

Science & Informatics at a glance

CAO Courses

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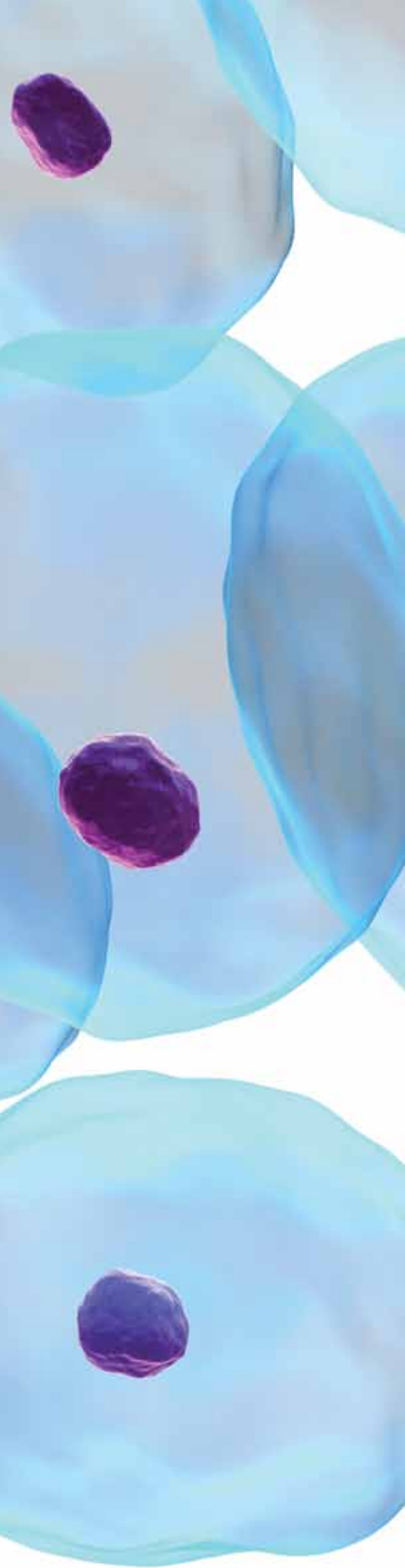
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Follow on (Honours) Degrees

Level 8

- BSc (Honours) in Applied Physics & Instrumentation
- BSc (Honours) in Cloud Computing



Postgraduate Programmes

- Higher Diploma in Science in Cloud Computing
- Higher Diploma in Science in Cloud & Mobile Software Development
- Higher Diploma in Science in Software Development
- MSc in Computational Biology (Taught)
- MSc in Cloud Computing (Taught)
- MSc in Information Security
- MSc in Information Design & Development
- MSc in Software Development (Taught)
- MSc (by Research)
- PhD

Physical Sciences (Common Entry)

CR 305 Level 8 Award

CR 300 Level 7 Award

Application: CAO

Award Title: Dependent on chosen specialisation.

Duration: Common Semester 1, students then select a course in either Chemistry or Physics with which to continue.

Places: 20 (Level 8) / 20 (Level 7)

Location: CIT Bishopstown Campus, Cork

CAO Points in 2015

Round 1

CR 305

325*

CR 300

280*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements for CR 305

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements for CR 305

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O6/H7	O6/H7

Entry 2016

Minimum Entry Requirements for CR 300

Leaving Certificate in 5 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
5	0	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements for CR 300

Leaving Certificate in 5 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
5	0	O6/H7	O6/H7

What is Science?

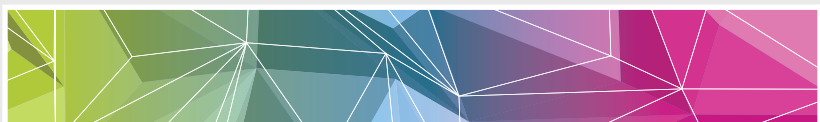
Science refers to a system of acquiring knowledge. This system uses observation and experimentation to describe and explain natural phenomena. Science is an excellent career choice for those interested in understanding how the chemicals, foods and other products that we encounter in everyday life are designed and produced. From cures for life threatening illnesses, to environmental protection, to the design of new foods and space science, careers in science are varied and interesting.

Helpful Leaving Certificate Subjects

Mathematics, Physics, Chemistry.

First Year at a Glance

- Biology: study of fundamental building blocks of life
- Chemical Principles: study of general chemical interactions
- Physics: study of fundamental basis of energy, light and heat
- Laboratory Skills: understanding the basis for good laboratory practice in a chemistry lab
- Mathematics: students use maths to problem solve





About the Courses

The Physical Sciences (Common Entry) courses are designed for applicants who wish to enter Chemical or Physical Science in CIT but are undecided about or wish to postpone selecting a designated Chemistry or Physics qualification until after they have had an opportunity to experience both disciplines.

Common Semester 1: The common Semester 1 programme includes modules in Physics, Chemistry, Biology, Mathematics and Computing so that students will have completed an introduction to general science at the end of Semester 1.

At the end of Semester 1, students choose the Chemistry or Physics course that they wish to pursue in Semester 2.

Students on the Level 8 Science Common Entry Programme CR 305 can apply to progress to one of the three Level 8 science courses:

- > CR 360 BSc (Honours) in Instrument Engineering
- > CR 365 BSc (Honours) in Environmental Science and Sustainable Technology
- > CR 340 BSc (Honours) in Analytical Chemistry with Quality Assurance

Students on the Level 7 Science Common Entry Programme CR 300 can apply to progress to one of the two Level 7 science courses:

- > CR 001 BSc in Applied Physics and Instrumentation
- > CR 007 BSc in Analytical and Pharmaceutical Chemistry

Applicants are advised to visit each of the course sites for detailed descriptions at www.cit.ie

Contact Information

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Question Time

What are the advantages of taking the Physical Sciences (Common Entry) route?

Students have an opportunity to take introductory modules in both Chemistry and Physics (in addition to other areas of general science) before choosing the discipline they wish to follow.

Do I need to have studied at least one of the science subjects at Leaving Certificate to apply for these courses?

No – the fundamentals of the three Leaving Certificate science subjects are delivered in Semester 1.

What is the difference between choosing Physical Sciences (Common Entry) at Level 8 to Physical Sciences (Common Entry) at Level 7?

Students commencing on the Level 7 route will have completed their ordinary BSc Degree in 3 years, while those who choose the Level 8 route will take 4 years to complete their Honours BSc Degree.

Progression from Physical Sciences (Common Entry)

CR 305 Level 8

BSc (Honours) in Instrument Engineering

BSc (Honours) in Environmental Science and Sustainable Technology

BSc (Honours) in Analytical Chemistry with Quality Assurance

CR 300 Level 7

BSc in Applied Physics & Instrumentation

BSc in Analytical & Pharmaceutical Chemistry

Analytical Chemistry with Quality Assurance (Honours)

CR 340 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO

Award Title: Bachelor of Science (Honours) in Analytical Chemistry with Quality Assurance

Duration: 4 Years (8 Semesters)

Places: 10

Location: CIT Bishopstown Campus, Cork

CAO Points in 2015

Round 1

CR 340

300*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O6/H7	O6/H7

What is Analytical Chemistry?

The equipment of everyday life is made from raw materials. Chemists analyse and understand these raw materials to determine efficient and safe ways of transforming them into useful products, develop new products and materials, and monitor production processes to ensure the quality of finished products.

Analytical Chemistry is the speciality dealing with devising, selecting, and using methods for determining the identity and quantity of chemical components of materials. Many important materials, such as biological samples or drugs and medicines, have key components that are present at very low levels or concentrations, and many sophisticated techniques have been developed for their detection and analysis.

Helpful Leaving Certificate Subjects

Chemistry, Physics, Mathematics, Biology.

Work Placement

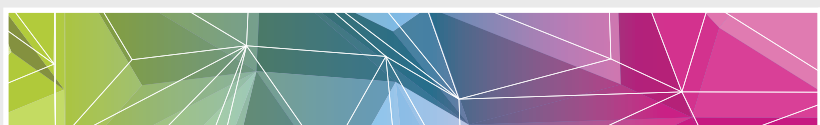
A mandatory work placement of a minimum of 10 weeks takes place in Year 3.

Potential Areas of Employment

- Laboratory Analyst
- Quality Management, Regulatory Compliance
- Research
- Teaching
- Pharmaceutical Production

First Year at a Glance

- Chemical Principles: study of general chemical interactions
- Physics: study of fundamental basis of energy, light and heat
- Laboratory Skills: understanding the basis for good laboratory practice in a chemistry lab
- Biology: study of fundamental building blocks of life
- Mathematics: students use maths to problem solve





About the Course

The BSc (Honours) in Analytical Chemistry with Quality Assurance (ACQUA) prepares students for laboratory careers in the pharmaceutical industries. Graduates identify and solve analytical problems by the selection and use of a wide range of methods and techniques – from the mainstream areas of spectroscopy, chromatography, and electrochemistry, to more specialised areas such as particle size analysis or immunoassay techniques.

The Honours BSc ACQUA also focuses on quality assurance, which is of vital importance to the pharmaceutical, chemical and allied industries. The course is examined using a combination of continuous assessment of both theory and practical work, and end of year examinations.

Professional Recognition

The Honours BSc ACQUA is recognised by the Institute of Chemistry of Ireland for membership (MICI); graduates are also eligible to apply for Associate Membership of the Royal Society of Chemistry (AMRSC).

Teaching

The Bachelor of Science (Honours) in Analytical Chemistry with Quality Assurance satisfies the degree requirements of the Teaching Council. As with other recognised degrees, a postgraduate programme of Initial Teaching Education, accredited by the Teaching Council, consisting of two years full-time study or 120 ECTS credits must subsequently be completed to be eligible for registration with the Teaching Council.

Further Studies

For details, see www.cit.ie

Graduates achieving a First Class or Second Class (Grade 1) Honours Degree may proceed to postgraduate research programmes in Chemistry (MSc, PhD) at CIT. Such graduates will be eligible for consideration for a limited number of Postgraduate Research RÍSAM Scholarships offered by CIT each year. Holders of the Honours BSc ACQUA may also embark on postgraduate programmes at Irish and UK universities.

Career Opportunities

Graduates are prepared for laboratory careers in the pharmaceutical industries and are qualified in areas such as Quality Standards, Good Manufacturing Practice, Total Quality Management, and Regulatory Compliance. They may take up leadership roles in areas such as method design and implementation, process validation, and management of quality systems.

Contact Information

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Question Time

If I didn't study Chemistry for the Leaving Certificate, am I at a disadvantage?

No – the fundamentals of the three Leaving Certificate science subjects are delivered during the first semester, with chemistry being further developed as the course progresses.

What is the difference between CR 340 and CR 007?

Students commencing on the CR 007 route will have completed the ordinary BSc Degree in 3 years, while those starting on CR 340 will take 4 years to complete the Honours BSc Degree, with significant additional material being delivered in the fourth year to achieve the higher level award.

What personal skills are most suited to the course and subsequent careers?

Numeracy, accuracy, precision; good practical and manipulative skills; an analytical approach to problem-solving, i.e. the ability to relate a numerical answer to the physical reality that it represents.



Graduate Profile

Dr Brendan Healy
Technical Services Chemist

"After graduation, I qualified for a research grant and joined the chemistry research group at CIT to start my PhD research in freshwater and marine natural toxins. On completion of the PhD, I began work as an Analytical Chemist in the Quality Assurance Department at Pfizer. This role involved validation and transfer of analytical methods, analytical support for production and QC, troubleshooting, method development, cleaning validation, regulatory support for new product submissions, technical writing, etc. I had encountered many of these topics during both my BSc and PhD studies."

