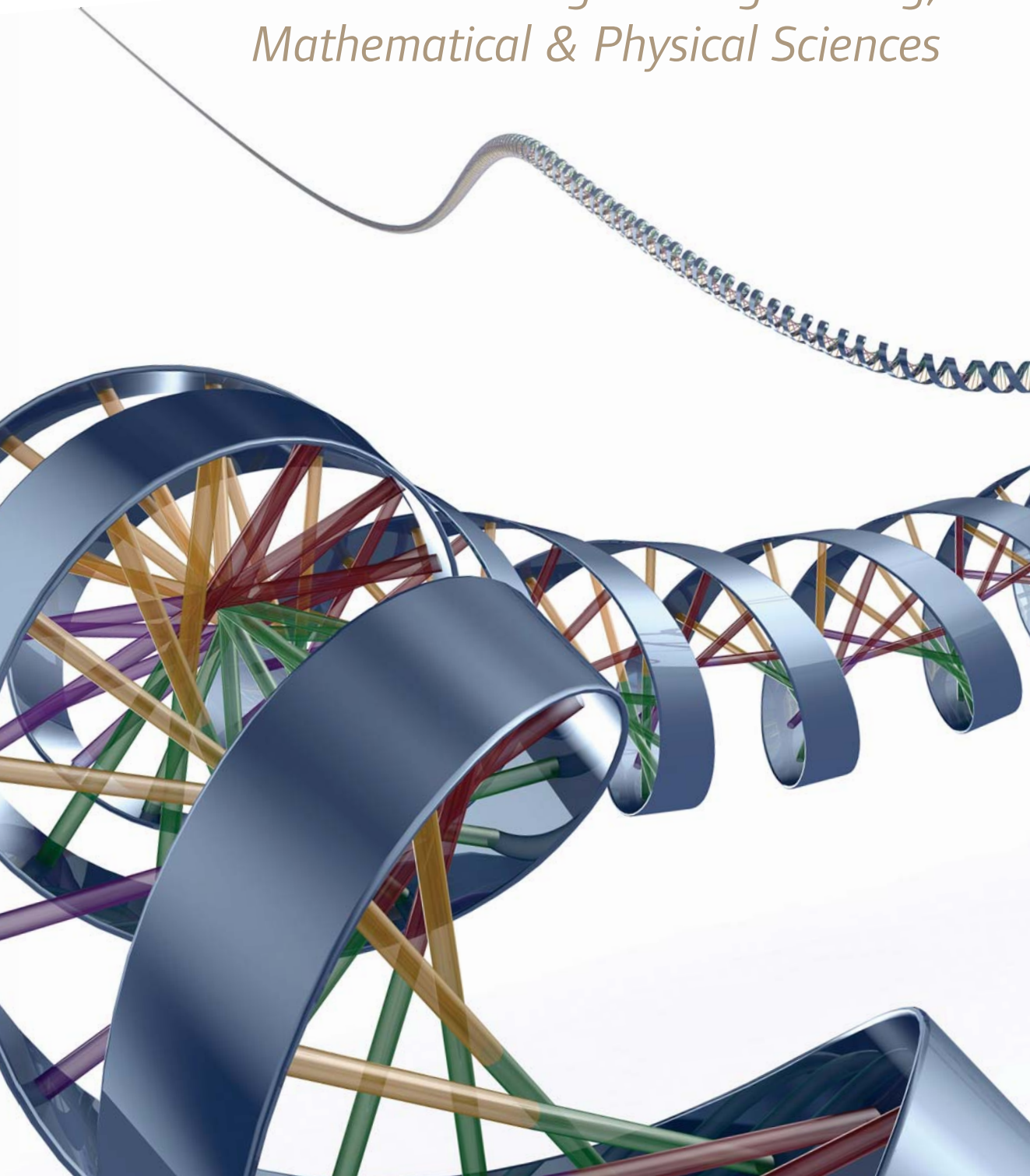




Graduate programmes for international students

*in the UCD College of Engineering,
Mathematical & Physical Sciences*



Studying in Ireland

Ireland has a rich history of cultural and scientific excellence. It is the international gateway to Europe, an English-speaking country that is full of natural beauty, and is

the chosen location for 13 of the world's top 15 multinational companies. It has a young, highly-educated population, and is home to some of the world's leading researchers.



