

School of Science



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Department of Chemical & Life Sciences

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Department of Computing, Mathematics & Physics

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Disclaimer

All course titles and information listed are subject to change

CODE: **WD009** LEVEL: **6**

Higher Certificate in Science in Agricultural Science

COURSE FACTS

COURSE TITLE:
Higher Certificate in Science in Agricultural Science

COURSE CODE: WD009

COURSE LEVEL: 6

DURATION: 2 years

COURSE ENTRY

LEAVING CERT:
Total number of different subjects at grade D or better: 5

REQUIRED SUBJECTS:
English/Irish: OD3/HD3
Mathematics: OD3/HD3

RECENT ENTRY POINTS:

YEAR:	2005	2006
Min points:	230	220

FOR FURTHER INFORMATION:

COURSE LEADER
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What is Agricultural Science?

Agricultural Science consists of a variety of scientific, technical and business subjects that promote the efficient production of quality food on the farm and in the agricultural-food industry linked to farming.

What is the Higher Certificate in Science in Agricultural Science course?

This is a two-year full-time course designed for Leaving Certificate holders who wish to work in the area of Agricultural Science at the entry stage or who desire to proceed to study at higher levels. There is a strong emphasis on science in this programme.

Career opportunities exist for graduates as:

- Laboratory technicians
- Commercial representatives
- Technical sales representatives
- Agricultural-food sector

Follow on Study

BSc in Agricultural Science at WIT

Kildalton College

Students on this programme study both at WIT and at Kildalton College of Agriculture taking the appropriate modules at each. The laboratory-based scientific and related modules are taken at WIT and the agriculture-based modules are taken at Kildalton. A free bus service operates between Kildalton and WIT.

COURSE OUTLINE

YEAR ONE	SEMESTER 1
	Introductory Biology
	Introductory Chemistry
	Introductory Physics
	Introductory Mathematics
	Plant Biology
	Core Learning Skills
YEAR ONE	SEMESTER 2
	Cell Biology & Biochemistry
	Physical & Organic Chemistry
	Physics for Scientists
	Mathematics for Scientists
	Computer Applications
	Agriculture and the Economy
YEAR TWO	SEMESTER 3
	Microbiology
	Applied Mathematics
	Food Analysis
	Soils Management
	Mechanisation & Safety
	Environmental Science
YEAR TWO	SEMESTER 4
	Food Microbiology
	Statistics
	Food Process Technology
	Dairy & Grass Production
	Tillage Crop Production
	Beef & Sheep Production



"I graduated from WIT in 1995 with a National Certificate in Science in Agricultural Science. I completed further studies in Agricultural Science from which I started working with Glanbia in the trading division for six months. Then I joined Teagasc as a Grassland Technician in Moorepark Research Centre, Fermoy for nine months. I changed job within Teagasc to become a REPS Planner in Dungarvan, Co. Waterford. I am currently a Drystock and Tillage Advisor in the county for the past four-years. I am also currently studying part-time for my Masters in Rural Environmental Conservation and Management.

I gained a vast amount of experience and knowledge from the course in both technical and practical subjects and assignments from both Kildalton College and WIT. The course was a great building block for further education due to the dedication and commitment of the lecturers at WIT".

Owen Power, Higher Certificate in Science in Agricultural Science

BSc in Agricultural Science

What is the BSc in Agricultural Science course?

This is a one-year follow-on degree programme from the Higher Certificate in Science in Agricultural Science. Building on the Higher Certificate it is designed to equip graduates with a detailed knowledge of modern on-farm agricultural production and the expertise to work in a variety of positions in the agri-food sector.

Career Opportunities

- Senior technical positions in Quality Control & Food Processing industries
- Sales & Marketing Departments of Agri-Business sector
- Technical personnel in organisations offering
- Environmental services to farmers
- Start-up Agriculturally based Businesses

Graduates are equipped to pursue careers in a wide range of areas associated with the agricultural and food industries.

Follow on Study

Bsc (Hons) in Land Management at WIT

Kildalton College

Students on this programme study both at WIT and at Kildalton College of Agriculture taking the appropriate modules at each. The laboratory-based scientific and related modules are taken at WIT and the agriculture-based modules are taken at Kildalton. A free bus service operates between Kildalton and WIT.

COURSE OUTLINE	
YEAR ONE SEMESTER 1	Agricultural Marketing
	Introduction to Research Methods
	Food Biotechnology
	ICT Support for Project
	Agriculture and the Environment
SEMESTER 2	Agricultural Production & Management
	Business Management
	Food Safety Management Systems
	Quality Management
	Nutrient Management Planning
YEAR TWO SEMESTER 2	Animal and Plant Technology
	Project

CODE: **WD078** LEVEL: **7**

 TRANSFER APPLICANTS ONLY

COURSE FACTS

COURSE TITLE:
BSc in Agricultural Science

COURSE CODE: WD078

COURSE LEVEL: 7

DURATION: 1 year add-on

COURSE ENTRY

REQUIREMENTS:
To enter this course you must have obtained a Higher Certificate in Science in Agricultural Science. The course board will consider applications from people with equivalent qualifications.



FOR FURTHER INFORMATION:

COURSE LEADER
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CODE: **WD164** LEVEL: **7**

BSc in Food Science with Business

COURSE FACTS

COURSE TITLE:
BSc in Food Science with Business

COURSE CODE: WD164

COURSE LEVEL: 7

DURATION: 3 years

COURSE ENTRY

LEAVING CERT:
Total number of different subjects at grade D or better: 5

REQUIRED SUBJECTS:
English/Irish: OD3/HD3
Mathematics: OD3/HD3

What is the BSc in Food Science with Business?

This is a new degree programme designed by WIT staff in conjunction with food industry professionals due to a demand for suitably qualified graduates. The main aim of the programme is to develop a graduate with the knowledge and skills to competently work in the various sectors of the industry i.e. meat, dairy, grain, bread, sugar and drinks. The programme will equip graduates with expertise in food safety management, modern food processing methods, regulatory affairs, epidemiology and food business. Professional development of the person is a key feature of the programme. This will be achieved by the study of appropriate modules and by a period of work placement in the food industry.

Career Opportunities

Recent studies have highlighted the need for a proper interface between third level colleges and the food industry that would enhance graduate employment prospects. It is envisaged that graduates would enter such areas as production, processing, quality assurance, food analysis and product development as supervisor / manager.

Follow on Study

On successful completion of this programme graduates will be given the opportunity to progress to an honours degree programme that is currently being developed.



COURSE OUTLINE

YEAR ONE	SEMESTER 1
	Introductory Biology Introductory Chemistry Introductory Physics Introductory Mathematics Introduction to Food Science Introduction to ICT for Scientists
YEAR ONE	SEMESTER 2
	Cell Biology and Biochemistry Physical and Organic Chemistry Physics for Scientists Mathematics for Scientists Communication Skills Primary Food Production
YEAR TWO	SEMESTER 3
	Microbiology Food Analysis Environmental Science Nutrition Laboratory Analysis & Presentation Accounting for Food Scientists
YEAR TWO	SEMESTER 4
	Food Microbiology Food Process Technology Food Regulatory Affairs Statistics for Scientists Bioanalytical Methods for the Food Industry Elective: Food Biotechnology or Food Marketing
YEAR THREE	SEMESTER 5
	12 week work placement in Food Industry
YEAR THREE	SEMESTER 6
	Introduction to Quality Management Food Safety Management System The Professional Individual Food Business Epidemiology and Public Health Project

FOR FURTHER INFORMATION:

COURSE LEADER
Eleanor Kent
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Higher Certificate in Science in Agriculture

What is the Higher Certificate in Science in Agriculture course?

Agriculture is of major importance to the Irish economy and most Irish farms are family-operated with the farmer being the owner and manager and operator. This wide remit calls for a range of knowledge and skills.

The Higher Certificate in Science in Agriculture, which is run jointly by WIT and Teagasc Kildalton College, prepares students to manage a modern commercial farm.

Career Opportunities

Owner/manager of farm

Farm Experience

In the second year of the course students spend 12 weeks on farms specially chosen by Teagasc in order to get practical experience on high-quality commercial farms. A number of students choose to travel overseas for farm experience e.g. New Zealand & the UK.

Follow on study

BSc in Agriculture

Kildalton College

Students on this programme study both at WIT and at Kildalton College of Agriculture taking the appropriate modules at each. The laboratory-based scientific and related modules are taken at WIT and the agriculture-based modules are taken at Kildalton. A free bus service operates between Kildalton and WIT.