Analytical & Pharmaceutical Chemistry

CR 007 Level 7 Award

- Progression to Level 8 Honours Degree & Postgraduate Programmes
- ▲ Higher Certificate Option

Application: CAO

Award Title: Bachelor of Science in Analytical & Pharmaceutical Chemistry

Duration: 3 Years (6 Semesters)

Places: 20

Location: CIT Bishopstown Campus, Cork

CAO Points in 2015

Round 1

CR 007

280*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 5 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
5	0	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 5 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
5	0	O6/H7	O6/H7

What is Analytical and Pharmaceutical Chemistry?

Chemistry is the fundamental science that deals with the “three Cs” – the composition of matter, the changes that transform matter, and the conditions under which those changes occur. The study of fundamental Chemistry allows us to increase our total knowledge and understanding of our universe, our environment, and indeed life itself. Applied Chemistry uses our understanding of fundamental Chemistry to improve the way in which we live, work, and develop.

Analytical chemistry deals with the great variety of methods used to identify and quantify the chemical components of materials, while pharmaceutical chemistry focuses on aspects of drug design, synthesis, and manufacture.

Helpful Leaving Certificate Subjects

Chemistry, Physics, Mathematics, and Biology.

Work Placement

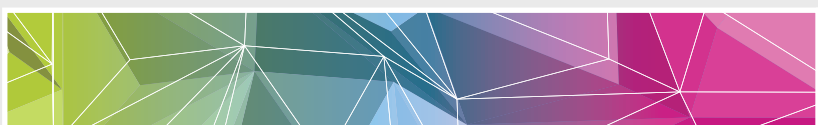
A mandatory work placement of a minimum of 10 weeks takes place in Year 3.

Potential Areas of Employment

- Chemical Laboratory Technician
- Laboratory Quality Assurance
- Product Development
- Pharmaceutical Production

First Year at a Glance

- Chemical Principles: study of general chemical interactions
- Physics: study of fundamental basis of energy (light and heat)
- Laboratory Skills: understanding the basis for good laboratory practice in a chemistry lab
- Biology: study of fundamental building blocks of life
- Mathematics: students use maths to problem solve





About the Course

Courses in Chemistry at CIT have provided many of the highly skilled personnel at various levels required by the industry. School leavers are offered a flexible and attractive route through an extremely diverse science. The BSc in Analytical and Pharmaceutical Chemistry prepares students for laboratory-based careers; activities include preparation of chemicals and samples for use, analysis of raw materials and products of chemical processes, set-up/maintenance/ use of chemical instrumentation. Computerised instruments and information technology are important in this work, and graduates may work in quality assurance, analysis, research, development, and production.

The course aims to give students the knowledge and skills to practice chemistry in the laboratory environment.

Further Studies

For details, see www.cit.ie

Graduates of the Bachelor of Science in Analytical and Pharmaceutical Chemistry who have attained a minimum final average mark of 50% may proceed to Year 4 of

- > Bachelor of Science (Honours) in Analytical Chemistry with Quality Assurance (ACQUA)

This in turn may lead to the option to proceed to postgraduate studies (MSc or PhD) in Chemistry at CIT or other colleges in Ireland or abroad.

Teaching

The Honours Degree that follows the Bachelor of Science in Analytical and Pharmaceutical Chemistry satisfies the degree requirements of the Teaching Council. As with other recognised degrees, a postgraduate programme of Initial Teaching Education, accredited by the Teaching Council, consisting of two years full time study or 120 ECTS credits must subsequently be completed to be eligible for registration with the Teaching Council.

Career Opportunities

Career opportunities exist not only in the chemical/ pharmaceutical industry, but also in such diverse areas as electronics, metallurgy, and food/beverage processing.

Graduates have become senior technicians, analysts, laboratory managers, and quality control supervisors. Some have progressed into company management positions over the years, and some have started and managed their own companies.



Graduate Profile

Aileen Cremin
Quality Control Specialist

Contact Information

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Question Time

I didn't study Chemistry for the Leaving Certificate, am I at a disadvantage?

No – the fundamentals of the three Leaving Certificate science subjects are delivered during the first semester, with chemistry being further developed as the course progresses.

What is the difference between CR 340 and CR 007?

Students commencing on the CR 007 route will have completed the ordinary BSc Degree in 3 years, while those starting on CR 340 will take 4 years to complete the Honours BSc Degree, with significant additional material being delivered in the fourth year to achieve the higher level award.

What personal skills are most suited to the course and subsequent careers?

Numeracy, accuracy, precision; good practical and manipulative skills; an analytical approach to problem-solving, i.e. the ability to relate a numerical answer to the physical reality that it represents.



"I graduated with the BSc in Analytical and Pharmaceutical Chemistry, and then completed the BSc (Honours) ACQUA the following year. I then worked for Pfizer Ireland Pharmaceuticals, based in the Quality Control Laboratory as part of the finished products team.

The position of a quality control specialist has plenty of variety and challenges, with many opportunities to get involved in different areas within the pharmaceutical manufacturing industry. I use a lot of what I learned in my Degree when dealing with my daily workload, but I appreciate it even more when troubleshooting the problems that arise from time to time."

Instrument Engineering (Honours)

CR 360 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO
Award Title: Bachelor of Science (Honours) in Instrument Engineering
Duration: 4 Years (8 Semesters)
Places: 20
Location: CIT Bishopstown Campus, Cork

CAO Points in 2015	Round 1
CR 360	300*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O6/H7	O6/H7

What is Instrument Engineering?

Instrument Engineering is the multi-disciplinary specialisation centred on the principles of operation and applications of the diverse instrumentation used to measure, control and automate processes and systems throughout industry and society. Within process industries such as pharmaceuticals, biotechnology, food, beverages and water, instrument engineering contributes significantly to quality, safety, productivity and efficiency.

Helpful Leaving Certificate Subjects

Physics, Engineering, Technology, Chemistry, and Mathematics.

Work Placement

A mandatory work placement of a minimum of 8 weeks takes place in Year 3.

Potential Areas of Employment

- Instrument Engineering
- Automation Engineering
- Control Engineering
- System Integration
- Engineering Consultancy

First Year at a Glance

- Computing: enabling students to use technology for instrumentation
- Mathematics: developing the tools for instrument calibration and automation
- Chemical Principles: physical sciences to the fundamentals of atomic theory, chemical bonding, the periodic table, physical states of matter, and stoichiometric calculations
- Fundamental Physics: an introductory course comprising foundation physics topics relevant to all fields of science
- Sensors and Systems: the components of measurement systems using a variety of sensors
- Measurement and Calibration of sensors used for industry





About the Course

This multi-disciplinary course provides a comprehensive foundation of physical science, mathematics, electronics, measurement technology and information technology on which a range of specialist instrument engineering modules are developed. There is a continual emphasis throughout the course on the design standards and best practice relevant to instrument engineering.

During the placement in Year 3, students will gain direct experience in the practice of instrument engineering within an industry, organisation or research group. It may be possible for the placement to be in an international location.

In the final year of the course there is a major project in the area of instrument engineering. Graduates will be able to design, develop and implement measurement and control systems. Graduates will also be able to manage, evaluate and critically analyse complex instrumentation and process control installations. The course is presented through a mix of formal lectures and practical sessions.

Accreditation

This Honours Degree is recognised by the Institute of Physics. Graduates of recognised Degrees qualify for Associate Membership upon graduation and may apply for full Membership after appropriate work experience.

The Institute of Physics provides routes for suitably qualified and experienced Members to become Chartered Physicists and Chartered Engineers. Further details can be found on the Institute of Physics website.

Further Studies

For details, see www.cit.ie

Graduates are eligible to apply for a postgraduate degree by research at CIT at Master's (MSc) or Doctoral (PhD) levels.

Career Opportunities

Graduates typically work as Instrument Engineers, Automation Engineers or Control Engineers within chemical, pharmaceutical, biotechnology, oil/gas, food, beverage and water treatment companies that use instrumentation to improve productivity, safety, reliability, quality, etc.

Significant employment opportunities exist for graduates in the many companies that design, manufacture and supply instrumentation to the above industries. Opportunities are also available within the engineering consultancies and systems integrators who provide such industries with turn-key solutions to their manufacturing challenges.

Contact Information

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Question Time

Is this a Science course or an Engineering Course?

This is a multi-disciplinary course with a mix of science and engineering modules. This broad base provides graduates with a skill-set that provides a wide range of employment opportunities and the ability to adapt to rapidly changing technologies.

What level of Mathematics is recommended?

Honours Mathematics is not required, but as with all physical science and engineering courses numeracy is essential and you need to be comfortable with Mathematics.

What personal skills are most suited to the course and subsequent careers?

Motivation, initiative, dependability, commitment, analytical ability.

What should my interests be?

How things work, problem-solving and meeting technical challenges.

Where am I likely to work?

There are excellent employment opportunities locally, nationally and internationally for graduates. These opportunities are in pharma, biotech and other process industries. Employment is either directly with these companies or in the systems integrators and engineering consultancies that support these companies.



Environmental Science & Sustainable Technology (Honours)

CR 365 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO
Award Title: Bachelor of Science (Honours) in Environmental Science & Sustainable Technology
Duration: 4 Years (8 Semesters)
Places: 20
Location: CIT Bishopstown Campus, Cork

CAO Points in 2015	Round 1
CR 365	300*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O6/H7	O6/H7

What is Environmental Science & Sustainable Technology?

The protection of the environment and the promotion of sustainable development are central to national and global economies. As the world's industries and markets become greener, the need for scientists who specialise in environmental science and sustainable technology will continue to grow. The aim of this course is to produce graduate scientists for a range of interesting careers within the smart green economy.

Helpful Leaving Certificate Subjects

Physics, Chemistry, Technology, Geography, Mathematics, and Biology.

Work Placement

A mandatory work placement of a minimum of 8 weeks takes place in Year 3.

Potential Areas of Employment

- Green Consultancy
- Environmental Management
- Green Auditing
- Energy Auditing
- Carbon Footprint Reduction
- Waste and Emissions Reduction

First Year at a Glance

- Environmental Science: an introduction to the scientific study of environmental systems
- Mathematics: Developing the tools for environmental science and sustainable technology
- Chemical Principles: physical sciences to the fundamentals of atomic theory, chemical bonding, the periodic table, physical states of matter, and stoichiometric calculations
- Fundamental Physics: an introductory course comprising foundation physics topics relevant to all fields of science
- Sustainable Technology: current and emerging techniques and technologies in materials and energy that underpin sustainability
- Measurement and Calibration of sensors used for environmental monitoring





About the Course

This course provides a comprehensive foundation in the physical sciences of physics and chemistry together with modules in mathematics, instrumentation, computer technology and biology. There is a continual green ethos throughout the course to stimulate graduates to become champions of sustainability by the provision of green technical and green managerial modules. There are modules covering recycling, reduction, reuse, water quality and air quality to ensure that graduates are fully up-to-date with the legal, economic and technical aspects of these key topics.

In addition to the scientific and technical modules there are a number of modules to develop competences in report writing, presentation skills, communication skills, research and team work. Furthermore, there is an emphasis on enquiry and project-based learning throughout the course to encourage enterprise, independent learning and innovation. In the final year of the course there is a major project in the area of environmental science and sustainable technology.

In Year 3, students are placed in an environmental science and sustainable technology role within an industry, organisation or research group. It may be possible for the work placement to be in an international location.

Accreditation

This Honours Degree is recognised by the Institute of Physics. Graduates of recognised Degrees qualify for Associate Membership upon graduation and may apply for full Membership after appropriate work experience.

The Institute of Physics provides routes for suitably qualified and experienced Members to become Chartered Physicists and Chartered Engineers. Further details can be found on the Institute of Physics website.

Further Studies

For details, see www.cit.ie

Suitable qualified graduates are eligible to apply for a postgraduate degree by research at CIT at Master's (MSc) or Doctoral (PhD) levels.