Studying in UCD

University College Dublin is the largest provider of graduate education in Ireland. It is a diverse University both in academic disciplines and culture. Innovative research conducted at the University attracts some of the world's most brilliant academics. UCD is ranked 89th in the world. There are over 115 different nationalities studying in UCD. The Chinese community in the University is growing, with 250 Chinese students currently enrolled. There is a wide variety of societies and institutes (including the Confucius Institute), dedicated to enriching the student experience within the University.



Study in UCD College of Engineering, Mathematical and Physical Sciences



There are seven different schools within the College, including: UCD School of Mathematical Sciences; UCD School of Computer Science and Informatics; UCD School of Electrical, Electronic and Mechanical Engineering; UCD School of Chemical and Bioprocess Engineering; UCD School of Architecture, Landscape Civil Engineering; UCD School of Physics; and, UCD School of Geological Sciences. Each School offers a variety of graduate programmes and a selection of these programmes is outlined in this brochure.

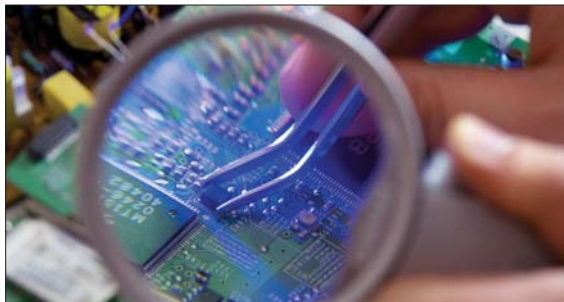
Language requirements and pre-masters programme

Students must have a TOEFL score of 600 or 6.5 IELTS. For those students who do not reach this language requirement UCD has a pre-masters programme, entry to which requires a score of 6 IELTS, which will start in January 2011.

The pre-masters will lead to a series of masters programmes starting in September 2011, some of which are in place and some which are currently under development at UCD. The fee for the pre-masters programme is €6,000.

Programmes under development include: Masters in Electronic and Computer Engineering; Masters in Engineering Design; Masters in Bioengineering; and, Masters in Chemical Engineering.

Programmes currently offered include: Masters in NanoBio Science; Masters in Mathematical Science; Masters in Computer Science; Masters in Actuarial Science; and, Masters in Biopharmaceutical Engineering.



1 year M.Eng.Sc. in Biopharmaceutical Engineering

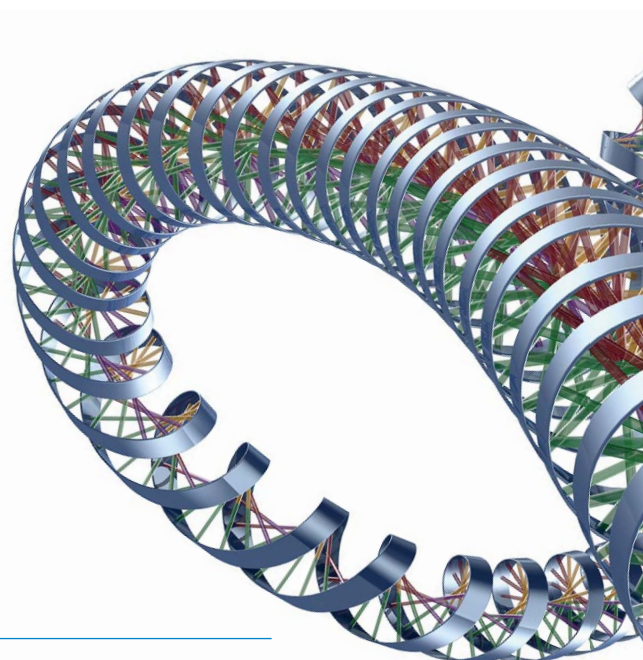
The programme offers an internationally recognised, high-quality, flexible curriculum, which follows the latest developments in science and technology. It is designed for graduates of science and engineering currently working in, or wishing to enter, the biopharmaceutical industry.

