties
- **Academic**- interruption in concentration levels, wrong choice of course, difficulty with Maths (very common presentation)
- Regardless of the presenting issues, the student advisor offers a confidential space for students to discuss the nature of their circumstances, provide emotional support and direct to appropriate services



Support Services in UCD

- Programme Office
- Student Advisors (including International and Mature student advisers)
- Student Health and Counselling service
- Peer Mentors
- Chaplains
- Student Support, Every Night of Term Lines open 9pm – 2:30am
1800 793 793



St Stephens Chaplain UCD



Fr. Leon O Giollain, Scott Evans & Fr Eammon Bourke



Science Student Staff Committee



- Meetings once a trimester (Oct 2019 and Feb 2020)
- Representative from each stage and each class attends the meeting to discuss issues within course of study
- Student adviser in collaboration with associate dean and Programme office

Financial Support

- **Student support Fund-** Open to EU students, Means tested (€500- Apply through SISweb)
- **Student Welfare Fund-** Open to all students, it must be an unforeseen circumstance Apply through SISweb in contact with your student adviser, Receipts required
- **St Vincent DePaul Fund-** SVP Critical and emergency cases (€150 max- Contact Student adviser or Fr. Leon O Giollain)



Location of the student adviser

E-mail: catriona.keane@ucd.ie

Phone: 01 716 2271

Location: E0.55 O'Brien Centre for Science



How do I make an apt: Please e-mail and provide times and days that you are available, and we can schedule an appointment based on this.





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UCD Supports

www.ucd.ie 'current students' 'student supports'

- UCD Access Centre
- Maths Support Centre
- Health Centre
- Chaplaincy
- Students' Union
- Peer Mentoring



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Time of Transition

- University environment
- Style of study
- Leaving home



Parent's Support

Diane Barth, psychologist in US Journal 'Psychology Today' suggests:

- “The most important thing you can do is try to maintain communication with your son or daughter.”
- “Give advice sparingly and help them to come to their own decisions.”
- Stay in regular contact

Other Ways to Show Your Support

➤ Stay Connected

Communicate via phone, e-mail, and 'snail' mail. Students love to get real mail, especially care packages. Expect that your student will not respond to all of your contact but know that s/he appreciates hearing from you.

➤ Checking-In

Give your student the opportunity to share feelings and ideas with you. Trust your instincts.

➤ Be Knowledgeable About Campus Resources

Utilize the website. By acting as a referral source, you can demonstrate that you are interested in your student's life at the University, and at the same time, you empower your student to solve his or her own problems.

➤ Continue to Have Difficult Conversations

Create an atmosphere of open communication, and your student will not only appreciate that you respect him or her as an adult, but s/he will also be more likely to turn to you for guidance.

➤ Ask Questions—But Not Too Many

Most first-year college students desire the security of knowing that someone from home is still interested in them.

➤ Expect Change

Your student will change. College and the experiences associated with it can effect changes in social, vocational, and personal behavior and choices. It's natural, inevitable, and it can be inspiring. Often though, it's a pain in the neck.

➤ Do Not Tell Your Student That **"These Are the Best Years of Your Life"**

The first year of college can be full of indecision, insecurities, disappointments, and most of all, mistakes. It's also full of discovery, inspiration, good times, and exciting people.

➤ Trust Your Student

College is also a time for students to discover who they are and hopefully have fun too.



THESE SLIDES (and lots of other info) are at
www.ucd.ie/science/study/currentundergraduatesciencestudents/

DEGREE PATHWAYS for ALL Science degrees
www.ucd.ie/science/ucdsience.pdf

General UCD info. on student supports
www.ucd.ie/students/studentsupport.html

Careers, internships & bursaries for UCD Science students
<http://www.ucd.ie/science/careers/>

www.ucd.ie/science

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