Career Opportunities

Green employment opportunities and the range of green careers are growing. Being multi-skilled and interdisciplinary, graduates of this course can expect to find excellent employment opportunities, nationally and internationally, in areas such as green consulting, environmental management, environmental consulting, green auditing, energy auditing, environmental monitoring, waste and emissions reduction, energy generation using sustainable technologies, carbon footprint reduction, research & development and business development.

Contact Information

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Question Time

What is the difference between this course and other green courses?

This multi-disciplinary course is quite different to other green courses. It has a broad foundation of physical science and mathematics coupled with a range of green technical modules and green managerial modules. This mix of physical science and green management is unique and quite different to energy engineering courses and traditional environmental science courses.

How comfortable do I need to be with physics?

This course is based on the physical sciences and therefore physics and chemistry are important. Physics at Leaving Certificate level is helpful but not essential as the key content in physics is covered in year one of the course.

What should my interests be?

A strong interest in contributing to the protection of the environment and developing sustainable solutions for industry and society.

Where am I likely to work?

The broad multi-disciplinary nature of this course provides graduates with a wide range of employment opportunities throughout industry and society. Some of these opportunities will be in green-tech industries (services, recycling, energy, water, etc.). California is the greenest economy in the world and 40% of the green jobs there are in consultancy. A similar trend is expected in Ireland.

Applied Physics & Instrumentation

CR 001 Level 7 Award

- Progression to Level 8 Honours Degrees & Postgraduate Programmes
- ▲ Higher Certificate Option

Application: CAO
Award Title: Bachelor of Science in Applied Physics & Instrumentation
Duration: 3 Years (6 Semesters)
Places: 20
Location: CIT Bishopstown Campus, Cork

CAO Points in 2015	Round 1
CR 001	280*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 5 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
5	0	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 5 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
5	0	O6/H7	O6/H7

What is Applied Physics and Instrumentation?

As the science which deals with fundamental physical concepts, such as energy, force and time, physics is at the heart of everything in the natural world such as gravity, heat and light. Applied Physics is the term used when we apply these concepts, and thus Applied Physics is at the heart of everything in the man-made world. Instrumentation is the specific technology that allows us to measure and control a wide range of physical and other quantities that are essential to life today.

Safety, reliability, productivity, efficiency, sustainability and economy, for example, are underpinned by instrumentation. Communications, healthcare, oil & gas exploration, energy generation, transportation, food safety, and research & development are examples of sectors that are increasingly dependent on instrumentation. Quite simply, instrumentation makes things happen!

Helpful Leaving Certificate Subjects

Physics, Engineering, Technology, Chemistry, and Mathematics.

Work Placement

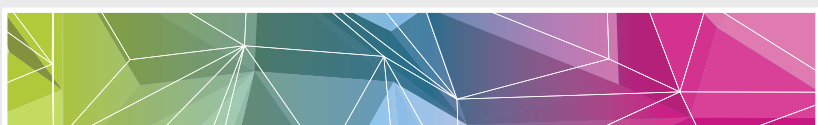
A mandatory work placement of a minimum of 8 weeks takes place in Year 3.

Potential Areas of Employment

- Calibration
- Instrument/Automation/Control Engineering
- Research and Development
- Metrology

First Year at a Glance

- Mathematics: developing the tools for instrument calibration and automation
- Chemical Principles: physical sciences to the fundamentals of atomic theory, chemical bonding, the periodic table, physical states of matter, and stoichiometric calculations
- Fundamental Physics: an introductory course comprising foundation physics topics relevant to all fields of Science
- Sensors and Systems: the components of measurement systems using a variety of sensors
- Measurement and Calibration of sensors used for industry





About the Course

The aim of this course is to prepare graduates for a range of technical positions within the multi-disciplinary field of Applied Physics and Instrumentation. Whilst there is particular emphasis on employment within process industries, such as chemical, pharmaceutical, biotechnology, food, beverage and water, graduates are well equipped for employment in other sectors such as computers, medical devices and microelectronics, as well as in hospitals and in research and development.

Graduates will acquire comprehensive knowledge of process control, quality and safety systems in the context of the operations of process industries and the nature of their products. They will also be able to diagnose problems and implement solutions for a wide range of instrumentation systems used to measure and control technical processes.

In Year 3, students are placed in an applied physics and/or instrumentation role within an industry, organisation or research group. It may be possible for the placement to be in an international location.

Accreditation

This Degree is recognised by the Institute of Physics. Graduates of recognised Degrees qualify for Associate Membership upon graduation and may apply for full Membership after appropriate work experience.

The Institute of Physics provides routes for suitably qualified and experienced Members to become Chartered Physicists and Chartered Engineers. Further details can be found on the Institute of Physics website.

Further Studies

For details, see www.cit.ie

Suitably qualified graduates are eligible to apply for entry to Year 4 (final) of

- > Bachelor of Science (Honours) in Instrument Engineering or the one year add-on
- > Bachelor of Science (Honours) in Applied Physics and Instrumentation



Graduate Profile

Colin Horgan
Automation Engineer

Teaching

The Bachelor of Science (Honours) in Applied Physics & Instrumentation satisfies the degree requirements of the Teaching Council. As with other recognised degrees, a postgraduate programme of Initial Teaching Education, accredited by the Teaching Council, consisting of two years full-time study or 120 ECTS credits must subsequently be completed to be eligible for registration with the Teaching Council.

Career Opportunities

Whilst many of the graduates of this course progress to an Honours Degree, there are many immediate employment opportunities locally, nationally and internationally. Graduates typically work as junior instrument, control or automation engineers, metrology specialists, calibration specialists and research and development technologists.

Contact Information

Richard Peard
Department of Physical Sciences
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E: richard.peard@cit.ie

Question Time

Is this course an extension of Leaving Certificate Physics?

Whilst Physics at Leaving Certificate level is helpful, it is not essential as the key content in Physics is covered in Year 1 of the course.

What personal skills are most suited to the course and subsequent careers?

Motivation, initiative, dependability, commitment, and analytical ability.

What should my interests be?

How things work, problem-solving and meeting technical challenges.

Where am I likely to work?

There are excellent employment opportunities locally, nationally and internationally for graduates in Applied Physics and Instrumentation. Whilst many of these opportunities are in pharma, biotech and other process industries, graduates have found employment in other manufacturing sectors such as computers, medical devices and microelectronics, as well as in hospitals, and in research and development.

"I completed the BSc in Applied Physics & Instrumentation in 2010 and progressed to the final year of the BSc (Honours) in Applied Physics & Instrumentation where I specialised in Instrument Engineering. Within three weeks of completing my Honours Degree I had three offers of employment. In July 2011 I joined Rockwell Automation Ireland as an Automation Engineer and have been working on automation projects for different clients with particular emphasis on programmable logic controllers (PLCs). I have also been working on distributed control systems (DCSs). While I found myself on a steep learning curve in industry, the familiarisation with the hardware and software of PLCs and DCSs provided by the course proved invaluable and very much eased my transition from college to industry."

Biological Sciences

(Honours) (Common Entry)

CR 335 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO

Award Title: Depends on specialisation. Choose from:

- BSc (Honours) in Herbal Science
- BSc (Honours) in Pharmaceutical Biotechnology
- BSc (Honours) in Nutrition and Health Science

Duration: 4 Years (8 Semesters)

Places: 20

Location: CIT Bishopstown Campus, Cork

CAO Points in 2015

Round 1

CR 335

395*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O6/H7	O6/H7

What is Biological Sciences?

Biological Sciences is an exciting and rapidly developing subject area, with many applications in the pharmaceutical, food and healthcare, and natural product industries.

Helpful Leaving Certificate Subjects

Biology and Chemistry.

Work Placement

A mandatory work placement of a minimum of 16 weeks takes place in Year 3.

Potential Areas of Employment

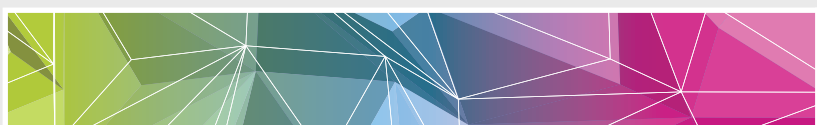
Depends on specialisation:

- Biopharmaceutical & Biotechnology Industries
- Food and Healthcare Industries
- Natural Product Ingredient Manufacture

First Year at a Glance

As well as learning the main core science subjects in first year, new students will be exposed to the following:

- Evaluating the role of food in health, wellness, and nutrition space
- Making biological medicines: learn the basics of how cells can be used to make modern medicines
- Understanding the natural products industry from functional foods to medicinal, healthcare, and cosmetics products
- Perform experimental laboratory procedures





About the Course

The Common Biological Sciences programme is a two-year course designed for students interested in Biological Sciences as a career, but who may be unsure of which discipline to follow.

The scheme gives students the opportunity to see the three disciplines, first hand, through the various modules on offer, interaction with lecturers, and industrial site visits. This allows the student to make an informed decision on their discipline of study.

On successfully completing this 2-year programme, students can enter the third year programme from any of the following Honours Biological Science Degrees:

- CR330 BSc (Honours) in Herbal Science
- CR333 BSc (Honours) in Nutrition and Health Science
- CR325 BSc (Honours) in Pharmaceutical Biotechnology

Contact Information

Dr Brendan O'Connell
Department of Biological Sciences
T: 021 433 5885
E: brendan.oconnell@cit.ie

Question Time

Am I guaranteed my choice of study at the end of Year 2?

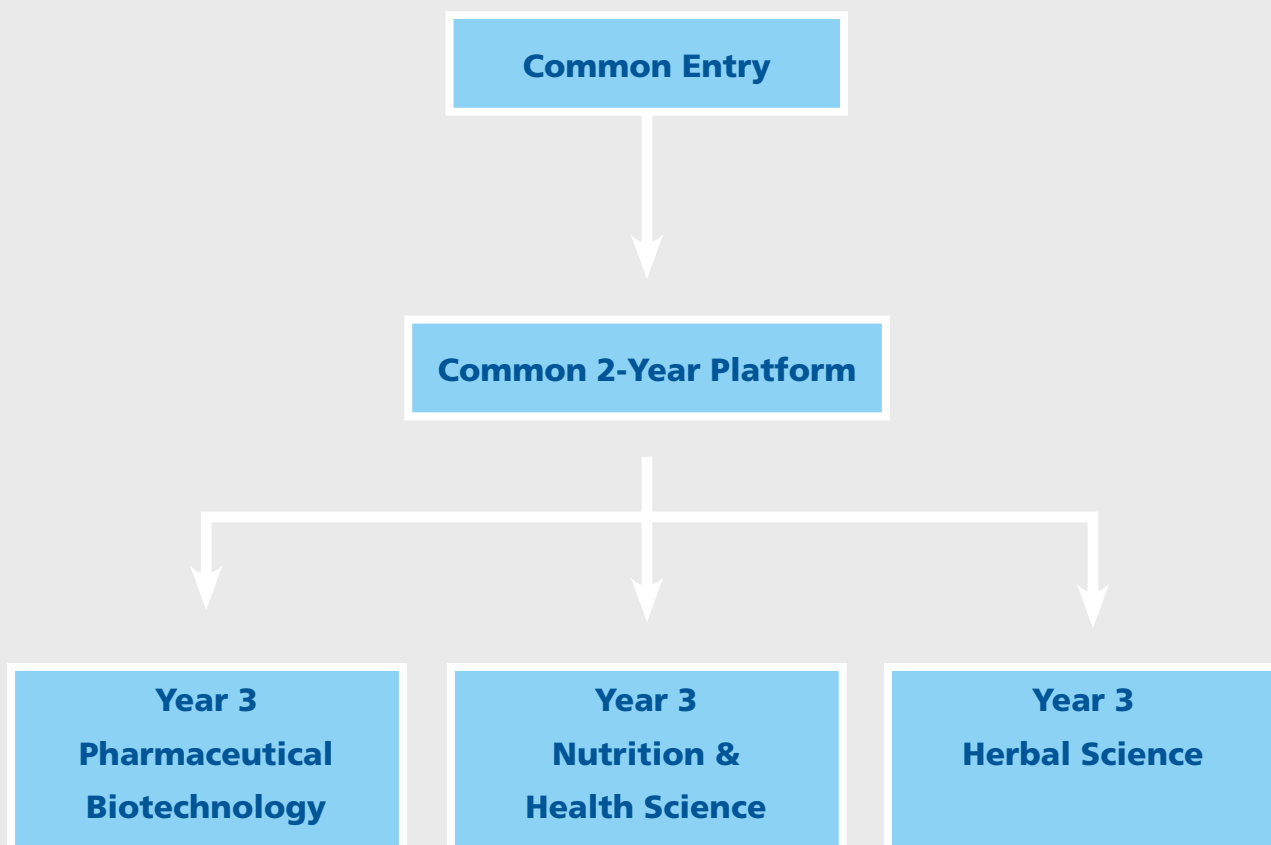
Yes. Successful completion of the Common Entry Biological Sciences programme ensures guaranteed entry to Year 3 of the BSc (Honours) programme of choice from the list given.