The programme's teaching methods are highly interactive and varied. The programme comprises 12 core modules and a large independent thesis component.

Students participate in lectures, workshops, tutorials and practical exercises. Case studies of international biotech firms, described by senior company executives, are used to illustrate the possibilities and limitations of commercial exploitation of scientific discoveries.

Some facts about UCD:

- UCD is in the top 100 Universities in the world, according to the Times Higher Education QS World University Rankings in 2009
- UCD is an integral part of Dublin, capital city of Ireland and gateway to Europe. The campus covers 132 hectares
- UCD is the largest University in Ireland and was top-ranked in terms of research funding in 2009
- UCD is Ireland's most international university and the top destination in Ireland for Chinese Scholarship Council-funded PhD students
- For over 150 years, UCD has produced graduates of remarkable distinction including famous surgeons, writers (e.g., James Joyce), architects, entrepreneurs and five of Ireland's prime ministers. Over half the members of the current Irish government are UCD graduates.





1 Year M.Eng.Sc. in Energy Systems Engineering

If you want to contribute to the creation of new, clean and efficient energy technologies that will change the world we live in, then the M.Eng.sc. in Energy Systems Engineering offered by UCD may be the right choice for you. The programme prepares engineers for work in designing and developing future energy systems and aims to deepen understanding of the interactions between these systems and the environment and energy policy, taking account of economic factors.

The scope of the programme includes analysis of global energy systems, use of finite natural resources and the impact on climate. It focuses on renewable and other energy resources such as wind, wave, nuclear and solar power, and on their conversion, storage and transmission by electrical and other means. The programme also addresses the efficient use of energy in buildings, transport and industrial processes, together with the study of other topics such as carbon sequestration.

The UCD academic and research staff involved in the programme are recognised as international experts in their specialist subjects and are currently leading research efforts aimed at finding practical solutions to the energy challenges facing mankind.