COURSE OUTLINE

YEAR ONE	SEMESTER 1	Introduction to Farm Accounts Plant Biology Animal Biology Communications Computer Applications Mechanisation & Safety
	SEMESTER 2	Introduction to Crop Production Chemistry for Land Sciences Agriculture in the Economy Animal Breeding and Welfare Animal Production Agricultural Mechanisation
YEAR TWO	SEMESTER 3 & 4	Soils Management Environmental Science Farm Business Management
		Dairy Production (E) Sheep Production (E) Mechanisation (E) Cattle Production (E) Crop Production (E) Farm Buildings (E) Fabrication (E)
		(E) - Electives - students choose one from each group

CODE: **WD098** LEVEL: **6**

COURSE FACTS

COURSE TITLE:
Higher Certificate in Science in Agriculture

COURSE CODE: WD098

COURSE LEVEL: 6

DURATION: 2 years



COURSE ENTRY

LEAVING CERT:
Total number of different subjects at grade D or better: 5

REQUIRED SUBJECTS:
English/Irish: OD3/HD3
Mathematics: OD3/HD3

RECENT ENTRY POINTS:

YEAR:	2005	2006
Min points:	200	175



FOR FURTHER INFORMATION:

COURSE LEADER
Dr Eddy Fitzgerald
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CODE: **WD126** LEVEL: **7**

 TRANSFER APPLICANTS ONLY

BSc in Agriculture

COURSE FACTS

COURSE TITLE:
BSc in Agriculture

COURSE CODE: WD126

COURSE LEVEL: 7

DURATION: 1 year add-on

COURSE ENTRY

REQUIREMENTS:

To apply for this course you must have obtained a Higher Certificate in Science in Agriculture or an equivalent qualification.

What is the BSc in Agriculture course?

This course will further boost the career opportunities of Higher Certificate in Science in Agriculture graduates by expanding their business, managerial, environmental and IT skills. It is a one-year add-on degree course.

Career Opportunities

- Managers of progressive farm enterprises
- Managers in Agri-Food cooperatives
- Managers in Meat Processing plants
- Assistants to Agri-consultants and REPS Planners
- Sales positions in Agribusiness

Follow on study

BSc (Hons) in Land Management at WIT

Project

Students carry out an agriculture or business project of their choice during the year. This has proven to be an excellent training in self-initiative as well as an in-depth learning experience for the students.

COURSE OUTLINE

YEAR ONE	SEMESTER 1	Agriculture and Environment Food Analysis and Development ICT & Business Writing Marketing for Small Business Business Management Project (research and design)
	SEMESTER 2	Nutrient Management Planning Quality Food Production Food Safety Management Systems Agricultural Entrepreneurship Financial Management Systems Agriculture Project

Kildalton College

Students on this programme study both at WIT and at Kildalton College of Agriculture taking the appropriate modules at each. The laboratory-based scientific and related modules are taken at WIT and the agriculture-based modules are taken at Kildalton. A free bus service operates between Kildalton and WIT.



FOR FURTHER INFORMATION:

COURSE LEADER
Dr Eddy Fitzgerald
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BSc in Horticulture

What is Horticulture?

Horticulture is a very diverse industry and career opportunities exist in a wide variety of areas, from producing plants for garden centres, working on golf courses, landscaping, through to fruit and vegetable production. Many horticulturists are managers or self-employed and thus need business as well as horticultural skills.

What is the BSc in Horticulture course?

This is a three-year full-time course designed to train professional horticulturists. The course is run in conjunction with Teagasc at Kildalton College, Piltown.

Career Opportunities

- Greenkeeping - maintenance of golfcourses and sports fields
- Nursery stock production - producing plants for the horticultural industry
- Landscape construction
- Landscape design
- Garden maintenance contractors
- Employment as gardeners in public parks and grounds
- Gardeners in private and heritage gardens
- Food production
- Garden centres

Follow on study

BSc (Hons) in Land Management - WIT

Kildalton College

Students on this programme study both at WIT and at Kildalton College of Agriculture taking the appropriate modules at each. The laboratory-based scientific and related modules are taken at WIT and the agriculture-based modules are taken at Kildalton. A free bus service operates between Kildalton and WIT.

Work Placement

In year 2 one semester is spent on work placement either in Ireland or abroad. This is an opportunity for you to see and implement the key horticultural skills you have learnt in college.

Students who have successfully completed a FETAC-approved Level 5 or Level 6 Vocational Course in Horticulture, at a horticultural college, can apply to transfer into Year 2 of the BSc in Horticulture. Students who have completed a National Diploma or Certificate in Horticulture under the aegis of the Department of Agriculture, ACOT or Teagasc can transfer into Year 3.

“I learnt many of the practical skills needed for horticulture at WIT. I also had placements in interior landscaping and a garden centre. I soon found that working in a garden centre was what I enjoyed most about Horticulture. I am currently working in a garden centre in Cork and I hope one day to open my own garden centre. I really enjoyed the course in WIT as it enabled me to find a job that I love doing”

Brenda Poole, BSc in Horticulture

COURSE OUTLINE	
YEAR ONE	SEMESTER 1 Plant Identification Plant Biology Plant Protection Communication Skills Computer Applications Mechanisation & Safety
	SEMESTER 2 Chemistry for Land Scientists Horticulture Business Accounting Soils Management Plant Propagation Plant Identification & Garden Maintenance Horticulture Mechanisation
YEAR TWO	SEMESTER 3 Building Construction (M) Environmental Science (M) Plant Identification and Use (M) Major Elective select one Landscape Design (E) Nursery Stock Production (E) Food Crop Production (E) Turfgrass (E)
	SEMESTER 4 Work Placement
YEAR THREE	SEMESTER 5 & 6 Topics of study in Semesters 5 & 6 Marketing for Small Business (M) Small Business Management (M) HRM for Small Business (M) Project (M) Law for Horticulturists (M) Horticulture Taxation & PRSI (M) Customer Service Management (M) Four electives must be chosen from: Garden Centre Operation CAD Greenkeeping Horticultural Therapy Speciality Food Crops Landscape Design Advanced Horticulture Quality Assurance



Gerard Mullen, WIT student, Gold Medal winner at Bloom 2007

CODE: **WD096** LEVEL: **7**

COURSE FACTS

COURSE TITLE:
BSc in Horticulture

COURSE CODE: WD096

COURSE LEVEL: 7

DURATION: 3 years

COURSE ENTRY

LEAVING CERT:
Total number of different subjects at grade D or better: 5

REQUIRED SUBJECTS:
English/Irish: OD3/HD3
Mathematics: OD3/HD3

RECENT ENTRY POINTS:

YEAR:	2005	2006
Min points:	205	190

FOR FURTHER INFORMATION:

COURSE LEADER
Una McDermott
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CODE: **WD076** LEVEL: **7**

BSc in Forestry

COURSE FACTS

COURSE TITLE:
BSc in Forestry

COURSE CODE: WD076

COURSE LEVEL: 7

DURATION: 3 years

COURSE ENTRY

LEAVING CERT:
Total number of different subjects at grade D or better: 5

REQUIRED SUBJECTS:
English/Irish: OD3/HD3
Mathematics: OD3/HD3

RECENT ENTRY POINTS:

YEAR:	2005	2006
Min points:	180	205

Graduates of the FETAC Certificate in Forestry, with 15 weeks work placement, may apply directly to Waterford Institute of Technology for entry onto the BSc in Forestry.

FOR FURTHER INFORMATION:

COURSE LEADER
Tom Kent BAgSc (Forestry), MSIF
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What is Forestry?

Forestry is the study of forests as a natural resource. Forests are an important part of the environment, provide timber and other products and are used for a wide range of recreation activities. The role of foresters is to manage forests so that people can benefit from this natural resource on a sustainable basis. Foresters may work with landowners in planting new forests, manage existing forests or work with sawmills in harvesting and supplying timber.

What is the BSc in Forestry course?

The BSc in Forestry is a three-year degree programme that prepares students for a professional career in Forest Management.

Career Opportunities

- Forest Estate Manager
- Forest Operations Contractor
- Forest Management Consultant
- Forest Nursery Management
- State Agencies
- Development Agencies

Fieldwork & Fieldtrips

Fieldwork and field trips are an essential element of the course. Typically, 25% to 50% of course scheduled hours consist of fieldwork elements. Fieldtrip locations include local forests, wood processing industries, JFK Arboretum, and annual overnight fieldtrips to Kerry, Wicklow and the Midlands and West. All students will undertake a company placement in the second semester of Year 2. In addition, work placements may be organised in other European countries.

Follow on study

Bsc (Hons) in Land Management - WIT

WIT Forestry also has transfer links with the Bachelor of Agricultural Science degree, University College Dublin; International Timber Trade and Tropical Forestry, Larenstein University of Professional Education; and Honours degrees in forestry at University of Central Lancashire, University of Aberdeen and Inverness College.