Do I need to have studied Chemistry at Leaving Certificate to apply for this course?

No. Students study Biological Chemistry 1 and Biological Chemistry 2 modules in first year, these modules are designed for students who do not have Chemistry as a Leaving Certificate subject.

In addition, the CIT Academic Learning Centre provides free tutorial support for first year Chemistry modules.

Schematic Representation of Common Entry Route



Applied Biosciences

CR 006 Level 7 Award

- Progression to Level 8 Honours Degrees & Postgraduate Programmes
- ▲ Higher Certificate Option

Application: CAO

Award Title: Depends on Specialisation. Choose from:

- Bachelor of Science in Food & Health Science
- Bachelor of Science in Applied Biosciences & Biotechnology

Duration: 3 Years (6 Semesters)

Places: 40

Location: CIT Bishopstown Campus, Cork

CAO Points in 2015

Round 1

CR 006

340*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 5 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
5	0	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 5 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
5	0	O6/H7	O6/H7

What is Applied Biosciences?

Applied Biosciences is the study of complex biological systems, and how they work, for example how bacteria generate energy from the breakdown of sugars. Applied Biosciences also involves the use of living organisms and bioprocesses in engineering, technology, medicine and agriculture – in other words, the application of scientific and technical advances in the life sciences to develop commercial products.

Helpful Leaving Certificate Subjects

Chemistry, Biology, Physics, and Mathematics.

Work Placement

A mandatory work placement of a minimum of 16 weeks takes place in Year 3.

Potential Areas of Employment

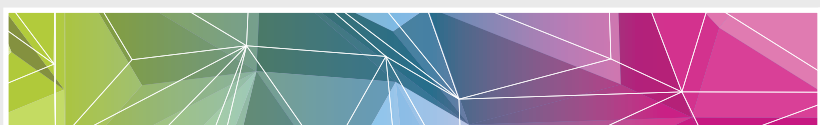
- Pharmaceutical Industry
- Food and Healthcare Industries

First Year at a Glance

As well as learning the main core science subjects in first year, new students will also be exposed to modules in Biotechnology and Food and Healthcare. The student will have the opportunity to study the different aspects of the following areas:

- Biotechnology: the application of biological systems to produce useful products.
- Food Science: the science relating to the production of high quality, safe and nutritious food.

There is a very significant emphasis placed on the practical laboratory aspect of the modules studied in first year, where the students are expected to perform experimental investigations under supervision, collate data, interpret results, and write scientific reports.





About the Course

In CR 006 Applied Biosciences, Years 1 and 2 are common. Students will not be required to choose their preferred qualification (Food & Health Science or Applied Biosciences and Biotechnology) until the beginning of Year 3.

Knowledge of environmental science, analytical techniques, quality management and bioprocessing are seen as key requirements and these disciplines are studied in detail. Laboratory work forms a substantial part of the course. The development of high-level laboratory skills and the ability to use them in the service of advanced industrial biology are key aims of the course. Opportunities currently exist for a number of students on courses to participate in EU funded exchange programmes involving colleges and enterprises in Europe.

The Bachelor of Science in Applied Biosciences and Biotechnology meets the demands of biotechnology, food and pharmaceutical industries for technologists and analysts. In addition, the requirements of the services and research laboratories for staff trained in advanced biologically based analytical techniques are met by graduates of the course.

The Bachelor of Science in Food & Health Science meets the changing needs of the Food, Pharmaceutical and Biotechnology industries for technicians and analysts. Graduates are in great demand from multinational pharmaceutical companies, as well as the traditional employers in the food and drink sectors.

Advanced manufacturing in the food, healthcare, cosmetic, pharmaceutical and chemical industries have been employment destinations for graduates of this course as well as state and local authority laboratories.

Further Studies

For details, see www.cit.ie/biologicalsciences

Suitably qualified graduates of the BSc in Food & Health Science may apply for entry to Year 4 of

- > BSc (Honours) in Nutrition & Health Science

Suitably qualified graduates of the BSc in Applied Biosciences & Biotechnology may apply for entry to Year 4 of

- > BSc (Honours) in Pharmaceutical Biotechnology



Graduate Profile

Dr Mark Fenton
Bioprocess Scientist

Career Opportunities

Graduates from this course have traditionally gained employment in the Pharmaceutical, and Food and Healthcare industries, where graduates function in a variety of roles including; quality analysts, microbiologists, purification specialists, researchers and technicians. Graduates also have the option to progress to further academic studies at Level 8 within the Department of Biological Sciences.

Contact Information

Anna Murphy
Department of Biological Sciences
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Question Time

Do I need to have Chemistry and Physics coming into the course?

No, the Chemistry and Physics modules taught in first year are designed for students who enter the programme without prior knowledge of these subjects. In addition, the CIT Academic Learning Centre provides additional free tutorial support for both these modules.

What personal skills are most suited to the course and subsequent careers?

The best students and professional biotechnologists all possess a keen interest in biology and a desire to understand how complex biological processes work.

"I completed the BSc (Hons) in Applied Biosciences in 2006 and qualified for a research grant from Science Foundation Ireland. I joined the research group in CIT's Department of Biological Sciences. Here, I undertook research into the purification, characterisation and therapeutic applications of a novel cloned protein for the control of antibiotic resistant bacteria, namely MRSA.

In 2011, on completion of my PhD, I began work as a Bioprocess Scientist at Eli Lilly. This role involves technical support and writing to support the development, validation, and commercialisation of novel biomedicines for the treatment of a range of diseases from diabetes to cancer.

I had encountered and gained valuable practical experience to many of these topics during both my undergraduate and postgraduate studies in CIT."

Biomedical Science (Honours)

CR 320 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO

Award Title: Bachelor of Science (Honours) in Biomedical Science

Duration: 4 Years (8 Semesters)

Places: 30

Location: CIT Bishopstown Campus, and University College Cork.

CAO Points in 2015

Round 1

CR 320

525*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must score the necessary CAO points and meet the minimum entry requirements.

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2 (Note 1)	D3 (O/H)	D3 (O/H)

Note 1: A C3 (H) grade must be obtained in a Laboratory Science Subject (from Chemistry, Physics, Biology, or Physics & Chemistry (joint)).

NB: Please note the C3 (H) grade in a relevant science subject can also be used to satisfy one of the C3 (H) entry requirements.

NB: Agricultural Science is accepted as a subject and attracts CAO points, but does not meet the requirement for the Laboratory Science subject.

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Science Grade	Maths Grade	English or Irish Grade
4	2	H4 (Note 1)	O6/H7	O6/H7

Note 1: A H4 must be obtained in a Laboratory Science Subject (from Chemistry, Physics, Biology, or Physics & Chemistry (joint)).

NB: Please note the H4 grade in a relevant science subject can also be used to satisfy one of the H5 entry requirements.

What is Biomedical Science?

Biomedical Science is the term for the investigations carried out by Biomedical Scientists on samples of tissue and body fluids to diagnose disease and monitor the treatment of patients.

Helpful Leaving Certificate Subjects

Chemistry, Biology, Physics, Mathematics, and English.

Work Placement

This work placement (clinical placement) is offered postgradually and is optional. However, in order for graduates to be eligible to work as Medical Scientists in hospitals in Ireland, they must have completed a clinical placement training which takes a full academic year.

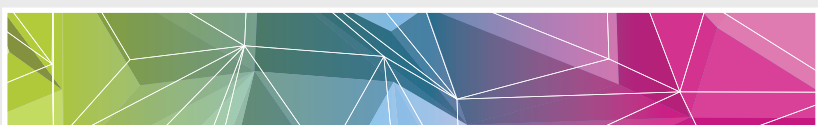
Potential Areas of Employment

- Medical Scientist in Hospitals
- Biopharmaceutical & Biotechnology Industries
- Public Health
- Sales & Marketing of Medical Products

First Year at a Glance

As well as learning the main core science subjects in first year, new students will also be exposed to the following disciplines:

- Clinical Biochemistry: study of the chemical profiles of body fluids in normal and diseased states
- Haematology: study of blood cells in the normal and diseased individual
- Histology/Histopathology: study of cells and cellular arrangement in normal and cancerous tissue
- Diagnostic Microbiology: study of microorganisms encountered in infectious diseases
- Transfusion Science: the science relating to transfusing fluid (i.e. blood) into a vein or artery
- Health Science: introduction to a selection of "hot topics" relating to health





About the Course

This Honours Degree course is offered jointly by Cork Institute of Technology and University College Cork. Biomedical scientists work in partnership with doctors and other healthcare professionals to perform many different roles in medical laboratories. Biomedical Science is a continually changing dynamic profession and involves study of the diverse areas of medical science including Biochemistry, Microbiology, Cellular Pathology, Haematology and Transfusion Science. It provides training in state-of-the-art technologies to facilitate investigation of disease and medical research.

Accreditation

This Honours Degree course with clinical placement is fully accredited by the Academy of Clinical Science and Laboratory Medicine.

Further Studies

For details, see www.cit.ie/biologicalsciences

The CIT/UCC joint BSc (Honours) Degree in Biomedical Science is one of only three Honours Degrees in the Republic of Ireland which are recognised by the Academy of Clinical Science and Laboratory Medicine (professional body) as enabling graduates to practise in hospitals in the State.

However, this BSc (Honours) must be accompanied by clinical placement training. Graduates will be offered the opportunity to complete this placement in a designated hospital laboratory.

Suitably qualified graduates are eligible to apply for a postgraduate degree at CIT:

- > MSc in Computational Biology (Taught)
- > MSc (by Research)
- > PhD

Career Opportunities

Biomedical Science prepares the student for a career in laboratory medicine and related areas in the health-care industry and biopharmaceutical industry. Biomedical Science graduates work as Medical Scientists in hospitals, and in research, the biopharmaceutical and biotechnology industries, public health and sales and marketing of medical products.

Contact Information

Dr Brigid Lucey
Department of Biological Sciences
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E: brigid.lucey@cit.ie

Question Time

What do you need to work as a Biomedical Scientist in Ireland?

Graduates with a BSc (Honours) in Biomedical Science from CIT/UCC, GMIT, or DIT, who have completed clinical placement are eligible for membership of the Academy of Clinical Science and Laboratory Medicine, which qualifies the graduate to practice as a Biomedical Scientist.

Is it an advantage to have Chemistry and Physics coming into the course?