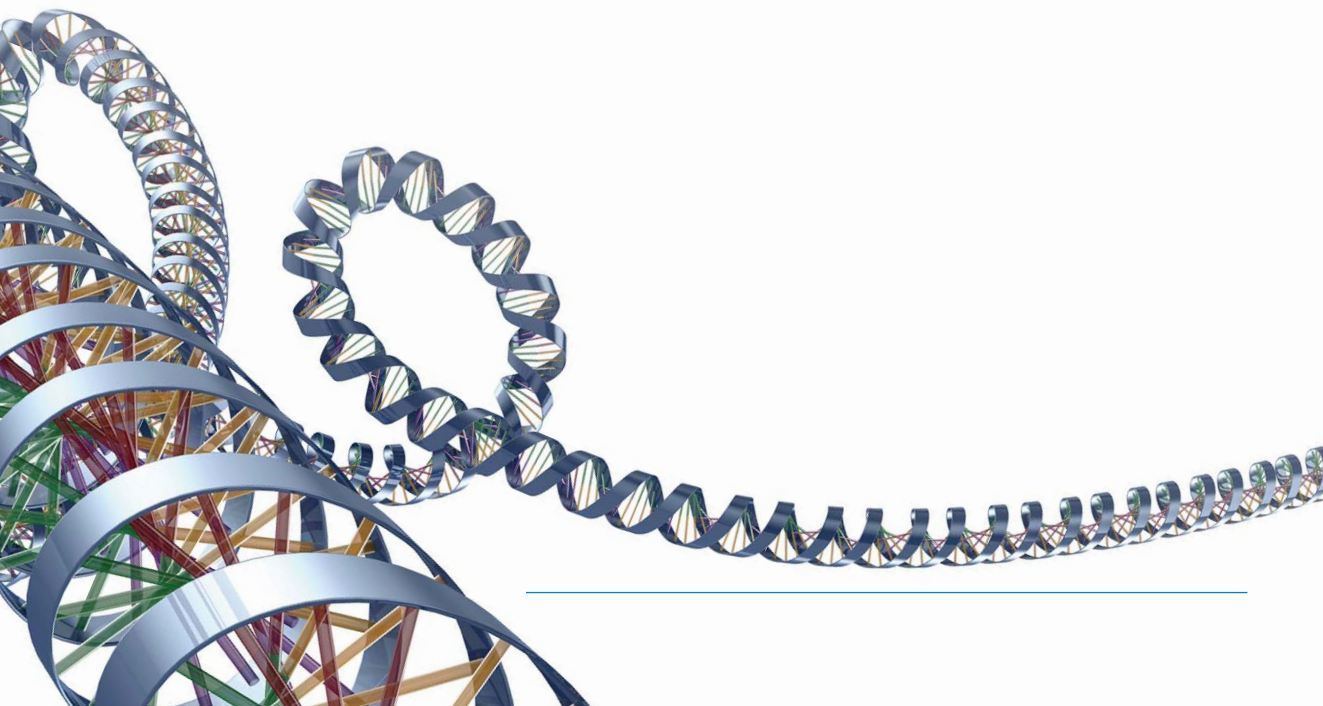


MSc Bioengineering

Bioengineering involves the application of the principles of engineering to make advances in healthcare and medicine possible. It is an interdisciplinary field involving knowledge of both medicine and engineering.

The primary aim of this course is to give engineers the ability to apply science and technology to the solution of healthcare problems, particularly through the design, development and manufacture of medical devices. Modules include: Biomechanics and Implant Design; Basic Medical Sciences; Cell and Tissue Engineering; Biomaterials; Rehabilitation Engineering; Bioinstrumentation; Research Methodology; and, a research project/dissertation.

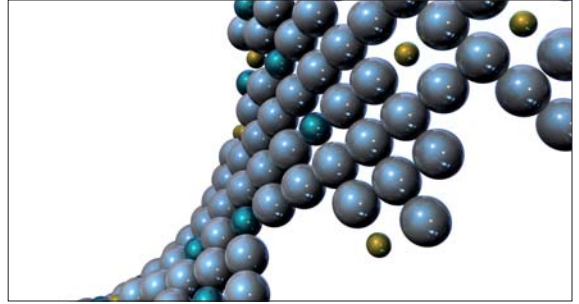
The MSc in Bioengineering is run on an all-Ireland basis, with centres in Trinity College Dublin, the University of Limerick, University College Dublin and an affiliation with the University of Ulster, Jordanstown. Students will be based in UCD, where they will carry out a research project.





MSc Computer Science and Informatics Negotiated Learning

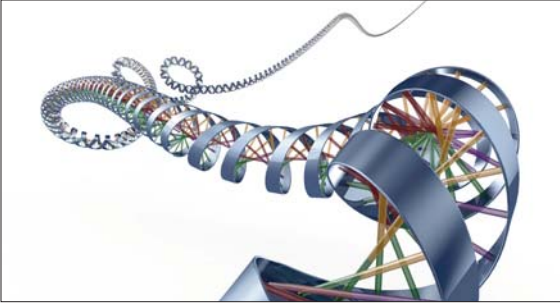
The MSc in Computer Science by Negotiated Learning Programme gives students the opportunity to select modules, from a diverse suite of module offerings, that best align with their own individual needs and career goals. The programme is attractive to international students with relevant computer science undergraduate degree qualifications, who have specific workplace needs or requirements for continuing professional development. Students can broaden their knowledge across a diverse cross-section of modules offered by Schools such as the UCD School of Computer Science & Informatics, the UCD School of Business, and the NovaUCD Innovation and Technology Transfer Centre. Students enrolling in this MSc are also provided with the opportunity to work on a specialised research task and/or work as part of a research group as part of this programme.