"WIT is an excellent institute of education with excellent student services. The fact that the forestry course exists in WIT provided a great opportunity for me to pursue my interest in forestry. The course is both practical and scientific which provides an extremely good foundation for interested individuals to gain employment. The general atmosphere is friendly with the lecturers helping in any way they can. Additionally the social life between students within and outside the college is excellent.

I now work for Coillte in the harvesting section in timber haulage and volume / weight measurement. Other areas include printing permits on request of haulage companies and maintaining good communication between hauliers, the forest harvesting team and the sawmill. Overall it is a very challenging and rewarding job".

Edward Lowe, BSc in Forestry

COURSE OUTLINE

YEAR ONE	SEMESTER 1
	Semesters 1 & 2 provides each student with grounding in the sciences applying to forestry and the main forestry practices while developing communication and computer skills.
	Plant Biology; Forest Establishment; Mechanisation & Safety; Dendrology; Mathematics for Forestry; Information & Communication Technology for Forestry
SEMESTER 2	Forest Surveying & Mapping; Forest Practice; Wood Science; Earth Science; Communications Methods; Chemistry for Land Scientists
YEAR TWO	SEMESTER 3
	Semesters 3 & 4 focuses on developing technical forestry skills and preparing students for the forestry work placement.
	Timber Technology; Forest Mensuration; Forest Protection; Soil Management; Forestry & the Environment; Applied Geographical Information Systems
SEMESTER 4	Work Placement
YEAR THREE	SEMESTER 5
	Semesters 5 & 6 concentrates on professional aspects of forestry. Each student undertakes a Forest Management Plan that brings together experience developed through the entire course.
	Forest Economics; Sustainable Forest Management; Principles of Silviculture; Forest Inventory; Forest Harvesting; Forest Inventory Project
SEMESTER 6	Plantation Silviculture; Commercial Forestry Practices; Forest Planning; Forest Engineering; Small Enterprise Management; Forest Management Plan

BSc (Hons) in Land Management in (Agriculture/Forestry/Horticulture)

What is the BSc (Hons) in Business Management

This one year add on BSc (Hons) in Business Management (Agriculture/Horticulture/Forestry) course aims to give students with BSc (Level 7) degrees in Agricultural Science, Agriculture, Horticulture and Forestry the opportunity to continue for another year and obtain an Honours (level 8) degree in their respective disciplines. Using the invaluable expertise of both the School of Science and School of Business together with input from Teagasc the course aims to increase the students knowledge of their respective disciplines to Level 8 while also improving the students business acumen.

How is the BSc in Business Management structured?

The BSc (Hons) in Business Management is a one year add-on course that prepares students for a professional career or post graduate education in either Agriculture, Forestry or Horticulture. The year consists of two semesters each comprising 6 modules.

Some of the modules will be common to all students while other modules will be specific to their stream or discipline.

Research Project:

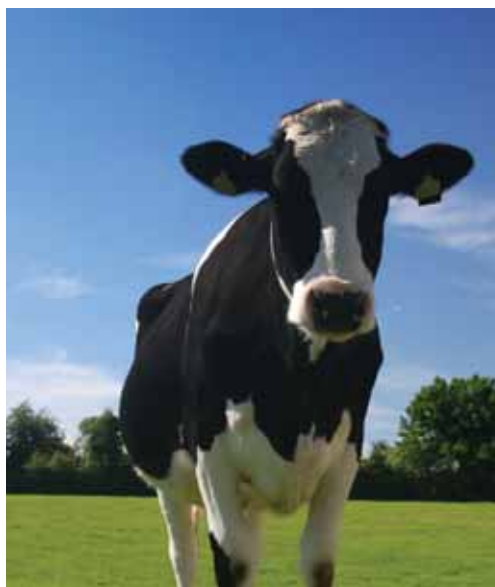
A research project will be carried out by each student throughout the two semesters of the add-on year. This will enable students to learn the rudiments of carrying out research and how to write up a scientific report. It may also help them to determine whether they would like to carry on after they graduate and obtain a postgraduate qualification (Masters or PhD).

What are my career opportunities?

The Bsc (Hons) in Business Management prepares graduates for careers in the Agricultural, Forestry or Horticulture sectors. The course is designed to give students of these disciplines additional business acumen and to increase their wide ranging practical, technical and professional skills obtained in their previous courses.

Graduates may follow careers in:

- Forest management
- Managers of progressive farm enterprises
- Managers of agri-food
- Cooperatives
- Nursery stock production
- Wood processing industry
- Garden centres
- State and Development agencies
- Landscape contracting



CODES: WD156, WD157 & WD158
LEVEL: 8



TRANSFER APPLICANTS ONLY



COURSE FACTS

COURSE TITLES & CODES:

BSc (Hons) in Business Management in:
Agriculture (WD156)
Forestry (WD157)
Horticulture (WD158)

COURSE LEVEL: 8

DURATION: 1 year add-on



COURSE ENTRY

REQUIREMENTS:

If you have completed or are completing a BSc (Level 7) degree in either Agriculture Science, Forestry or Horticulture, or other relevant ordinary degree (Level 7) from another college provided you meet the minimum requirements to apply.



FOR FURTHER INFORMATION:

COURSE LEADER

Nick McCarthy, BAgSci (Forestry), PhD, MSF
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CODE: **WD008** LEVEL: **6**

Higher Certificate in Science

(Pharmaceutical Science & Applied Biology Options)

COURSE FACTS

COURSE TITLE:
Higher Certificate in Science
(Pharmaceutical Science &
Applied Biology Options)

COURSE CODE: WD008

COURSE LEVEL: 6

DURATION: 2 years

COURSE ENTRY

LEAVING CERT:
Total number of different subjects at
grade D or better: 5

REQUIRED SUBJECTS:
English/Irish: OD3/HD3
Mathematics: OD3/HD3

RECENT ENTRY POINTS:

YEAR:	2005	2006
Min points:	230	200

FOR FURTHER INFORMATION:

COURSE LEADER
Dr Peter McLoughlin
Ph: 051 302056
Email: pmcloughlin@wit.ie

What is the Higher Certificate in Science Course?

Science is essentially the pursuit of knowledge and understanding. Science is a method of learning about the physical universe through observations, proposing hypotheses to explain those observations, and testing those hypotheses in valid and reliable ways.

The Higher Certificate in Science is a two year full-time course aimed at providing students with scientific skills, theoretical and practical, to work as technicians in areas such as the pharmaceutical, food, and environmental sectors.

Career Opportunities

Students who complete this course are employed in the food, pharmaceutical, and environmental sectors. Graduates have found employment in companies such as, Dawn Meats, Genzyme, IVAX, Merck Sharpe and Dohme Ltd and Guinness.

Higher certificate graduates who have continued their studies to degree level and beyond now work as teachers at primary, secondary and third level.

Follow on Study

BSc in Biotechnology from Applied Biology option
BSC in Applied Chemistry from Pharmaceutical Science option.

Industry Links

Field trips to industries and local authority facilities are integrated into the course programme. As part of the industrial support for this course a number of prizes acknowledging academic excellence are sponsored by Reagecon and Merck Sharpe and Dohme Ltd.

Year Two Options

An important positive attribute of this course is that students are exposed to all of the core science subjects in the first year. Students can then make a more informed choice at the start of their second year as to what specialist area they wish to continue their studies in. Currently there are two second-year options for students to choose from:

1. Applied Biology
2. Pharmaceutical Science

COURSE OUTLINE

YEAR ONE	SEMESTER 1
	<ul style="list-style-type: none"> Introductory Chemistry Introductory Biology Introductory Physics Introductory Mathematics Introduction to ICT for Scientists
	SEMESTER 2
	<ul style="list-style-type: none"> Physical & Organic Chemistry Cell Biology & Biochemistry Mathematics for Scientists Introduction to Biotechnology and Pharmaceutical Science* Plant Biology* Science & Society* <p>(Subjects marked with an asterisk * are optional subjects)</p>
YEAR TWO	SEMESTER 3
	<p>Option 1 - Applied Biology Applied Biology involves the use of laboratory techniques to solve biological questions. Applied biological techniques are important in the food, pharmaceutical and environmental sectors. It prepares students to work as laboratory technicians in the industrial/state sectors. The topics studied in semesters 3 & 4 of this course.</p> <ul style="list-style-type: none"> Microbiology Spectroscopic and Electroanalytical Techniques Organic Chemistry and Biomolecules Applied Mathematics for Scientists Laboratory Data Analysis and Presentation Environmental Science
	SEMESTER 4
	<ul style="list-style-type: none"> Microbial Biotechnology and Molecular Genetics Chromatographic Techniques and Measurement Systems Biochemistry Food Microbiology or Food Analysis Topics in Biotechnology Statistics for Scientists
YEAR TWO	SEMESTER 3
	<p>Option 2 - Pharmaceutical Science Pharmaceutical Science involves the use of laboratory techniques to answer practical scientific questions. The methodologies utilised in pharmaceutical science are important not only to the drug industry but also in the food, chemical and environmental sectors. The topics studied in semesters 3 & 4 of this course.</p> <ul style="list-style-type: none"> Organic Chemistry & Biomolecules Spectroscopic & Electroanalytical Techniques Physical Chemistry Statistics for Scientists Pharmaceutical Science Laboratory Data Analysis and Presentation
	SEMESTER 4
	<ul style="list-style-type: none"> Pharmaceutical Organic Chemistry Chromatographic Techniques & Measurement Systems Inorganic Chemistry Environmental Science Biopharmaceutical Science Applied Mathematics for Scientists

BSc in Applied Chemistry

What is the BSc in Applied Chemistry Course?