It is always an advantage to have Chemistry and Physics coming into a course such as Biomedical Science. However, it is feasible to take up one or both of these subjects on entry to the course, and the first year programme is tailored to support students who enter the programme without prior knowledge of these subjects.

What kind of person should you be?

This profession requires scientists who are mindful of their responsibility when dealing with human health. It also means that they are often privy to information concerning patients that they cannot divulge for ethical reasons other than in the course of their work.

What is the time divide between CIT and UCC?

The programme for the BSc (Honours) in Biomedical Science is taught equally by CIT and UCC, so this means that the students will expect to spend some days in one institution or the other. The timetable is arranged to minimise travel between the two colleges.



Graduate Profile

Dr Annmarie Mollaghan
Lecturer

Having completed the BSc (Honours) in Biomedical Science in Cork, Annmarie began work as a Medical Scientist in the Microbiology Department of St. James's Hospital in Dublin until she embarked on a postgraduate research scholarship at CIT in 2008.

During the intervening period, until her graduation in October 2011 with a PhD in Molecular Biology, Annmarie also undertook short part-time locum positions as a Medical Scientist in the Irish Blood Transfusion Service (IBTS) in Cork, and in the Microbiology Department of the Bon Secours Hospital in Cork. She is currently employed as a lecturer in the CIT Department of Biological Sciences.

Herbal Science (Honours)

CR 330 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO

Award Title: Bachelor of Science (Honours) in Herbal Science

Duration: 4 Years (8 Semesters)

Places: 20

Location: CIT Bishopstown Campus, Cork

CAO Points in 2015

Round 1

CR 330

330*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O6/H7	O6/H7

What is Herbal Science?

The Herbal Science programme covers all aspects of herbs and natural products with applications in the healthcare, food, cosmetic and biopharmaceutical industries.

Helpful Leaving Certificate Subjects

Biology, Chemistry, and Mathematics.

Work Placement

A mandatory work placement of a minimum of 10 weeks takes place in Year 3.

Non-Standard Applicants

Encouragement will be given to non-standard applicants, including mature students, to enter the course. In the case of these applicants, their academic qualification and recognised prior learning (RPL) will be assessed and evaluated by the Department of Biological Sciences. It is anticipated that up to 30% of places will be offered to non-standard applicants.

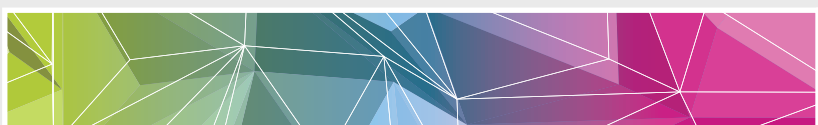
Potential Areas of Employment

- Healthcare, Biopharmaceutical and Cosmetic Industry
- Food and Nutraceutical Industry
- Plant Production and Natural Product Ingredient Manufacture
- Clinical Herbal Medicine after further training

First Year at a Glance

Herbal Science covers the science of natural products and their use in human and animal food, medicinal and healthcare products. The first year is the foundation on which you build your skills and includes topics in:

- Understanding the natural product industry from functional foods to medicinal, healthcare and cosmetic products
- Plant science and their use as natural products
- Human biology and health
- Microbiology
- Laboratory practical skills
- Fundamentals of maths and chemistry





About the Course

The main core of the programme is focused on the production, characterisation and applications of herbal extracts and natural products that are ingredients used in medicinal, pharmaceutical, cosmetic and food industries. The Herbal Science course is structured along streams of study based on plant science and plant production, human body systems, food and nutrition, and herbs and natural product applications.

The specific biological subjects are supported by more general analytical techniques and foundation skills that provide our graduates with broad scientific education while retaining an appropriate level of specialisation to offer a wide range of opportunities in industry, in research or in business development.

Further Studies

For details, see www.cit.ie/biologicalsciences

Suitably qualified graduates may progress to academic qualifications in a number of areas which include plant science, pharmacy, ethnobotany, microbiology, and pharmacognosy at Master's and Doctoral Degree level.

The course gives the educational foundation necessary to pursue a career as a medical herbalist. The IIMH accepts and recognises this BSc Honours Degree as constituting Part 1 of its professional training requirement for qualification as a medical herbalist/practitioner in Ireland. Further study/ training is required to achieve Part 2 of the IIMH professional requirements. The course also provides the student with an enormous opportunity to develop the skills necessary to commence herbal research or clinical training at an advanced level.

Career Opportunities

Graduates can expect to work in a variety of sectors including the Healthcare/Cosmetic Industry; Food Industry/ Nutraceutical Industry; Biopharmaceutical Industry; Quality Control/Analysis; and Medicinal Plant Production.

Contact Information

Anna-Maria Keaveney
Department of Biological Sciences
T: 021 433 5402
E: anna-maria.keaveney@cit.ie



Graduate Profile

Tracey Ryan
Company Owner

Question Time

When I graduate, will I be based in a Lab?

Graduates can work in a variety of settings from growing herbs and extracting natural products to manufacturing and production in a range of industries (cosmetic, biopharmaceutical, food, etc.). You can choose to work in a lab undertaking research and product development or quality control. You can make other choices based on the modules covered in this course for a wide variety of career options and work placements.

What postgraduate qualification do you need to be qualified as a Herbalist?

There are a number of options available to graduates when it comes to postgraduate study, including professional training in Herbal medicine. If you chose to specialise in Herbal Medicine you will need further specialist postgraduate training accredited by the professional body that can be contacted for further information.

Alternatively you can pursue a research Master's through CIT's School of Graduate Studies which can be based in any one of a number of life science disciplines. From this you may choose to pursue a structured PhD such as the Ed4Life programme which includes the tradition of original research but offers graduates a range of generic and subject specific skills so that they are industry-ready upon graduation. Generic modules include entrepreneurship, communications, personal effectiveness, and research methodology.

Many other postgraduate opportunities can be availed of in other third level institutions in Ireland and abroad.

Tracey graduated in 2011 and has set up her own business, Bia Beauty.

"I really enjoyed the broad range of subjects studied on the Herbal Science Degree, from Botany to Biochemistry. But what really helped me was the emphasis on Innovation, Entrepreneurship, and Product and Process Development.

It was here that I got a taste of business from which I have now set up my own company making and selling natural cosmetics. This Degree has prepared me in many ways to run my business, from selecting appropriate herbs, to researching their benefits and creating a suitable manufacturing environment."

Nutrition & Health Science (Honours)

CR 333 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO

Award Title: Bachelor of Science (Honours) in Nutrition & Health Science

Duration: 4 Years (8 Semesters)

Places: 40

Location: CIT Bishopstown Campus, Cork

CAO Points in 2015

Round 1

CR 333

375*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O6/H7	O6/H7

What is Nutrition & Health Science?

This course is designed to meet the need for technically competent managers, analysts and officers in the design, development, production, and upgrading of products which are ingested, injected, implanted, inhaled, inserted or topically applied to the bodies of humans or animals for the maintenance, restoration and promotion of their health and wellbeing.

Helpful Leaving Certificate Subjects

Biology and Chemistry.

Work Placement

A mandatory work placement of a minimum of 16 weeks takes place in Year 3.

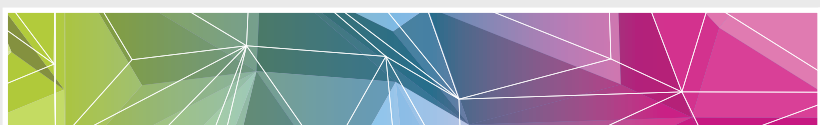
Potential Areas of Employment

- Research Scientist in food, nutraceutical, and related healthcare industries
- Production, Management and Marketing in food, nutraceutical and related healthcare industries
- Governmental agencies responsible for food
- Quality Assurance

First Year at a Glance

As well as learning the main core science subjects in first year, new students will also be exposed to the following:

- Studying the different groups of food and healthcare products produced in industry
- Evaluating the role of food in the health, wellness and nutrition space
- Describing the basic principles of sports and exercise nutrition
- Performing experimental laboratory procedures on different food and healthcare products





About the Course

First and second year modules provide the student with a strong foundation in nutrition as well as other biological science modules such as cells, microbiology, biochemistry, biotechnology and science of food and health.

Third and fourth year cover more specialised topics such as food and healthcare chemistry, toxicology and microbiology, clinical nutrition and population health, health products regulation, biomanufacturing and food processes as well as food innovation. The lectures are supplemented with relevant case studies, projects, assignments and there is a strong focus on gaining in depth practical experience in the laboratory.

The work placement module is an integral and essential part of the course programme in which the student is introduced to a structured work environment. The student develops an understanding of the organisation, practices and procedures current in the organisation and the area of activity in which it is involved.

Further Studies

For details, see www.cit.ie/biologicalsciences

This course is an excellent platform for further studies, both in terms of short add-on courses, and more structured postgraduate degrees such as Master of Science and PhD programmes.

Career Opportunities

It is envisaged that a graduate of this course will be employed in any sector of the Food/Nutraceutical or Healthcare Industries. Areas such as: management, development, production, quality assurance or marketing of products and/or services for the Food, Nutrition, Medical Devices, Cosmetic, Pharmaceutical, Animal feed and Veterinary Care sectors. In addition, there are employment opportunities within governmental agencies responsible for food. Nutrition & Health Science Degree graduates have many opportunities to engage in continued education and training (e.g. pursue a career in Dietetics).

Contact Information

Dr Helena Stack
Department of Biological Sciences
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Question Time

Can I become a Dietician from CR 333?

Completion of the BSc (Honours) in Nutrition & Health Science does not qualify the graduate to practice as a Dietician. However, graduates of the course CR 333 can undertake further studies in other third-level institutes to pursue a career as a Dietician.

What personal skills are most suited to the course and subsequent careers?

Individuals pursuing a career in Nutrition & Health Science should be dedicated, logical, analytically minded, good with people, a team player, have good attention to detail and excellent organisational skills.



Graduate Profile

Julie Grace
Postgraduate Student

"I found first and second year covered a wide range of subjects which gave me a great understanding and foundation in Nutrition & Health Science.

I gained excellent laboratory experience, which I was able to demonstrate in my third year work placement in Canada. I am currently studying for a Master's in Food Science, from which I hope to gain employment in the area of quality assurance in a food related industry.

Overall, I would highly recommend this course and thoroughly enjoyed my time in CIT."

Pharmaceutical Biotechnology

(Honours)

CR 325 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO
Award Title: Bachelor of Science (Honours) in Pharmaceutical Biotechnology
Duration: 4 Years (8 Semesters)
Places: 40
Location: CIT Bishopstown Campus, Cork

CAO Points in 2015	Round 1
CR 325	350*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O6/H7	O6/H7

What is Pharmaceutical Biotechnology?

Many modern medicines such as vaccines, hormones, and anticancer drugs are now made using biological cells. Insulin for example, which is used by diabetic patients worldwide is made using living cells as opposed to more traditional chemical synthesis based methods. This means there is a strong demand for biologists who can design innovative new medicines using biological approaches, and who have the skills to work with cells and the bio-active compounds they produce. This biotechnology course will teach students how to grow and engineer biological cells in order to make safe and effective medicines using the most up-to-date information and technologies available.

Helpful Leaving Certificate Subjects

Biology, and Chemistry.

Work Placement

A mandatory work placement of a minimum of 16 weeks takes place in Year 3.