MSc in Nanobio Science

The MSc in NanoBio Science offered by the UCD School of Physics is centred on understanding, applying and advancing our knowledge at the interface of nanotechnology and biology. Living cells depend critically on physical, chemical, and electrical processes on the nano (10^{-9} m) scale. Being able to image, manipulate and control phenomena at this minute scale is the key to developing novel diagnostic methods that can target molecules, cure diseases, and provide environmentally-friendly technologies for information processing and energy production. Novel technological developments and commercialisation go hand-in-hand with new fundamental understanding and scientific discovery. The UCD NanoBio Science programme recognises and promotes this connection within a world-leading cross-disciplinary research and learning environment. This is a unique opportunity to join a world-class team of scientists in a multidisciplinary taught masters in NanoBio Science. The course is a demanding one, with excellent infrastructure and scientific networks. Academic excellence and a willingness to work in an interdisciplinary environment are prerequisites. Successful candidates will receive expert teaching, carry out a major research project, visit state-of-the-art research laboratories, learn innovation and commercialisation skills, and have the option of presenting their work at a major international conference.





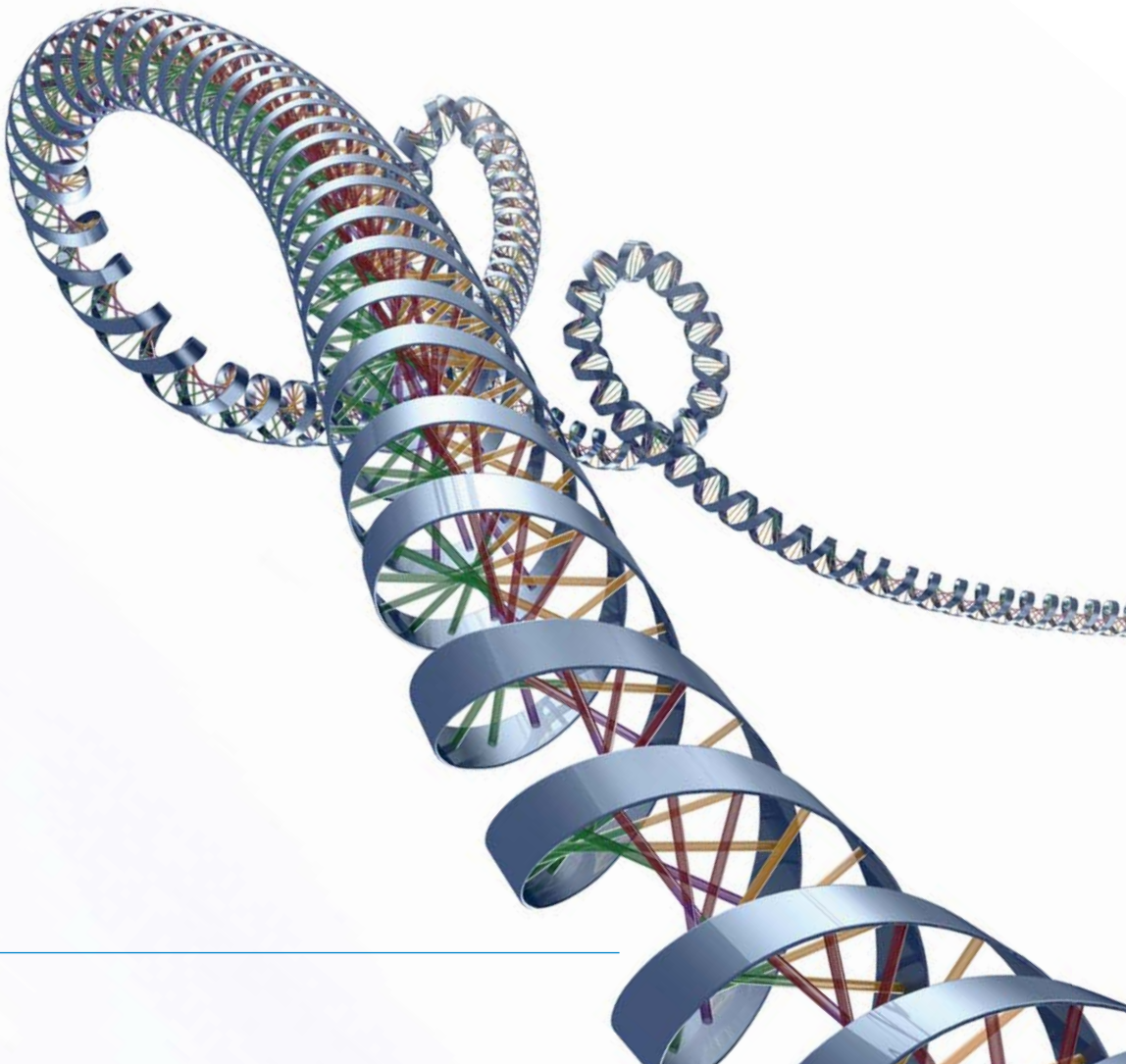
MSc Mathematics

The MSc in Mathematics is a one-year full-time programme which involves both taught modules and dissertation work. It is intended to bring students to a level of knowledge and understanding where they can confidently begin to study modern research literature in Mathematics and can embark on research projects of their own under supervision. Many of our graduates