Applied Chemistry is a one-year add-on degree. There is a particular emphasis on modules relevant to the pharmaceutical industry in the course content. Students develop skills in analytical techniques, synthetic organic chemistry and large-scale manufacturing processes. Quality management, which is of particular relevance to industry, is introduced on the course.

Career Opportunities

The main career opportunities are in the pharmaceutical and related industries in areas such as:

- Laboratory analysis
- Quality assurance
- Research & development of products
- Laboratory instrument suppliers and manufacturers
- Environmental analysis

Career development to laboratory management is enhanced by studies in information technology and quality management. Graduates have found widespread employment in pharmaceutical and chemical companies. Some local examples include Merck Sharp & Dohme, Ivax Pharmaceuticals, Aventis Pharma, Genzyme, Clonmel Healthcare, Glaxo Smithkline and Waters Technologies.

Follow on Study

Most students continue to the BSc (Hons) in Applied Chemistry with Quality Management and a significant number continue further to postgraduate studies at MSc (both taught and research) or PhD level by research.



COURSE OUTLINE	
YEAR ONE	SEMESTER 1
	Organic Chemistry and Advanced Spectroscopic Techniques Chromatographic Method Development and Validation Quality Management Physical Chemistry of Materials Manufacturing Production and Processing
	SEMESTER 2
	Pharmaceuticals and Natural Products Sensors and Analytical Instrumentation Laboratory Data Modelling and Statistics Inorganic and Structural Chemistry Pharmaceutical Biotechnology Project

"I graduated from WIT in 2000 with a National Certificate in Science in Pharmaceutical Science, after which I transferred to the National Diploma in Science in Applied Chemistry from which I graduated in 2001. I then took a year out to work in IVAX Pharmaceuticals where I worked in QC inhalation for three months (Testing Asthma Products) after which I transferred to QC Solid-Dose (Testing a range of solid-dose products) testing products ranging from Pain-killers to Antidepressants' etc. In September 2002 I decided to return to WIT to do the Bachelor of Science in Applied Chemistry with Quality Management from which I graduated in October 2003. In August 2003 I rejoined IVAX Pharmaceuticals to work in a stability role in the R & D Solid Dose department where I work with high potency drugs, which are used for the treatment of cancers and multiple sclerosis. I am still working in this role with the company.

During my time at WIT I found the lectures to be most interesting and challenging, also the practical skills, the projects and report writing techniques taken from this course from the certificate level through to the degree level are of the highest quality and are used on a day-to-day basis in my career to date. The dedication and commitment shown by the lecturers throughout this course is second to none."

Peter Cluney, BSc in Applied Chemistry

CODE: **WD029** LEVEL: **7**

 TRANSFER APPLICANTS ONLY

COURSE FACTS

COURSE TITLE:
BSc in Applied Chemistry

COURSE CODE: WD029

COURSE LEVEL: 7

DURATION: 1 year add-on

COURSE ENTRY

REQUIREMENTS:

Graduates of the Higher Certificate in Science in Pharmaceutical Science (or equivalent) are qualified to apply directly for this course.

FOR FURTHER INFORMATION:

COURSE LEADER
Joseph Power BSc PhD
Ph: 051 302054
Email: jpower@wit.ie

CODE: **WD042** LEVEL: **8**

 TRANSFER APPLICANTS ONLY

BSc (Hons) in Applied Chemistry with Quality Management

COURSE FACTS

COURSE TITLE:
BSc (Hons) in Applied Chemistry with Quality Management

COURSE CODE: WD042

COURSE LEVEL: 8

DURATION: 1 year add-on

COURSE ENTRY

REQUIREMENTS:

To apply for this course you must hold a Bachelor of Science in Applied Chemistry or equivalent. In addition, all applicants must take a 'Bridging Studies' module. The subjects in the bridging studies module are: Advanced chemical topics & Mathematics.

What is the BSc (Hons) in Applied Chemistry with Quality Management Course?

Applied Chemistry with Quality Management is a one-year add-on honours degree. There is a strong emphasis on analytical science and courses relevant to the pharmaceutical sector in the course content. Quality management, which is a vital area of modern industry, is also a central part of the programme.

Career Opportunities

The main career opportunities are in the pharmaceutical and related industries in areas such as:

- Laboratory analysis
- Quality assurance
- Research & development for both analytical methods and process development
- Service industries such as laboratory instrument suppliers and manufacturers
- Education & Teaching

Graduates have found employment in the pharmaceutical and chemical companies nationally. Some local examples include Merck Sharp & Dohme, Ivax Pharmaceuticals, Aventis Pharma, Genzyme, Clonmel Healthcare, Smithkline Beecham and Waters Technologies.

Follow on Study

A significant number continue to postgraduate studies at MSc (both taught and research) or PhD level by research.

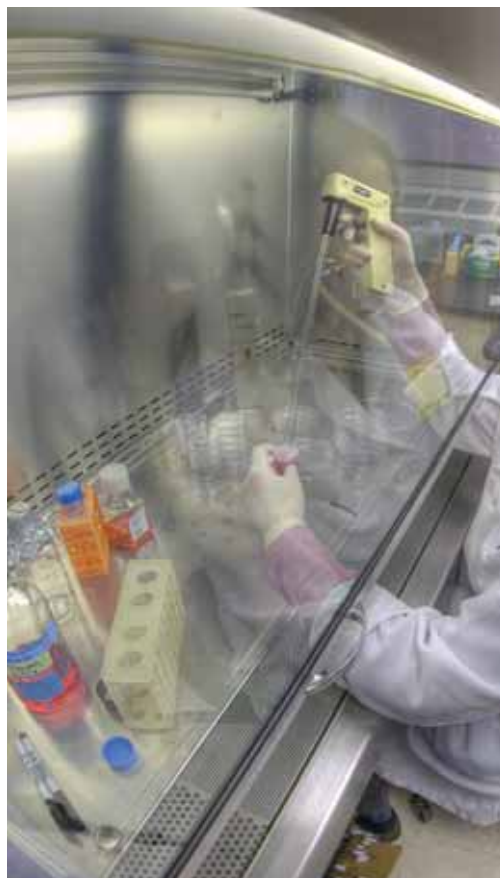
COURSE OUTLINE

YEAR ONE	
SEMESTER 1	Pharmaceutical Organic Chemistry
	Advanced Analytical Science
	Advanced Topics in Physical Chemistry
	Project
	Total Quality Management
Advanced Laboratory Techniques	
YEAR TWO	
SEMESTER 2	Regulatory Affairs & Compliance
	Pharmaceutical Form & Drug Delivery
	Pharmacology, Drug Design & Synthesis
	Advanced Inorganic & Photochemistry
	Project (Double Module)

"I graduated with a first-class honours degree. I felt, having enjoyed my time in WIT, that I still had much to learn. I applied for a postgraduate research position here in WIT, which entailed working with the staff and lecturers I had become acquainted with over the years. My four years of undergraduate study had prepared me well for the rigours of working in scientific research. At times it has been very tough, but the dedication of my supervisors and the friendly atmosphere make it an enjoyable environment in which to work. I am currently entering my final (4th) year of postgraduate study here in WIT.

The fact that I chose WIT to continue my educational pursuits after an initial four years undergraduate study is in effect a testament of my confidence in the Institute. Every opportunity has been offered to me during my time at WIT by dedicated co-workers who provide constant and unwavering commitment, support and motivation".

Wayne Cummins, BSc (Hons) in Applied Chemistry with Quality Management



FOR FURTHER INFORMATION:

COURSE LEADER
Patrick Duggan BSc PhD
Ph: 051 302624
Email: pduggan@wit.ie

BSc in Biotechnology

What is Biotechnology?

Biotechnology involves the use of living organisms (mostly microbes) to produce useful products. It includes traditional processes like brewing, cheesemaking and modern developments such as genetic engineering which can lead to new drugs against cancer and other diseases.

What is the BSc in Biotechnology course?

The BSc in Biotechnology is a one-year add-on degree. Applicants for the course will have completed a Higher Certificate in Science in Applied Biology or equivalent.