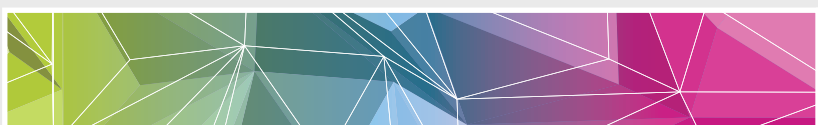
Potential Areas of Employment

- QC Analyst
- Microbiologist
- Bio-assay Specialist
- Research and Development

First Year at a Glance

As well as learning the main core science subjects in first year, new students will also be exposed to the following:

- Growing biological cells: what makes biological cells healthy and how are they grown in a laboratory
- How do cells work: what structures are needed by cells to stay alive
- Working with DNA: what is DNA and how can we use it in biotechnology
- Making biological medicines: learn the basics of how cells can be used to make modern medicines
- Laboratory studies: use the latest equipment and technologies in a modern laboratory facility
- Experimental analysis: carry out your own experiments in a laboratory setting and learn how to create and analyse your own data





About the Course

The course content is specifically designed to meet the needs of the many relevant employers both nationally and internationally, and contains topical, cutting edge, industry specific material. The lectures are supplemented with in-depth analysis of relevant case studies, projects, assignments, interactive videos, web tools and site visits. At least 50% of the contact time is spent in the laboratory gaining practical experience.

Work Placement is a mandatory part of this course. In Year 3, students will spend a minimum of 16 weeks in a local, national or internationally approved work environment.

Many of the world's top Biotechnology companies have a strong presence in Ireland. In general, the industry is moving towards a more "bio-based" approach to pharmaceutical manufacture. Consequently, there is a greater need to produce highly trained graduates who possess Pharmaceutical Biotechnology related skills. This course is designed to specifically meet this need.

Further Studies

For details, see www.cit.ie/biologicalsciences

This course is an excellent platform for further studies, both in terms of short add-on courses, and more structured postgraduate degrees such as Master of Science and PhD programmes.

Career Opportunities

This course is very broad and is specifically designed to train students in all aspects of modern biotechnology. Graduates from this course are qualified to work in a number of areas within the biotechnology industry with many attaining employment immediately after graduating.

Contact Information

Dr Jim O'Mahony
Department of Biological Sciences
T: 021 433 5485
E: jim.omahony@cit.ie

Question Time

Does this course qualify me as a Pharmacist?

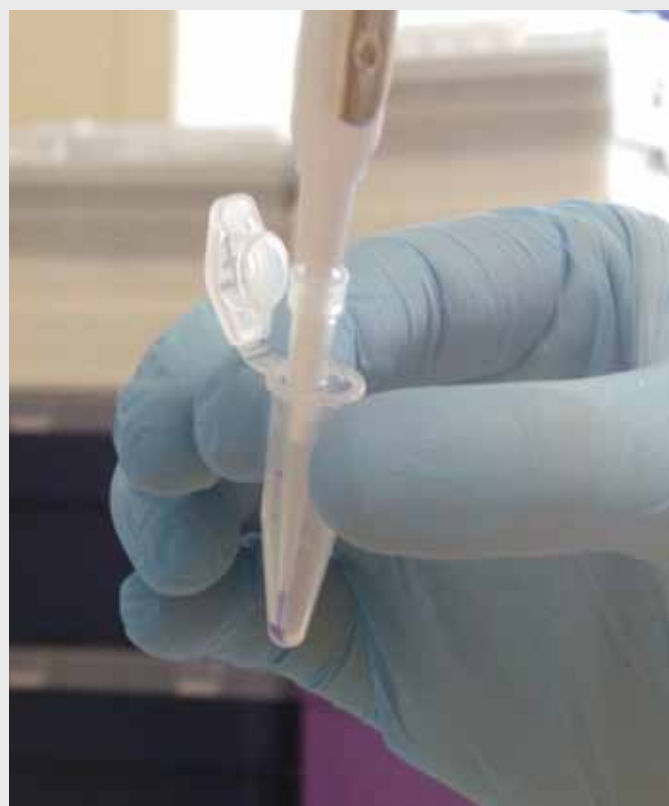
No. It trains you to work in the biotechnology industry where modern bio-medicines are discovered and made such as vaccines, hormones, antibodies and therapeutic enzymes.

What personal skills are most suited to the course and subsequent careers?

Good organisational skills, technical ability, team-working and ability to work to deadlines.

Is the biotechnology industry secure?

Pharmaceutical exports from Ireland typically exceed €24 billion per year. Approximately 25% of all US biotechnology based imports come from Ireland. Despite the current economic situation, biotechnology is still very vibrant and remains one of the biggest national employers.



Graduate Profile

Colm O'Shea
Quality Control Analyst

"I completed a BSc (Honours) in Pharmaceutical Biotechnology at CIT. The course content and quality of lecturing were of a high scientific standard and I was much sought after by many of the multinationals here in Ireland.

The work placement aspect of this course was invaluable in preparing me for the real working environment and provided a useful practical knowledge base. With the support, and the quality of the lectures at CIT, I was well equipped with the scientific knowledge and technical ability for a successful career.

Shortly after graduating, I secured employment as a Cell Culture Scientist at Pfizer Biotechnology facility in Dublin. I have since moved to Janssen Biologics where I have a full-time position as a Quality Control Analyst in the Pharmaceutical Development and Manufacturing Science Department."

Software Development (Honours)

CR 106 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO

Award Title: Bachelor of Science (Honours) in Software Development

Duration: 4 Years (8 Semesters)

Places: 40

Location: CIT Bishopstown Campus, Cork

CAO Points in 2015

Round 1

CR 106

365*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (H) or B3 (O)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O3/H7	O6/H7

What is Software Development?

Software Development is a programme that will give you the skills and knowledge you need to design and build applications that people use every day, for the desktop PC, for the web and for mobile devices (such as smart phones and tablets). As a Software Developer, you will be involved in all stages of the application from start to finish. You will be taught how to take a concept/idea from a description and develop it to make a fully working application. You will develop problem solving and programming skills to solve simple (and eventually complex) real-world problems using computers.

Helpful Leaving Certificate Subjects

English, Science, Mathematics, and Engineering.

Work Placement

A mandatory work placement of 5 months takes place in Year 3.

Potential Areas of Employment

- Software Developer
- Web Developer
- Software Testing

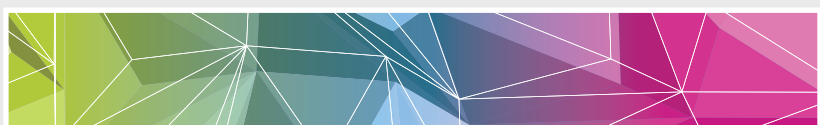
First Year at a Glance

This programme teaches you to engineer Software Systems, areas you will study in first year include:

- Development of web pages
- Programming including coding in Java
- Hardware components of computing and how they interact
- Mathematics and Statistics
- How computer networks operate
- How to design software

Computing Choices

This programme has been designed so that the first year modules are common with other Level 8 computing programmes at CIT. Therefore, having successfully completed Year 1, a student may be eligible to transfer to another Level 8 CIT computing programme. This flexibility allows a student to make a more informed decision one year into his/her studies.





About the Programme

One of the benefits of this degree is that it has a broad range of modules. The main focus of the degree is programming, so you will learn languages such as Python, Java, C, JavaScript and PHP. You will also learn about databases (where and how data is stored), operating systems, object-oriented programming, application development, software testing and many more topics.

It teaches students to take a concept for an application from a drawing to a fully functioning application. Elective modules throughout the programme allow the student to specialise in particular areas of their choice e.g. mobile applications, web development, and web security. You will complete projects on your own and in groups throughout the degree, which will prepare you for working in industry.

In addition to pure computing modules, CIT includes communication and management modules to develop other skills that will be useful for a career in computing.

In Year 3, students are in industry for five months. The placement runs from April to August inclusive. Placements for students are organised on a country-wide basis with a particular focus on Cork and Dublin. Students have been placed in France, Germany, Sweden and the USA.

Further Studies

For details, see <http://computing.cit.ie>

Suitably qualified graduates are eligible to apply for postgraduate research degrees at Master's (MSc) or Doctoral (PhD) level where further specialisation in your preferred area of computing is possible. Suitably qualified graduates may also apply to:

- > MSc in Software Development (Taught)
- > MSc in Information Security (Taught)
- > MSc in Information Design & Development (Taught)
- > MSc in Cloud Computing (Taught)

Career Opportunities

You will have career opportunities in Cork, Ireland and abroad, with large multinationals (such as IBM, EMC, Intel, Tyco), and also with smaller Irish companies. Other graduates have taken jobs within large IT departments in companies within the Chemical, Pharmaceutical or Food Industry. Graduates have also moved into roles in System Administration and Software Testing. A percentage of graduates from the programme chose to take up jobs in the Software Industry abroad. Software Development graduates work in a diverse range of roles.

Contact Information

Helen Fagan
Department of Computing
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E: helen.fagan@cit.ie



Graduate Profile

Garry Bennett
Senior Project Manager

Question Time

What makes CR 106 different from the other Computing Honours Degrees at CIT?

The focus is on acquiring the skills and knowledge required to become a software developer.

Is there a scholarship available for the programme?

Yes, registered students who successfully complete Year 1 of this programme may apply for the Alejandro de la Flor Memorial Scholarship which is funded by Intel Security. Intel Security delivers proactive and proven security solutions and services for systems, networks, and mobile devices around the world.

What level of Programming is contained in the programme?

Programming is seen as a core module in all semesters of the Degree. The students develop applications using a range of languages such as Java, C, PHP, and Python. They develop applications for the desktop, the web and for mobile devices. The key goal is to bring the student to a level where they are familiar with the tools and work practices used within the software industry today.

Can I design and develop websites from this programme?

Several modules are included in the Honours Degree which focus specifically on building websites. Other specialised modules are available as electives.

Will I be designing Apps?

Two modules are available specific to developing applications for the Android Platform. In the past few years, many students have chosen to write mobile apps for their final year project.

Can I go on to specialise in Cloud Computing?

Yes, having graduated with a BSc (Honours) in Software Development, it is possible to apply for entry to the taught MSc in Cloud Computing.

Can I work in the Games Development Industry with this programme?

Yes, the games industry requires interdisciplinary teams when developing new products. A graduate with good software development skills and in particular, programming skills would be a major asset to such a team.

"My first employment was with Yahoo! as a Junior Developer and within one year, I was promoted to Senior Developer. Another year on, I was promoted to Engineering Manager for the Travel and Autos categories. After four years with Yahoo!, I moved to Sydney and worked as a Project Manager with a leading web development company – SydneyWeb. Due to my experience, I was entrusted with some of its largest and more complex projects which I found very rewarding. I returned to Ireland in December 2007 and launched www.mytown.ie. Both my degree and practical experience aided the development and the launch of the website. Several years later, I currently manage all aspects of many complex and diverse software projects at Murrian Software."

At the 12th Annual Genesis Enterprise Course (GEP) Awards & Showcase, Garry won the Business Development Achievement Award.

Computer Systems (Honours)

CR 116 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO
Award Title: Bachelor of Science (Honours) in Computer Systems
Duration: 4 Years (8 Semesters)
Places: 20
Location: CIT Bishopstown Campus, Cork

CAO Points in 2015	Round 1
CR 116	335*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (H) or B3 (O)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O3/H7	O6/H7

What is Computer Systems?

Computer Systems is the combination of hardware, software, computational processes and networks to create a system. If you successfully complete this programme, you will become a software developer who has the programming, analysis and design skills combined with the hardware knowledge to create network/Internet/cloud-based applications. You will understand how computing devices (such as smart devices, desktop computers and tablets) communicate with each other and the world around them. You will be able to plan and design the infrastructure and systems that will allow this to happen. This knowledge of both the hardware and software of a computing system will be highly sought after in the near future as the Internet of Things (IoT) vision becomes a reality. You will also learn general computing skills that will benefit you in many industries.

Helpful Leaving Certificate Subjects

English, Science, Mathematics, and Engineering.

Work Placement

A mandatory work placement of 5 months takes place in Year 3.

