



BSc MICROBIOLOGY

Course Code: CK402: Biological & Chemical Sciences

Duration: 4 years

Further Information: T: +353 (0) 21 490 2392
F: +353 (0) 21 490 3101
E: microbiology@ucc.ie

Why study Microbiology?

Microbiology is an important and varied discipline that covers the vast majority of life forms on earth. Micro – (Greek-mikros, meaning small) biology describes the study of organisms that are usually invisible to the naked eye, including bacteria, protozoa, fungi, viruses, helminths and prions.

Microbes are crucially important to all aspects of life. This is reflected in sub-disciplines such as Medical, Environmental, Food and Industrial Microbiology. Many modern scientific disciplines (e.g. Genetic Engineering, Genomics, Microbial Biotechnology, Immunology and Molecular Biology) originated from classical microbiology and form an integral part of the teaching and research of a modern Microbiology department.

Microbiology at University College Cork is one of the largest and most modern and vibrant departments in the University, with internationally recognised teaching and research programmes. The staff are very research active and are consistently successful in winning competitive research funds from national and international agencies. This high level of activity is reflected in the research and training opportunities provided to undergraduates and the high calibre of its graduates.

Programme Overview

Introductory lectures in Microbiology form a part of the First Science Biology course. Microbiology is a full subject in Second Science. Students who wish to pursue an honours degree in Microbiology can do so at the end of the Second Year. The Third Year course provides a comprehensive overview of microbiology enabling students to specialise in specific aspects such as medical, food or environmental microbiology, in Fourth Year

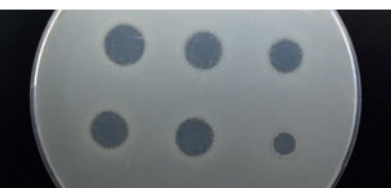


Career Opportunities

A degree in Microbiology is an excellent foundation degree that equips a student for employment in many different industrial sectors including pharmaceutical, food, medical device and biotechnology industries. Graduates may also choose to pursue a higher degree such as an MSc or PhD, which can lead to research or academic positions. Other options such as the Higher Diploma in Education may also be taken.

Postgraduate Opportunities in UCC

Postgraduate degrees form the major part of the programmes in Microbiology. Post-graduate studentships are open (subject to availability) to students who obtain a good Honours degree in Microbiology or a related subject (e.g. Biochemistry, Genetics, Biotechnology, Biology, Food Science, etc.)



BSc MICROBIOLOGY

What will you be studying?

Year 1

• Biology (20 credits) • Chemistry (15 credits) • Physics (15 credits) • Mathematics (10 credits)

Year 2

Core Modules:

Molecular Biology – Introductory Molecular Biology
Statistics – Introduction to BioStatistics
Microbiology – Fundamental Principles of Microbiology
Biochemistry – Biomolecules • Principles of Metabolic Pathways

Elective Modules:

Chosen from modules in • Anatomy/Neuroscience • Applied Ecology • Chemistry • Physiology • Plant Science • Zoology

Year 3

Core Modules:

• Medical Microbiology • Virology • Food and Industrial Microbiology I • Food and Industrial Microbiology II • Environmental Microbial Genomics, the role and ecology of microbes in the environment • Genetic Engineering and Molecular Biotechnology • Molecular Genetics and Genomics • Immunology, host response to pathogens • Transmission and Epidemiology of Infectious Disease • Methods in Microbiology • Environmental Systems Microbiology, themes in microbe-host interactions
No elective modules.

Year 4

Core Modules:

• Research Project • Advanced Bioinformatics • Eukaryotic Molecular Genetics • Molecular Biology and Physiology of Bacteria • Research Frontiers in Microbiology

Elective modules:

5 modules chosen from the list below

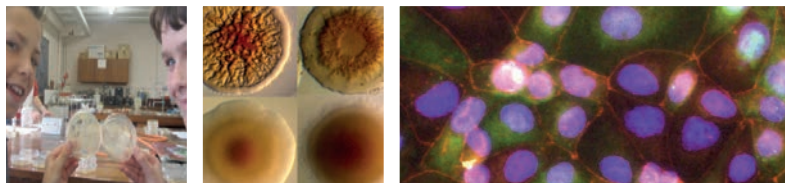
(a) Medical Microbiology, (b) Food Microbiology and (c) Environmental Microbiology (d) Computing for Biologists

a) Advanced Medical Microbiology • Advanced Virology; Advanced Immunology.

b) Food Fermentation and Mycology • Microbial Food Safety • Food Biotechnology.

c) Environmental Microbial Genomics II, understanding and exploiting microbial communities • Microbial Diversity and Ecology

d) Programming in Python



Graduate Profiles

John Reidy BSc. (Hons) (Microbiology) 2007

During my study for my degree, I decided that a laboratory job was not for me. I always thought of moving into the business aspect of science. I took some 'time out' immediately after I completed my degree. Then I joined Bio-Sciences Ltd in as a Sales Rep.

Bio-Sciences is the Irish distributor for a leading molecular biology company called Invitrogen. I cover sales for bio-technology, pharmaceutical and research accounts in the Munster and Connacht regions. The main areas of products that I look after are cell culture, molecular biology and cell biology reagents. I had used many of these products during my research project in the 4th year of my degree and in other practical classes on the course.

My degree in Microbiology was a stepping stone to working in this area and gaining the science background required to understand and sell the products that I promote. I enjoy my work, the variety of tasks from day to day, building up a good customer base, knowing that I have a direct impact on the decision of customers to buy the products. I also get the chance to travel to different countries (e.g. Scotland and Denmark) when new products are introduced. Every day in the job is different

Carol O'Sullivan BSc. (Hons) (Microbiology) 2005

After my graduation I worked in the Food Industry with Dairygold Co-Operative Society and in the medical device industry with Millipore Ireland B.V. I then completed my Higher Diploma in Education and I now teach full time in a secondary school in Kilkenny. My Microbiology Degree opened the way for me to take many different career pathways. Having experience in many different areas in just a few years I know that my career prospects are still wide open for future decisions.

Dr Lisa O'Connor (BSc 1991, PhD 1997)

"I obtained my PhD from UCC in 1997 and am currently working in the role of Chief Specialist in Food Science at the Food Safety Authority of Ireland."

Entry Requirements

Minimum HC3 in two subjects & passes in four subjects at H or O level in the Leaving Certificate, from Irish, English, Mathematics, one laboratory Science subject (i.e. Chemistry, Physics, Biology, Physics with Chemistry (joint) or Agricultural Science) and two other subjects recognised for entry purposes. One of the HC3 subjects must be in a laboratory science subject or Mathematics or Applied Mathematics. In addition students must have the requisite points for entry to a particular course

For further information contact:
**The College of Science, Engineering
& Food Science, UCC**
Tel: +353 (0)21 490 3075
Email: college-sefs@ucc.ie
Web: <http://www.ucc.ie/sefs>