Career Opportunities

Graduates are qualified to work in a variety of positions in laboratories such as:

- Microbiology
- Food
- Pharmaceutical
- Environmental analysis
- Quality assurance

Ivax, Microchem and Glanbia among other industries have employed graduates of this course.

Follow on Study

BSc (Hons) in Biology with Quality Management
Postgraduate studies to Masters or Doctorate level

“The science courses at WIT are excellent in their balance between up-to-date theoretical knowledge and practical skills making graduates highly sought after by leading companies. I know the staff and community structure in WIT provides students with the tools and the stimulating, supportive learning environment they require to achieve their educational ambitions”.

Richard Walsh, BSc in Biotechnology

COURSE OUTLINE	
YEAR ONE	SEMESTER 1
	Protein Chemistry and Enzymology Chromatographic Method Development and Validation Manufacturing Production and Processing Molecular Biology Introduction to Research Methods Introduction to Quality Management
	SEMESTER 2
	Pharmaceutical Biotechnology Laboratory Data and Modelling and Statistics Microbial Ecology and Bioremediation Applied Immunology Bioanalytical Instrumentation Laboratory Project



CODE: **WD030** LEVEL: **7**

 TRANSFER APPLICANTS ONLY

COURSE FACTS

COURSE TITLE:
BSc in Biotechnology

COURSE CODE: WD030

COURSE LEVEL: 7

DURATION: 1 year add-on

COURSE ENTRY

REQUIREMENTS:

Graduates of the Higher Certificate in Science in Pharmaceutical Science (or equivalent) are qualified to apply directly for this course

FOR FURTHER INFORMATION:

COURSE LEADER
Dr Orla O'Donovan
Email: oodonovan@wit.ie

CODE: **WD055** LEVEL: **8**

 TRANSFER APPLICANTS ONLY

BSc (Hons) in Applied Biology with Quality Management

COURSE FACTS

COURSE TITLE:
BSc (Hons) in Applied Biology with Quality Management

COURSE CODE: WD055

COURSE LEVEL: 8

DURATION: 1 year add-on

COURSE ENTRY

REQUIREMENTS:

To apply for this course you must hold a Bachelor of Science in Biotechnology or equivalent.

What is the BSc (Hons) in Applied Biology with Quality Management course?

The BSc (Hons) in Applied Biology with Quality Management is a one-year honours degree course, following the BSc in Biotechnology. There is a major emphasis in this course on modern areas of biology such as molecular biology and analytical methods used in pharmaceutical and food industries.

Career Opportunities

Graduates of this course have a wide variety of opportunities open to them, including further study. Career development to laboratory management is enhanced by studies in Information Technology and Quality Management. Some of the areas of employment are listed below:

- Analytical, food and pharmaceutical industries
- Production, quality assurance or research and development

Follow on Study

Secondary teaching (taking the H.Dip in Education at another institution)

Postgraduate studies leading to MSc or PhD which can be undertaken at WIT or elsewhere

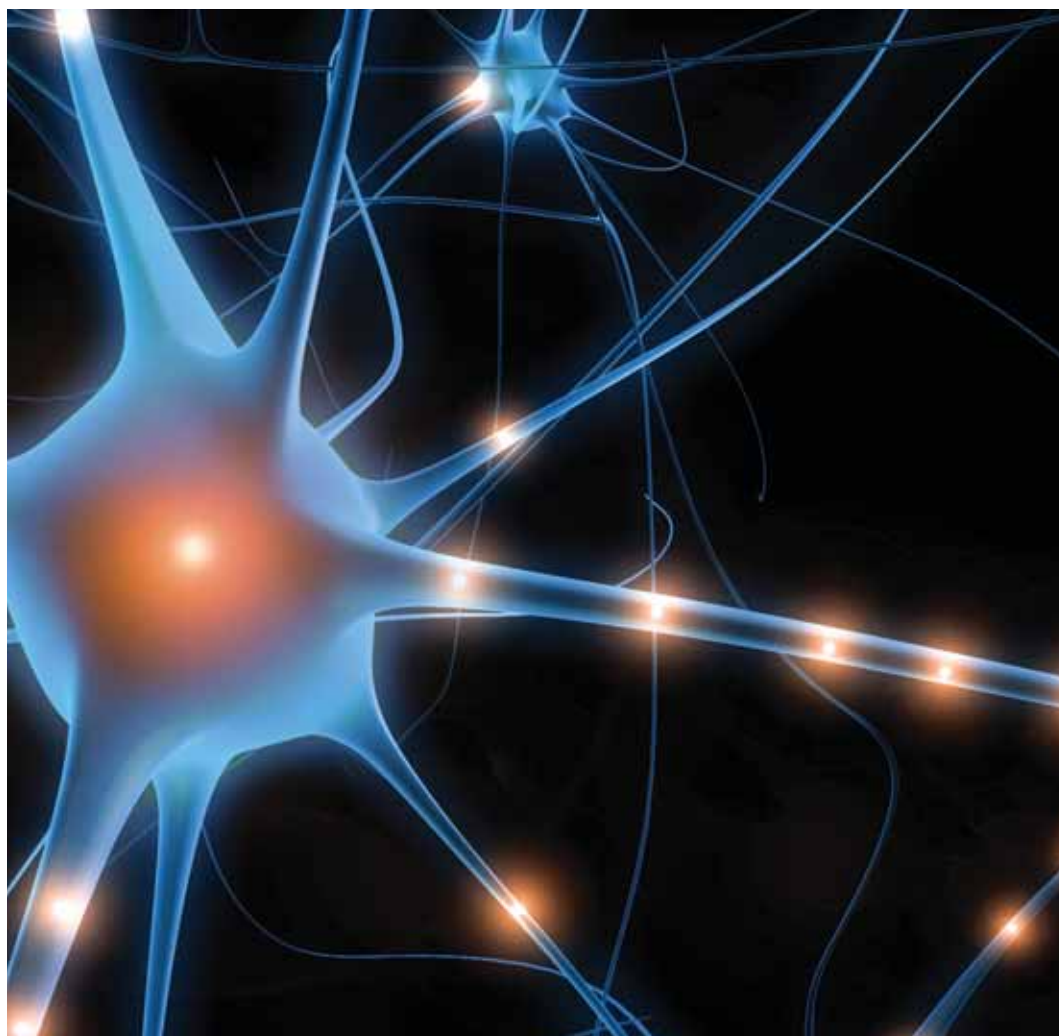
COURSE OUTLINE

YEAR ONE
SEMESTER 1

Total Quality Management
Protein Biotechnology
Research Methods
Bioanalytical Methods
Applied Enzymology
Recombinant DNA Technology & Bioinformatics

SEMESTER 2

Regulatory Affairs and Compliance
Research Project (Double module)
Bioanalysis (Practical)
Molecular Biology & Medicine
Cell Factories



FOR FURTHER INFORMATION:

COURSE LEADER
Margery Godinho BSc, PhD
Email: mgodinho@wit.ie

BSc (Hons) in Pharmaceutical Science

What is Pharmaceutical Science?

The Pharmaceutical industry makes a vital contribution to society through the development and production of drugs such as antibiotics for infectious diseases, cancer treatment drugs and antiviral drugs for HIV. The pharmaceutical sector plays a vital role in Ireland's economy with over 150 pharmaceutical companies, including 13 of the world's top 15. There is a strong demand for graduates qualified in pharmaceutical science and employment prospects are excellent.

What is the BSc (Hons) in Pharmaceutical Science?

This is a new four-year honours degree aimed at producing graduates of the pharmaceutical industry. Students will be exposed to a broad range of subjects and laboratory instrumentation relevant to the pharmaceutical industry. A six-month work placement is included in the third year of the programme. The course also provides graduates with a range of transferable skills so that graduates are qualified for a wide range of science-based industries.

Career Opportunities

A degree in pharmaceutical science will provide graduates with skills that are much sought after in a range of sectors including:

- Pharmaceutical & biopharmaceutical industries
- Quality control & quality assurance
- Laboratory analysis
- Research & development
- Education and teaching
- Food & drinks industry

Follow on Study

MSc and PhD by research

WIT lecturing staff, teaching on this programme, are actively involved in a range of highly successful and well-funded research work related to pharmaceutical science. Collaborators include national and international universities and research institutes and industrial partners from the pharmaceutical sector both in Ireland and abroad. Current research areas includes; development of novel polymers for therapeutic drug delivery biomedical research in eye treatment, novel analytical methods for pharmaceutical products, sensing devices for environmental analysis, biotechnology for drug synthesis and bioremediation.