Potential Areas of Employment

- Software Developer
- Network Engineering
- Network Specialist
- Internet of Things (IoT) Specialist
- Quality Assurance Engineer

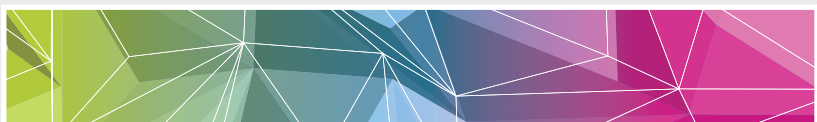
First Year at a Glance

This programme teaches you to engineer Software Systems, areas you will study in first year include:

- Development of web pages
- Programming including coding in Java
- Hardware components of computing and how they interact
- Mathematics and Statistics
- How computer networks operate
- How to design software

Computing Choices

This programme has been designed so that the first year modules are common with other Level 8 computing programmes at CIT. Therefore, having successfully completed Year 1, a student may be eligible to transfer to another Level 8 CIT computing programme. This flexibility allows a student to make a more informed decision one year into his/her studies.





About the Programme

If you feel that you would be interested in planning and designing the computer networks used to allow computers communicate all over the world then apply for this course. You will acquire excellent expertise in the design and development of computer software. One of the benefits of this programme is that the focus is split between software and hardware. You will learn several programming languages such as Python, Java and C Programming. You will also learn about areas of networking (connection to and communication across the Internet) such as how to scale networks, how to route and switch networks, how to keep networks secure, and how to design networks. You will be able to study elective modules in a variety of areas. You will complete projects on your own and in groups throughout the degree, which is similar to working in industry.

In Year 3, students are in industry for five months. The placement runs from April to August inclusive. Placements for students are organised on a country-wide basis with a particular focus on Cork and Dublin. Students have been placed in France, Germany, Sweden and the USA.

Further Studies

For details, see <http://computing.cit.ie>

Suitably qualified graduates are eligible to apply for postgraduate research degrees at Master's (MSc) or Doctoral (PhD) level where further specialisation in your preferred area of computing is possible. Suitably qualified graduates may also apply to:

- > MSc in Software Development (Taught)
- > MSc in Information Security (Taught)
- > MSc in Information Design & Development (Taught)
- > MSc in Cloud Computing (Taught)

Career Opportunities

You will have career opportunities in Cork, Ireland and abroad, with large multinationals (such as IBM, EMC, Intel, Tyco, Google, Cisco), and also with smaller Irish companies. You will be qualified to work in a wide variety of industries, such as networking, telecoms, data storage, and finance. Some graduates have progressed into Project and People Management roles. Graduates have commented that the dual nature of the course and the variety between the modules, opened more doors to employment than a single-focused course could have.

Contact Information

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Question Time

What makes CR 116 different from the other Computing Honours Degrees at CIT?

It has a stronger hardware and telecommunications emphasis, and uses mathematical abilities more.

What level of Programming is contained in the programme?

Programming and Software Development are a crucial part of the programme, accounting for roughly a quarter of the mandatory modules.

Can I design and develop websites from this programme?

Yes, although it is not a primary focus of the programme. The programming skills you will learn can be applied to web development, and the Web Development Fundamentals and Web Publishing modules in first year can be built on through choosing elective modules in Web Development in later years.

Can I go on to specialise in Cloud Computing?

Yes, having graduated with a BSc (Honours) in Computer Systems, it is possible to apply for entry to the taught MSc in Cloud Computing.

Can I work in the Games Development Industry with this programme?

Yes, the games industry requires interdisciplinary teams when developing new products. A graduate with good software development skills and in particular, programming skills would be a major asset to such a team.



Graduate Profile

Donal Lynch
Software Engineer

"The work placement was of great benefit in which I was very fortunate to get the opportunity to work with Cisco Systems in San José, California. This was definitely one of the highlights of my four years spent in CIT.

Upon graduation, I rejoined Cisco Systems as a software engineer, this time in its newly established Research & Development Centre based in Galway. I'm currently working in the Unified Communications Business Unit where I apply both my knowledge on networking protocols and software design and development, all of which I acquired during my time spent in CIT."

IT Management (Honours)

CR 310 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO
Award Title: Bachelor of Science (Honours) in IT Management
Duration: 4 Years (8 Semesters)
Places: 40
Location: CIT Bishopstown Campus, Cork

CAO Points in 2015	Round 1
CR 310	310*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O6/H7	O6/H7

What is IT Management?

IT Management will teach you how to manage the IT Services/Department in a company, which will include how to set up or maintain existing systems. Along with learning about IT management principles, you will also learn about Information Security which is a rapidly expanding sector in the computer industry. As more technology goes online, you have to learn how private/sensitive information may be at risk and the steps you can take to protect it.

Helpful Leaving Certificate Subjects

English, Science, Mathematics, Engineering, and Business Studies.

Work Placement

A mandatory work placement of 5 months takes place in Year 3.

Potential Areas of Employment

- IT Project Manager
- Cyber Security Specialist
- IT Security Engineer
- Network Manager
- System Manager

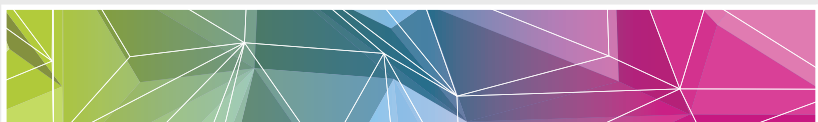
First Year at a Glance

This programme teaches you to build and manage IT Systems, areas you will study in first year include:

- Development of web pages
- Programming including coding in Java
- Hardware components of computing and how they interact
- Mathematics and Statistics
- How computer networks operate
- How to design software

Computing Choices

This programme has been designed so that the first year modules are common with other Level 8 computing programmes at CIT. Therefore, having successfully completed Year 1, a student may be eligible to transfer to another Level 8 CIT computing programme. This flexibility allows a student to make a more informed decision one year into his/her studies.





About the Programme

This programme is designed to provide the graduate with both the management and technical skills to work in a wide range of organisations.

At a time when organisations' reliance on IT grows more critical, there is an increasing demand for graduates with the skills required to manage IT services and implement complex projects. This programme is specifically designed to address this need.

This programme covers a wide range of modules which will be useful in any type of IT management role such as networking, databases, system administration, project management, law, IT planning and design, security monitoring, and offensive security. You can choose electives in many other computing modules.

In Year 3, the work placement runs from April to August inclusive. Placements for students are organised on a country-wide basis with a particular focus on Cork and Dublin. Students may also choose to work abroad.

CIT has a long and successful association with the Erasmus programme. Every year, students travel to study at CIT from across Europe and many CIT students travel to study beyond our shores. The Department of Computing has strong links with institutions in Germany, Sweden, France, and Finland.

Further Studies

For details, see <http://computing.cit.ie>

Suitably qualified graduates are eligible to apply for postgraduate research degrees at Master's (MSc) or Doctoral (PhD) level where further specialisation in your preferred area of computing is possible. Suitably qualified graduates may also apply to:

- > MSc in Information Security (Taught)
- > MSc in Information Design & Development (Taught)
- > MSc in Cloud Computing (Taught)

Career Opportunities

You will have career opportunities in Cork, Ireland and abroad, with large multinationals and also with smaller Irish companies. Graduates who can implement and manage IT services and infrastructure are in constant demand.

Contact Information

Noreen Gubbins
Department of Computing
T: 021 433 5581
E: noreen.gubbins@cit.ie

Question Time

What makes CR 310 different from the other Computing Honours Degrees at CIT?

This programme is primarily concerned with the implementation and management of IT Services rather than computer programming.

Is there a scholarship available for the programme?

Yes, registered students who successfully complete Year 1 of this programme may apply for the Yves Beretta Memorial Scholarship which is funded by Canadian based cyber security company, eSentire, whose European Headquarters is based in Ballincollig, Co. Cork.

What level of Programming is contained in the course?

Programming is not the primary focus of this programme. You will cover some basic programming modules in first year.

Can I design and develop websites from this programme?

Some modules in this Degree focus on building and running basic websites. More advanced specialised modules in web development are also available as electives.

Can I go on to specialise in Cloud Computing?

Yes, having graduated with a BSc (Honours) in IT Management, it is possible to apply for entry to the taught MSc in Cloud Computing.

Can I work in the Games Development Industry with this programme?

While there may be scope within a games development team for a graduate from this programme, a student who has a strong desire to work in that industry would be strongly advised to consider a software development degree.



Graduate Profile

Olga Linek
Associate Network Engineer

"After I graduated with an Honours Bachelor of Science degree in Computer Services Management (retitled IT Management), I became employed as an Associate Network Engineer in EMC. In this role, I am responsible for configuring network devices, troubleshooting network issues and providing support to EMC offices in Europe, the Middle East and Africa.

I found that the degree was very practical, which helped me gain valuable networking and programming skills and boosted my employability."

Web Development (Honours)

CR 312 Level 8 Award

► Progression to Postgraduate Programmes

Application: CAO

Award Title: Bachelor of Science (Honours) in Web Development

Duration: 4 Years (8 Semesters)

Places: 20

Location: CIT Bishopstown Campus, Cork

CAO Points in 2015

Round 1

CR 312

330*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
4	2	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 6 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
4	2	O6/H7	O6/H7

What is Web Development?

Anytime you go to a web site or web application, such as Facebook, Amazon, YouTube, Snapchat and Spotify on your Computing device (PC, tablet or mobile phone), you see the work of a web developer. In this programme, you will learn how to use software development to design and build applications for the web. You will design and build software to control how the web site or web application looks, how it can interact with the person using it and what happens to the any information it processes.

Helpful Leaving Certificate Subjects

English, Science, and Mathematics.

Work Placement

A mandatory work placement of a minimum of 13 weeks takes place in Year 3.

Potential Areas of Employment

- Web Developer
- User Experience Developer
- Back-end Developer
- Web Designer

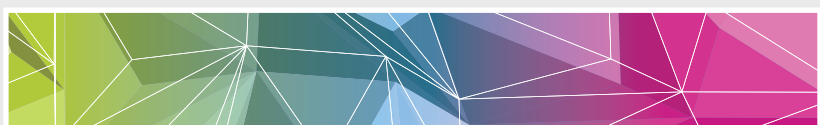
First Year at a Glance

This programme teaches you to engineer Software Systems, areas you will study in first year include:

- Development of web pages
- Programming including coding in Java
- Hardware components of computing and how they interact
- Mathematics and Statistics
- How computer networks operate
- How to design software

Computing Choices

This programme has been designed so that the first year modules are common with other Level 8 computing programmes at CIT. Therefore, having successfully completed Year 1, a student may be eligible to transfer to another Level 8 CIT computing programme. This flexibility allows a student to make a more informed decision one year into his/her studies.





About the Programme

The programme has a strong focus on the use of current and emerging web technologies and on user experience. Besides the Web based modules, the programme has a mix of general software development modules to produce a rounded and competent software developer. There is an opportunity to choose other elective computing modules.

In Year 3, students will study at a foreign university or spend a minimum of 13 weeks on work placement. The Department has links to many third level institutes in Europe and will advise students where study places may be found where the medium of instruction is English. Movement within the EU may be supported by the EU Erasmus programme.

In addition, CIT include modules on business, management and entrepreneurship to better prepare you for your career.

Further Studies

For details, see <http://computing.cit.ie>

Suitably qualified graduates are eligible to apply for postgraduate research degrees at Master's (MSc) or Doctoral (PhD) level where further specialisation in your preferred area of computing is possible. Suitably qualified graduates may also apply to:

- > MSc in Information Security (Taught)
- > MSc in Information Design & Development (Taught)
- > MSc in Cloud Computing (Taught)

Career Opportunities

You will have career opportunities in Cork, Ireland and abroad, with large multinationals and also with smaller Irish companies. There are a large number of companies in Ireland developing applications for the Internet. Web applications can be deployed on desktops, laptops, or mobile devices i.e. any device that can run a browser. Therefore, the trend in software is towards web based systems and the demand for qualified developers in the space is strong and growing.