go on to have careers in finance and banking, in actuarial and insurance work, in industrial and commercial management, in technical scientific and engineering work for industry, in computer network companies, in government research development institutes, or in mathematical research and teaching.

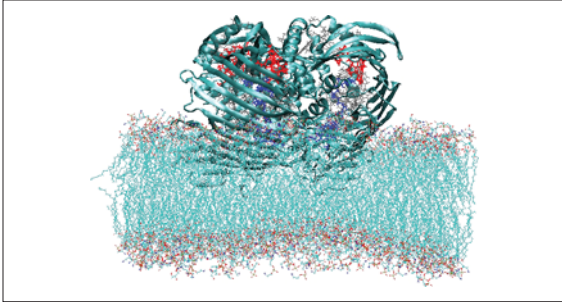
MSc Statistics

The MSc in Statistics offers a wide range of modules. Students can select eight modules from the following list: Actuarial Statistics I & II; Survey Sampling; Experimental Design; Mathematical Statistics*; Nonparametric Statistics; Regression; Survival Analysis; Stochastic Models; Time Series; Bayesian Analysis; Monte Carlo Inference; Numerical Algorithms; Mathematical Biology; Simulation Modelling & Analysis; and, Data Analysis.

This diversity of modules allows students to develop their skill sets in particular areas of interest. In addition to the course work, students undertake a research project supervised by a member of staff.



programmes under development



MSc Simulation Science

Simulation science is a broad and rapidly emerging trans-disciplinary field that involves the collaboration of applied mathematicians and computer scientists with researchers from many areas of basic science and technology including physics, chemistry, the biological and earth sciences, and engineering, as well as applications in finance, medicine, and the social sciences. Simulation science thus synthesises advanced computational methodologies from many disciplines, providing powerful problem solving, and general, robust application tools. The three core areas of simulation science involve: manipulating large data structures; developing and applying multi-scale modelling methodologies; and, using state-of-the-art high performance computing to implement advanced simulation science algorithms.