COURSE OUTLINE	
YEARS ONE & TWO SEMESTER 1 - 4	The first two years introduce the student to the broad areas of chemistry, biology, physics, computing and mathematics.
	Some specialised subjects include: Pharmaceutical Science Pharmaceutical Organic Chemistry Environmental Science Biopharmaceutical Science Laboratory Data Analysis Spectroscopic Techniques Chromatographic Techniques Physical & Inorganic Chemistry Forensic Science Good Laboratory Practice Science & Society
	Year 3 includes a six-month work placement in industry and year four features a major research project. This allows the student to integrate various skills and knowledge acquired throughout this course.
	Some specialised subjects include: Pharmaceuticals & Natural Products Pharmaceutical Biotechnology Pharmaceutical Formulation & Regulatory Affairs & Compliance Drug Delivery Pharmacology & Drug Synthesis Quality Management Manufacturing & Production Pharmaceutical Biotechnology Research Methodology Advanced Analytical Techniques Research Project
YEARS THREE & FOUR SEMESTER 5 - 8	



CODE:	LEVEL:
WD147	8

COURSE FACTS

COURSE TITLE:
BSc (Hons) in Pharmaceutical Science

COURSE CODE: WD147

COURSE LEVEL: 8

DURATION: 4 years

COURSE ENTRY

LEAVING CERT:
Total number of different subjects at grade D or better: 6

Number of subjects at higher level grade C or better: 2

REQUIRED SUBJECTS:
English/Irish: OC3/HD3
Mathematics: OD3/HD3

RECENT ENTRY POINTS:
YEAR: 2005 2006
Min points: 300

FOR FURTHER INFORMATION:

COURSE LEADER
Patrick Duggan BSc PhD
Ph: 051 302624
Email: pduggan@wit.ie

CODE: **WD151** LEVEL: **7**

BSc in Software Systems Development

COURSE FACTS

COURSE TITLE:
BSc in Software Systems Development

COURSE CODE: WD151

COURSE LEVEL: 7

DURATION: 3 years

COURSE ENTRY

LEAVING CERT:
Total number of different subjects at grade D or better: 5

REQUIRED SUBJECTS:
English/Irish: OD3/HD3
Mathematics: OD3/HD3

RECENT ENTRY POINTS:

YEAR: 2005 2006

Min points: 300

What is Software Systems Development?

Software Systems Development is about the design and development of computer systems and the application of technology for all sectors of industry, particularly the business sector.

What is the BSc in Software Systems Development course?

The BSc in Software Systems Development is a three-year ordinary degree course.

Career Opportunities

Graduates of the BSc in Software Systems Development may find employment in the following positions:

- Software Business Analyst
- Database Administrator
- IT Consultant
- Software Engineer/Developer
- Software Trainer
- Web Developer

Follow on Study

BSc (Hons) in Software Systems Development
BSc (Hons) in Information Technology



COURSE OUTLINE

YEAR ONE	SEMESTER 1
	Programming Principles Basics Web Development Introduction to Systems Analysis and Design Computer Science Fundamentals Quantitative Methods Critical Thinking and Learning
SEMESTER 2	Programming Principles Client Side Programming Development Lifecycle in Systems Analysis and Design Computer Science Quantitative Techniques Communication Skills
YEAR TWO	SEMESTER 3
	Database Structures Cognitive Science & Human Computer Interaction Database Systems Operating Systems Business Processes Stream Choice
SEMESTER 4	Advanced Programming Algorithmic Analysis Software Engineering Networks Systems and Information Stream Choice
YEAR THREE	SEMESTER 5
	Work Placement or Study Abroad
SEMESTER 6	Agile Software Development Graphical User Interface Development Database Design and Management User Centred Design Organisational Information Systems Stream Choice

FOR FURTHER INFORMATION:

COURSE LEADERS
Mary Lyng & Clodagh Power
Email: mlyng@wit.ie or
clpower@wit.ie

BSc (Hons) in Software Systems Development

What is the BSc (Hons) in Software Systems Development course?

The BSc (Hons) in Software Systems Development is a one-year add-on honours degree for students who have successfully completed an ordinary degree in computing. The programme focuses on the need to address the Innovation, Design and Commercial demands of the Software Industry, SMEs and business start-ups. The programme will equip you with essential software design and development knowledge relevant to the realities of today's commercial software development industry.

Career Opportunities

- Analyst/Programmer
- Applications Programmer
- Computer Sales Support
- Database Administrator
- Information Technology Consultant
- Software Engineer
- Software Trainer
- Systems Designer
- Systems Programmer

Past Graduates have found employment in the following companies:

- Irish Life
- Sun Life Financial
- Garda Síochána
- Logica
- Acumen Recruitment
- Glanbia
- AIB

Follow on Study

WIT Postgraduate studies by Research



COURSE OUTLINE	
YEAR ONE	SEMESTER 1
	Project Analysis & Design Server Programming Formal Methods Entrepreneurship HCI & Cognitive Science IS Infrastructure Management
YEAR TWO	SEMESTER 2
	Project Construction & Testing Dynamic Web Development Software Patterns Software Business Management Inter-Organisational Information Systems

"I completed a National Cert in Computer Applications, then a Diploma in Information Technology and graduated in 2002 with a BSc (Hons) in Commercial Software Development. I began working for Sun Life Information Services Ireland in July of 2002. My first position was as a helpdesk engineer. I was promoted to Security Administrator in July 2003 where I spent the following year. In November 2004 I was promoted to Business Systems Analyst. This job involves testing Sun Life insurance products that are developed in the U.S. I record and document GUI and calculations bugs and send them back to the developer to be fixed.

The lecturers in WIT were always available for questions and help with projects. WIT offers a broad range of IT-related subjects, which are vital as it gives you greater flexibility when choosing a career. I thoroughly enjoyed my time spent at WIT".

Alice Phelan,
BSc (Hons) in Commercial Software Development

CODE: **WD068** LEVEL: **8**



TRANSFER APPLICANTS ONLY



COURSE FACTS

COURSE TITLE:
BSc (Hons) in Software Systems Development

COURSE CODE: WD068

COURSE LEVEL: 8

DURATION: 1 year add-on



COURSE ENTRY

REQUIREMENTS:

The minimum entry requirements are a relevant degree in computing.



FOR FURTHER INFORMATION:

COURSE LEADER
David Drohan BSc, MSc
Email: ddrohan@wit.ie or
computinginfo@wit.ie

CODE: **WD028** LEVEL: **8**

BSc (Hons) in Applied Computing

COURSE FACTS

COURSE TITLE:
BSc (Hons) in Applied Computing

COURSE CODE: WD028

COURSE LEVEL: 8

DURATION: 4 years

COURSE ENTRY

LEAVING CERT:

Total number of different subjects at grade D or better: 6

Number of subjects at higher level grade C or better: 2

REQUIRED SUBJECTS:

English/Irish: OD3/HD3
Mathematics: OB3/HD3

RECENT ENTRY POINTS:

YEAR:	2005	2006
Min points:	300	290

What is Applied Computing?

Applied Computing is the application of classic and leading edge computing concepts and technologies to different, current problem areas. These concepts and technologies can be applied at the different levels of system development from project analysis and implementation to project management.

What is the BSc (Hons) in Applied Computing course?

It is a four-year course. Students are given a grounding in systems development and related theories. Later in the programme, students choose an area of their interest - Games Programming, Embedded Systems, Networks &, Systems & Information - and gain significant expertise in applying these fundamental techniques to their choice of area.

Career Opportunities

- Programmer
- Information Systems Analyst
- Project Manager
- Systems Architect
- Web Developer
- Games Programmer
- Automotive Software Designer
- Database Administrator

Placement

Students take part in a (paid) work placement for the fifth semester. This placement takes place in a software house or the IT department of a large company or industry. Companies such as AIB, Microsoft, Waterford Crystal have a long association with the placement of our students. Students have found this an invaluable experience.

Follow on Study

Postgraduate degrees, both research and taught masters and research based PhD's in the area of computing.

"I graduated in 2000 with a First Class Honours BSc Degree in Applied Computing. I joined the graduate programme at Barclays Capital in London. During my time at Barclays, I rotated around different roles from the analysis and testing of a new credit risk system to application support of a futures trading system. After Barclays, I joined Limit Underwriting Ltd. in London. I was part of a two-person team maintaining and developing a reinsurance system. I joined Sun Life Financial in January 2005 in Waterford as a Software Engineer. In my present role I am maintaining and developing a data warehouse. I am also currently studying for a Masters in e-Commerce Engineering.

I really enjoyed the time I spent in WIT. The subjects taught were varied and helped give the student an idea of what work they'd like to do, whether it be Analysis, Design, Testing or Development".