Graduate Profile

Dean O'Halloran
Cloud Developer

Contact Information

Gary Couse
Department of Computing
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Question Time

What makes CR 312 different from the other Computing Honours Degrees at CIT?

The BSc (Honours) in Web Development is a specialised Degree. While it will teach the basic principles of software development (preparing you for a career in software engineering generally) it will also apply them to creating web applications in particular.

What level of Programming is contained in the programme?

This is primarily a software development programme. You will learn how to programme and, in particular, how to use your programming skills to create websites and web applications.

Can I design and develop websites from this programme?

Yes, you will be taught the web standards and techniques required for creating websites (HTML, CSS, JavaScript) as well as the programming required to create web applications.

Can I go on to specialise in Cloud Computing?

The MSc in Cloud Computing requires a good knowledge of Networking and Virtualisation, so it would not be a recommended progression from Web Development.

Can I work in the Games Development Industry with this programme?

Yes, the games industry requires interdisciplinary teams when developing new products. A graduate with good software development skills and in particular, programming skills would be a major asset to such a team.

"Within two months of graduating, I was appointed in a permanent position for EMC, Cork, as a cloud developer. EMC is a challenging yet motivating environment where innovation and implementing change is constant and part of my daily job. I'm part of the Global Cloud Services team where I develop cloud services for public and private cloud infrastructures for customers all over the world. CIT provided me with a great foundation to grow my programming skills from the basics to a very advanced level using many different programming languages which I use daily. I learned how to collaborate in teams, manage projects and gather user requirements effectively.

I highly recommend Web Development to anyone as the opportunities in IT, especially in Ireland, are endless. My web development degree is a very valuable asset and will always stand to me in the future."

Computing

CR 016 Level 7 Award

- Progression to Level 8 Honours Degree & Postgraduate Programmes
- ▲ Higher Certificate Option

Application: CAO
Award Title: Bachelor of Science in Computing
Duration: 3 Years (6 Semesters)
Places: 40
Location: CIT Bishopstown Campus, Cork

CAO Points in 2015	Round 1
CR 016	310*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 5 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
5	0	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 5 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
5	0	O6/H7	O6/H7

What is Computing?

Computing is the process of utilising computer technology to complete a task. Computing may involve computer hardware and/or software, but must involve some form of a computer system. Most individuals use some form of computing every day whether they realise it or not. Swiping a debit card, sending an email, or using a mobile phone can all be considered forms of computing.

Helpful Leaving Certificate Subjects

Science, Mathematics, Engineering, and English.

Potential Areas of Employment

- Software Developer
- Software Tester
- Network Engineer
- Software Support Engineer
- Web Developer
- DBMS Developer

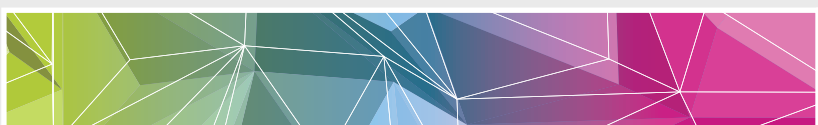
First Year at a Glance

This programme teaches you to engineer Software Systems, areas you will study in first year include:

- Development of web pages
- Programming including coding in Java
- Hardware components of computing and how they interact
- Mathematics and Statistics
- How computer networks operate
- How to design software

Computing Choices

This programme has been designed so that the first year modules are common with other Level 7 computing programmes at CIT. Therefore, having successfully completed Year 1, a student may be eligible to transfer to another Level 7 CIT computing programme. This flexibility allows a student to make a more informed decision one year into his/her studies.





About the Programme

The BSc in Computing is a programme which will give you an excellent all-round professional qualification, with a solid grounding in many of the areas of Computing, where you will have the opportunity to focus more on a specific area as you progress through the programme. You will learn the skills and knowledge you need to design and build applications that people use every day, for the desktop PC, for the web, and for mobile devices (such as smart phones and tablets). You will be taught how to take a concept/idea from a description and develop it to make a fully working application. You will also develop problem solving and programming skills to solve simple (and eventually complex) real-world problems using computers.

The benefit of this programme is that it has a broad range of modules across many of the main disciplines of Computing. The main focus of the degree is programming, so you will learn languages such as Python, Java, C and PHP. You will also learn about databases (where and how data is stored), operating systems, object-oriented programming, application development, software testing and many more topics. You will complete projects on your own and in groups throughout the degree, which is similar to working in industry.

Further Studies

For details, see <http://computing.cit.ie>

Graduates who have achieved an average of 50% are eligible to apply for Year 4 of
> BSc (Honours) in Software Development (CR 106)

Career Opportunities

Graduates primarily move on to complete an Honours Degree of their choice. However, others have gained employment as Graduate Software Developers and Graduate Networking Engineers.

Contact Information

Karl Grabe
Department of Computing
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Question Time

What makes CR 016 different from the other Computing Honours Degrees at CIT?

CR 016 is a general all-round professional Computing Degree with the option of opting out in Year 2 with a Higher Certificate in Computing.

What level of Programming is contained in the programme?

Programming and Software Engineering are a crucial part of the programme and graduates will have reached the top of the intermediate level as can be seen from the projects produced by the students in Year 3.

Can I design and develop websites from this programme?

You will learn about web publishing and development and will be designing and developing websites by the end of the programme.

Will I be designing Apps?

You will complete a Mobile Application Development module in third year. This builds on the Java that you would have learned throughout the programme.

Can I work in the Games Development Industry with this programme?

Yes, the skills acquired in completing the course in software development and programming are very applicable to the games development industry.



Graduate Profile

William Lynn
Software Developer

"In CIT I learned about all aspects of technology. CIT covers every aspect of Computing from web to App development. On graduating, I had the skills to work on any aspect of software, from high-tech startups, where I developed a climate change computer graphics engine, to smart phone application development. I currently make Android and iPhone apps in the USA and the apps I work on are used by millions of users. The skills I learned in CIT are relevant to my job on a daily basis."

William completed the BSc in Computing and then went on to complete BSc (Hons) in Software Development, followed by a Masters by Research in Software Development.

Information Technology

CR 888 Level 7 Award

- Progression to Level 8 Honours Degree & Postgraduate Programmes
- ▲ Higher Certificate Option

Application: CAO

Award Title: Bachelor of Science in Information Technology

Duration: 3 Years (6 Semesters)

Places: 40

Location: CIT Bishopstown Campus, Cork

CAO Points in 2015

Round 1

CR 888

280*

*Please note that the points above were calculated under the Pre-2017 Leaving Certificate grading scale. Points for entry in September 2017 will be calculated under the new Leaving Certificate grading scale. Details of the new grading scale can be found at www.transition.ie

Admission

For admission to a programme, standard applicants must

- score the necessary CAO points and
- meet the minimum entry requirements

Entry 2016

Minimum Entry Requirements

Leaving Certificate in 5 Subjects

Subjects D3 (O/H)	Subjects C3 (H)	Maths Grade	English or Irish Grade
5	0	D3 (O/H)	D3 (O/H)

Entry 2017

Minimum Entry Requirements

Leaving Certificate in 5 Subjects

Subjects O6/H7	Subjects H5	Maths Grade	English or Irish Grade
5	0	O6/H7	O6/H7

What is Information Technology (IT)?

IT is concerned with implementing and maintaining the IT services and infrastructure required by organisations. It is primarily focused on supporting the computer hardware, networks, databases, web services and applications required to provide IT Services.

Helpful Leaving Certificate Subjects

English, Science, Mathematics, Engineering, and Business Studies.

Work Placement

A mandatory work placement of 5 months takes place in Year 3.

Potential Areas of Employment

- IT Support Engineer
- Web Administrator
- Network Administrator
- System Administrator

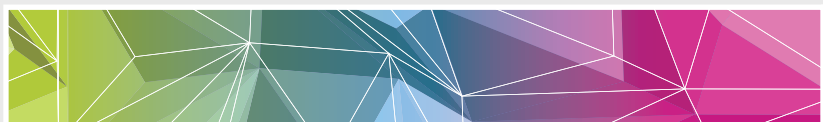
First Year at a Glance

This programme teaches you to build and manage IT Systems, areas you will study in first year include:

- Development of web pages
- Programming including coding in Java
- Hardware components of computing and how they interact
- Mathematics and Statistics
- How computer networks operate
- How to design software

Computing Choices

This programme has been designed so that the first year modules are common with other Level 7 computing programmes at CIT. Therefore, having successfully completed Year 1, a student may be eligible to transfer to another Level 7 CIT computing programme. This flexibility allows a student to make a more informed decision one year into his/her studies.





About the Programme

This IT degree will teach you how to work in the IT Services/Department in a company, which will include how to set up or maintain existing systems. IT is always growing so there is always a demand for IT graduates. Along with learning about IT systems, you will also learn about Information Security which is a rapidly expanding sector in the computer industry. As more technology goes online, you have to learn how private/sensitive information may be at risk and the steps you can take to protect it.

The programme covers a wide range of modules which will be useful in any type of IT role such as networking, web services, databases, system administration, operating systems, computer security principles, project management and network security. Electives can be chosen in many other Computing modules.

At a time of increasing reliance on IT services, the demand for graduates with the skills to implement and maintain IT infrastructure remains high. This programme is specifically designed to address this need. In Year 3, there is a work placement that runs from April to August inclusive. Placements for students are organised on a country-wide basis with a particular focus on Cork and Dublin. Students can also work abroad.

CIT has a long and successful association with the Erasmus programme. Every year, students travel to study at CIT from across Europe and many CIT students travel to study beyond our shores. The Department of Computing has strong links with institutions in Germany, Sweden, France, and Finland.

Career Opportunities

Graduates who can coordinate and supervise the configuration, testing and deployment of IT Services and the ongoing support of those systems and their users are in constant demand.

Further Studies

For details, see <http://computing.cit.ie>

Graduates who have achieved an average of 50% are eligible to apply for Year 4 of

> BSc (Honours) in IT Management (CR 310)



Graduate Profile

Ann-Marie Fitzgerald
ICT Information Security Specialist

Career Opportunities

Graduates primarily move on to complete an Honours Degree of their choice. However others have gained employment as Graduate Software Developers and Graduate Networking Engineers.

Contact Information

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Question Time

On successful completion of the programme, am I qualified as an IT Technician?

Yes. You will learn hands-on the skills required to implement, maintain and secure computer networks, hardware, databases, web services and applications.

What can I work at after the 3 years study?

You can work in many IT roles e.g. IT Support Engineer, Network Administrator, System Administrator, Website Administrator, etc.

Can I work in the Games Development Industry with this programme?

This programme is not designed to equip its graduates with the skills needed in a developmental or programming role.

What level of Programming is contained in the programme?

Programming is not the primary focus of this programme. You will cover some basic programming modules in first year.

"I was unsure of what area of IT I wanted to study initially and this programme offered a wide range of modules which allowed me to learn about several areas. Shortly after I graduated, I began working for Pricewaterhouse Coopers (PwC), Dublin. A few years later, I was promoted to Senior IT Risk & Compliance Specialist, where I performed security risk assessments, security audits and dealt with clients across many areas. I'm now working as an ICT Security Specialist in the Information Security Services Department for Lease Plan Information Services (LPIS).

I'd recommend this programme to anyone who is looking for a great basis in different aspects of IT from Web development, Linux to IT Security. When you find your particular interest, you can focus your Final Year project on where your skills lie best and it can guide you into any area of IT."

Ann-Marie initially completed a BSc in IT and then progressed to an add-on year for a BSc (Hons) in Computer Services Management (retitled IT Management).