The UCD Simulation Science Masters Programme includes taught course modules over two semesters between September and April, as well as the completion of a substantial research project during the third, summer semester. Course modules consist of a number of core subjects, covering a broad set of principles and technologies underlying simulation science, including: Data Intensive Science; Multiscale Modelling; and, High End Computing. There are also optional modules covering a broad range of application areas, including: Frontiers of Simulation Science; Nanobio Science; Earth Science; Computational Systems Biology and Systems Medicine; Complex Systems and Computational Social Science; Atomistic Modelling in Materials Science; and, as well as Modelling Extreme Events and Risk. This range of courses enables students to specialise in areas in which they have particular interest.

1 Year M.Eng.Sc. in Water Engineering and Environmental Modelling (Available from 2011)

The M.Eng.Sc. in Water Engineering and Environmental Modelling is a one year Masters degree specialising in numerical modelling for water and environmental engineering applications. At present, environmental issues are of major concern to the international community, resulting in a critical need for numerate graduates with the ability to understand, model and design sustainable systems in harmony with the natural environment.

The UCD Masters degree will develop and deepen your knowledge of water and environmental engineering, concentrating on the use of computer models for practical applications. You will be able to apply these skills in a manner that is environmentally sustainable and contribute to overcoming one of the major challenges that currently faces the world. The UCD staff involved in this programme have a long standing reputation for research in this area and enjoy collaborative links with internationally recognized academic institutions and with industry. The academic staff are actively engaged in national and international research projects and you will be exposed to this cutting edge research.

Sustainable engineering design is an integral feature of this course and students will complete real-world case studies in a group setting. While this will be a taught Masters, a considerable amount of independent learning and research will be involved. Students will undertake research in one of the School's many laboratories, computer suites or in the field. In addition to the core engineering subjects, the course structure allows students the flexibility to study such complementary areas as engineering law, business and planning.

programmes under development



1 Year M.Eng.Sc. in Electronic & Computer Engineering (Available from 2011)

The M.Eng.Sc. in Electronic and Computer Engineering will be offered by the UCD School of Electrical, Electronic and Mechanical Engineering. This one-year course is designed to give students the knowledge and the tools to solve complex problems in communications engineering, chip design and software engineering.

Students will work with staff in the School, which boasts five academics who have received the award of Fellow of the Institute of Electrical and Electronic Engineers, indicative of the high standard of research in a broad range of areas conducted at UCD.

Through the learning and understanding of subjects including: Advanced Communication Theory; Photonic Engineering; Performance of Computer Systems; and, Introduction to Coding and Cryptology, graduates will be able to demonstrate knowledge and understanding of fundamental and advanced, theoretical and practical issues in electronic and computer engineering with the ability to quickly analyse issues in a variety of professional situations and to make judgments as to the nature and scale of viable solutions.

1 Year M.Eng.Sc. in Chemical Engineering (Available from 2011)

The UCD School of Chemical and Bioprocess Engineering offers students with a minimum three-year unaccredited first cycle Bachelor/Diploma degree in Chemical Engineering/Technology the opportunity to enrol in an M.Eng.Sc. programme designed to give students advanced level Chemical Engineering education in design, separation processes, reaction engineering and transport phenomena. The students will work in close association with leading Chemical Engineering academics and professionals both in a class environment and in one-to-one design project and research project work.

While the core of the Chemical Engineering Masters programme involves five taught modules, a design project and a significant component involving thesis research, the Masters candidate will have the option to expand their educational experience by selecting four additional taught modules from a range of topics involving a minor in either Pharmaceutical Engineering or Energy Systems Engineering.

Fees

Fees for all courses are €11,000*

**Discounts may apply in some cases.*

Useful Links

www.ucd.ie/graduatestudies

www.ucd.ie/international

www.ucd.ie/emps/china

Contact

For more information on the UCD EMPS Programmes for Chinese Students please contact:

Angela Evans

Graduate School Manager

UCD College of Engineering, Mathematical and Physical Sciences

e-mail: angela.evans@ucd.ie

Web: www.ucd.ie/emps/china