Trish Mulligan, BSc (Hons) in Applied Computing

COURSE OUTLINE

YEAR ONE
SEMESTER 1

Computing Essentials
Discrete Maths
Programming Fundamentals
Physics for Computing
The Software Development Cycle
Thinking & Learning

YEAR TWO
SEMESTER 2

Algorithms
Applied Calculus
Computer Architecture
Data Modelling
Management & Organisations
Project & Management Communications

YEAR TWO
SEMESTER 3

Data Communications
Data Structures
Digital Electronics
Mathematical Methods
Operating Systems
Requirements Engineering

YEARS THREE & FOUR
SEMESTERS 4

Statistics & Probability
Software Systems Design
Virtual Machines
Web Application Development

Also two modules from
Games programming
Embedded systems
Systems & Information

YEARS THREE & FOUR
SEMESTERS 5 - 8

Other topics of study in Semester 5-8 include: Enterprise Applications, Database Systems, HCI, Ethics & Law, Internet Technologies, Projects, Distributed Systems, Artificial Intelligence, Formal Specification, Database Administration and the individual's stream choice. In Semester 8 there are two electives: Intercultural Communications and Management Psychology.

FOR FURTHER INFORMATION:

COURSE LEADER
Mairéad Meagher BSc, MPhil
Email: mmeagher or
computinginfo@wit.ie

BSc in Information Technology

What is Information Technology?

Information technology refers to all aspects of managing, processing and distributing information, especially within a large organisation or company using a large variety of computing applications.

What is the BSc in Information Technology Course?

This 3-year degree programme in Information Technology provides students with the ability to contribute to everyday life in our changing technological world. The programme specialises in providing students with a thorough knowledge of all aspects of the IT industry including software development, deployment and systems integration and convergence. The programme has a high practical content allowing the student to gain as much experience as possible. Students will also take part in industrial placement. Students graduating from this programme can easily adapt to working in the IT industry.

Career Opportunities

Students who graduate from this course have found employment in a diverse set of areas such as; hardware and software installation and maintenance, network technician, software designers and developers, system security, quality control, information systems and database development and migration.

Graduates of the course will find work in the following areas:

- Information systems development and integration
- Software design and development
- Technical support
- Networking administration
- Web development and administration

Follow on Study

BSc (Hons) in Information Technology



COURSE OUTLINE

Over the 3 years of the programme students will undertake 6 semesters. Each semester students are required to study 6 modules (subjects). Areas covered include:

Information Technology (IT)
Programming
Networking
Databases
Web Development
Information Management for the Web

“Since 1998 I have studied at Waterford Institute of Technology (WIT) progressing from a National Certificate in Computer Applications (in 2000), to a Diploma in Information Technology (2001), to the completion of a BSc Degree in Commercial Software Development in 2002. I was always interested in further research, and when an offer to do a PhD as part of the ISOL group at WIT presented itself, I quickly accepted, and am now in the third year of my Doctorate. My research, which will be beneficial to industry, focuses on how users’ tacit knowledge requirements can be incorporated into the development of information systems.

Choosing a third level college that accommodated for my educational needs and wants was critical. WIT provides this to its students. The community spirit within WIT is one of its most endearing qualities with lecturers and staff always willing to provide assistance when needed”.

Fiona Murphy, BSc in Information Technology

CODE: **WD155** LEVEL: **7**

COURSE FACTS

COURSE TITLE:
BSc in Information Technology

COURSE CODE: WD155

COURSE LEVEL: 7

DURATION: 3 years

COURSE ENTRY

LEAVING CERT:
Total number of different subjects at grade D or better: 5

REQUIRED SUBJECTS:
English/Irish: OD3/HD3
Mathematics: OD3/HD3

RECENT ENTRY POINTS:

YEAR:	2005	2006
Min points:		300

FOR FURTHER INFORMATION:

COURSE LEADER
Mary Barry
Ph: 051-302636
Email: computinginfo@wit.ie

CODE: LEVEL:

WD131 8

TRANSFER APPLICANTS ONLY



COURSE FACTS

COURSE TITLE:
BSc (Hons) in Information Technology

COURSE CODE: WD131

COURSE LEVEL: 8

DURATION: 1 year add-on



COURSE ENTRY

REQUIREMENTS:

Applicants should have successfully completed a BSc in Information Technology or equivalent to apply for this course.



FOR FURTHER INFORMATION:

COURSE LEADER
TJ McDonald
Ph: 051 302683
Email: computinginfo@wit.ie

What is the BSc (Hons) in Information Technology course?

The BSc (Hons) in Information Technology is a one year add-on honours degree for students who have successfully completed an ordinary degree in computing. The focus of the course is to provide you with the necessary skills to work in Information Technology and make a contribution to the organisation that employs you.

Career Opportunities

The main career opportunities for graduates would be in the following areas:

- Database Developer / Administrator
- I.T. Consultant
- Network Engineer
- Security Consultant
- Information Systems Manager
- E-Business Provider

Past graduates have found employment providing computing facilities in the following areas:

- Banking
- Services
- Pharmaceutical
- Manufacturing
- Civil Service

Follow on Study

Students who complete this course may avail of the taught or research masters programme (MSc) in the area. On completion of an MSc students will have the opportunity to pursue a PhD programme.

COURSE OUTLINE

The primary areas of tuition within the course are:

Database Development and Knowledge Management
Converged Networks
IT Security
Strategic Information Management
E-Business Management
Project Design Development & Testing



BSc (Hons) in Physics with Computing

What is Physics with Computing?

Physics is the study of the fundamental laws of nature that govern the behaviour of the universe. Computers are used extensively by physicists in the solution of both practical and theoretical problems and in the development of new technologies.

What is the BSc (Hons) in Physics with Computing course?

This is a four-year degree course, which will provide students with the knowledge, skills and expertise to work in a range of industry sectors. The first four semesters introduce the student to the broad areas of physics, computing, and mathematics. Later in the course, students will specialise in physics in the areas of photonic/ optical systems and semiconductor/solid state devices, while the computing element allows students to acquire strong programming and software development skills. Students can choose from one of three areas in computing from semesters 4-8: communications and networking, games development and embedded systems.

Career Opportunities

The combination of physics with computing provides graduates with skills much sought after by both industry and research in a range of sectors including:

- Telecommunications/Photonics
- Semiconductors
- Medical Physics
- Astronomy and Astrophysics
- Meteorology
- Advanced Manufacturing
- Computer Games Development
- Teaching
- Biomedical Devices
- Information & Communications Technology
- Software Development
- Research Centres - national and international
- Physics and Computing Environment at WIT

Future graduates of this course will attain the fundamental knowledge and skills required to work within the career areas indicated above. The research environment within physics and computing at WIT will particularly enhance this.

Lecturing staff on the course have a broad range of active ongoing research, with a number of national and international university and industrial partners. Undergraduate students will have a significant interaction with this research, particularly during the fourth-year undergraduate research project, for which each student will work within an active WIT research group. Current relevant research areas include photonics and laser physics, telecommunications, computational physics, semiconductor physics, spectroscopy and microscopy in materials science, software development, Internet technologies, mobile networks and computer security.

COURSE OUTLINE	
YEAR ONE	SEMESTER 1 Mechanics and Waves Thermal Physics and Matter Programming Fundamentals Computing Essentials Mathematics for Physicists Science Support Studies
	SEMESTER 2 Electromagnetism and Solid State Physics Chemistry and Physics of the Atom Algorithms Computer Architecture Calculus Science, Universe and Society 1
YEAR TWO	SEMESTER 3 Mechanics, Waves & Special Relativity Electromagnetism & Physical Optics Digital Electronics Ordinary Differential Equations Data Structures Operating Systems
	SEMESTER 4 Thermodynamics & Modern Physics Analogue Electronics Advanced Calculus Web Application Development Science, Universe and Society II Plus one module from: Data Communications Games Development I Programmable Controllers
YEARS THREE & FOUR	SEMESTERS 5 - 8 Modules of study in Semesters 5-8 Advanced Optics, Photonics Applications, Atomic, Quantum and Solid State Device Physics, Semiconductor Device Physics, Computational Physics, Mathematical Methods, Instrumentation and Measurement Systems, Internetworking, Enterprise Application Development, Distributed Systems, Research Project and choice of Communications and Networking, Games Development or Embedded Systems.

Follow on Study

Masters & PhD by research
 Taught MSc in Computing (Communications Software)

Company Placement

Students take part in industrial work placement for the sixth semester. This allows them to gain practical experience of the physics and computing disciplines within an organisation and to develop a range of professional skills.

CODE: **WD132** LEVEL: **8**



COURSE FACTS

COURSE TITLE:
 BSc (Hons) in Physics with Computing

COURSE CODE: WD132

COURSE LEVEL: 8

DURATION: 4 years



COURSE ENTRY

LEAVING CERT:

Total number of different subjects at grade D or better: 6

Number of subjects at higher level grade C or better: 2

REQUIRED SUBJECTS:

English/Irish: OD3/HD3
 Mathematics: OB1/HD1

RECENT ENTRY POINTS:

YEAR:	2005	2006
Min points:	210	300



FOR FURTHER INFORMATION:

COURSE LEADER
 Claire Keary, BSc, PhD
 Ph: 051 302057
 Email: ckeary@wit.ie

CODE: **WD153** LEVEL: **7**

BSc in Multimedia Applications Development

COURSE FACTS

COURSE TITLE:
BSc in Multimedia Applications Development

COURSE CODE: WD153

COURSE LEVEL: 7

DURATION: 3 years

COURSE ENTRY

LEAVING CERT:
Total number of different subjects at grade D or better: 5

REQUIRED SUBJECTS:
English/Irish: OD3/HD3
Mathematics: OD3/HD3

RECENT ENTRY POINTS:

YEAR:	2005	2006
Min points:		250

What is Multimedia Applications Development?

Multimedia Applications Development is the creation of interactive multimedia systems, such as games, websites, e-learning software, mobile phone downloads, etc. These systems make extensive use of different media elements including text, graphics and images, audio, video, 2D and 3D animation. Systems are analysed and designed, and later implemented using authoring software.

What is the BSc in Multimedia Applications Development?

This is a three-year course, which prepares students for employment primarily in the software industry but also in the IT sector in general. Many graduates also find employment in the entertainment industry. The course addresses issues of professional importance to the multimedia developer, while continuing the development of the student in the core areas of multimedia and computing.

What will the BSc in Multimedia Applications Development enable you to do?

- Produce and integrate multimedia rich elements, such as images, sound, video and animations
- Create complex interactive applications, through programming and/or scripting, particularly for the World Wide Web
- Help people by allowing them to avail of the best technological solutions.

Career Opportunities

Job prospects in computing have never been better, so much so, that at the moment demand for computer graduates exceed supply. In a sector crying out for qualified graduates, you will have greater opportunities and potential income as well as more freedom to choose your career path.

Graduates may find employment in the following areas:

- Development of training products
- Multimedia and software development
- Web design and development e-business.
- Multimedia applications support.

Past graduates have found employment with the following companies:

Multimedia Solutions, Achieve Website Design, Angel Design, Aer Lingus Airlines Systems, AOL, Aura Internet Services Ltd., Aura Internet Services Ltd, HSE Board, Dell and Sun Life, Achieve Website Design

Follow on Study

BSc (Hons) in Commercial Software Development.
BSc (Hons) in Information Technology.

FOR FURTHER INFORMATION:

COURSE LEADER
Brenda O'Neill
Ph: 051 302037
Email: computinginfo@wit.ie

COURSE OUTLINE

YEAR ONE	SEMESTER 1
	Multimedia Imaging Critical Thinking/Research Skills Computer Science Mathematics for Computing Music Skills Introductory Programming
YEAR ONE	SEMESTER 2
	Web Design Communications Information Technology Math Modelling & Statistics Digital Audio Production Programming Fundamentals
YEAR TWO	SEMESTER 3
	Motion Graphics HCI Mensuration Further Programming Intro to Software Engineering Web Development
YEAR TWO	SEMESTER 4
	Rich Media Development Convergence Mathematics for Graphics Multimedia Programming Software Engineering Advanced Web Development
YEAR THREE	SEMESTER 5
	Project Management Entrepreneurship Project Design Database Fundamentals Traditional Graphic Design Network Concepts
YEAR THREE	SEMESTER 6
	Software Engineering Small Business Management Project Implementation Database Systems Digital Graphic Design Network Systems

"Throughout my six years at WIT I have continuously used the skills I developed through the multimedia course and have undertaken contracts from web development to logo and brochure design. I was always interested in computing but also enjoyed design, even though I couldn't draw very well!"

Multimedia allowed me to develop both in terms of what I was good at and also as a person. When you find something you really like, it's a great feeling and makes you motivated to do well."

Lorain Galvin, BSc in Multimedia Applications Development

BSc (Hons) in Multimedia Applications Development

What is the BSc (Hons) in Multimedia Applications Development?

This is a one-year add-on course. It aims to provide graduates of BSc, Level 7 degrees, within the multimedia discipline, with the opportunity to progress to honours degree level.

The overall objective of this course is to develop multimedia professionals equipped with knowledge, skills and practical experience within the domains of technology, creativity and enterprise. With a strong focus on the creative aspects, there is a range of elective modules that students can choose from. These include Graphic Design, Animation, Photography and Video, Games Development, and Design for Learning. Students are encouraged to choose their own route, allowing them to specialise in the area of most interest to them.

What career will I have?

There is an increasing demand for IT professionals with the skills required to drive and support the digital media industry within Ireland. This is an industry recognised as being an important growth sector for the country's economic development. Graduates should be well equipped to participate within a diverse range of industries, including that of digital media. The products and services typically provided by the digital media industry include:

- Web Development
- Wireless Services
- Games Development
- e-Music
- e-Learning
- Digital Film/TV
- Animation/Special Effects
- Digital Radio

What areas could I expect to work in?

- Software Development
- Content Authoring
- Media Authoring and Design
- IT and Systems Support
- Sales and Marketing
- Education
- Research
- Management

Follow on Study

Students who successfully complete the BSc (Hons) in Multimedia Applications Development may avail of a range of taught and research masters programmes (MSc). It is an aim of the course to provide students with the skills and competencies necessary to progress to postgraduate level study.

COURSE OUTLINE	
YEAR ONE	In addition to the core subject areas students are required to choose any two elective streams.
	Core Subject Areas
	Organisational Behaviour and Management
	Multimedia Database Development
	Server Programming
	Multimedia Application Development Project
	Elective Streams
	Security
	Graphic Design
	Animation
Photography & Video	
Games Development	
Design for Learning	



CODE: **WD165** LEVEL: **8**

 TRANSFER APPLICANTS ONLY

COURSE FACTS

COURSE TITLE:
BSc (Hons) in Multimedia Applications Development

COURSE CODE: WD165

COURSE LEVEL: 8

DURATION: 1 year add-on

COURSE ENTRY

REQUIREMENTS:
Standard entry to the course is based on successful completion of a BSc in Multimedia Computing (Level 7). Consideration will also be given to graduates of a BSc in Computing (Level 7) where it can be shown that a significant proportion of the content related to multimedia. Non-standard applications will be considered on an individual basis.

FOR FURTHER INFORMATION:

COURSE LEADER
Ms. Deborah Duffy
Ph: 051 302037
Email: computinginfo@wit.ie

CODE: **WD161** LEVEL: **8**

BSc (Hons) in Computer Forensics



COURSE FACTS

COURSE TITLE:
BSc (Hons) in Computer Forensics

COURSE CODE: WD161

COURSE LEVEL: 8

DURATION: 3 years



COURSE ENTRY

LEAVING CERT:

Number of subjects at grade D or better: 6

Number at higher level grade D or better: 2

REQUIRED SUBJECTS:

English/Irish: OD3/HD3

Mathematics: OB3/HD3

RECENT ENTRY POINTS:

YEAR: 2005 2006

Min points:

300

What is the BSc (Hons) in Computer Forensics?

This is the first year of BSc in Computer Forensics. It will be a three year honours degree programme equipping graduates with specialised skills and knowledge needed to examine electronic crime scenes.

Just as a murder scene needs to be secured so too do electronic crime scenes. There are particular ways of securing evidence and students learn how to do this. Electronic crime scenes often involve child pornography, blackmail, financial fraud and data theft. Criminal prosecutors have used computer forensic evidence to form the backbone in murder cases and robberies through the use of technologies such as mobile phone forensics.

Computer forensics is application of the scientific method to digital media in order to establish factual information for judicial review. This process often involves investigating computer systems to determine whether they are or have been used for illegal or unauthorised activities.

Career Opportunities

The domain of computer security and forensics is growing and has become more essential than ever before. Virtually all organisations now need and use internet technologies (email, the web, ecommerce) in their daily business.

With this growth comes the need to protect sensitive data such as customer's personal details and credit card information, confidential files and internal documents. Many companies employ full time security personnel to fulfil these roles, whilst other organisations outsource them to external firms.

Insurance companies, corporations, civil litigations, individuals and law enforcement all can and do make use of evidence revealed by computer forensic specialists.

What area could I expect to work in?

- Security Consultancy
- Investigation Consultancy
- Law Enforcement
- Forensic Auditing
- Research
- Education

Follow on Study

Students who complete the BSc (Hons) in Computer Forensics students may avail of a taught or research masters programme (MSc) in the area. On completion of an MSc students will have the opportunity to pursue a PhD Programme.

SAMPLE SUBJECTS

Programming skills
Computer Architecture (how computers are built and how they work)
Operating Systems (how software and hardware communicate)
Network Management and Security
System Forensics
Network Forensics
Multimedia Forensics
Legal and Ethical issues in cybercrime and prosecution



FOR FURTHER INFORMATION:

COURSE LEADER

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