



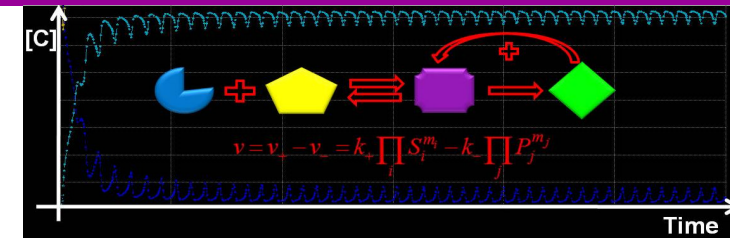
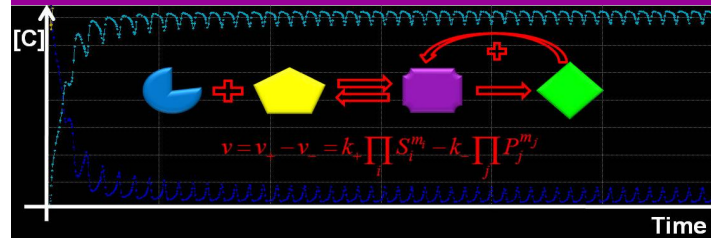
**“My education has equipped me with the necessary skills to thrive in the private sector”**

**Dr. Bronagh Hayden, BSc (Hons) Biochemistry, PhD**  
 Medical Affairs Manager with Sanofi Pasteur MSD

“I knew from an early age that I wanted to study Science and UCD was always my university of choice. Following an exciting four years of hard work (and a thoroughly enriching social life), I graduated with my B.Sc. in 1995 from the Department of Biochemistry at Merville House. I was determined to continue my studies and enrolled as a Ph.D. student. My Ph.D. in enzyme kinetics afforded me the opportunity to develop a range of research techniques, to work with wonderful people and to travel and present at international conferences, including a 3-week tour of Japan.

“My introduction to the private sector began with Tyco Healthcare and was soon followed by the role of Scientific Advisor with GlaxoSmithKline. I am now the Medical Affairs Manager with Sanofi Pasteur MSD in Ireland. Despite my love of research, I have thoroughly adapted to the corporate environment.

“My education has equipped me with the necessary skills to thrive in the private sector where the ability to comprehend complex scientific information and communicate effectively are valuable assets.”



**How do I find out more about this degree programme?**

**Prof. Philip Newsholme**  
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[www.ucd.ie/sbbs/](http://www.ucd.ie/sbbs/)

top: *Mathematical Model of Cell Metabolism*  
 by Manuela Salvucci and Prof. Philip Newsholme

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**BSc in Biochemistry**

**BSc in Biochemistry & Molecular Biology**

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### **DNA Double Helix**

*The discovery of the molecular structure of DNA and its significance for information transfer in living material resulted in the award of the Nobel prize in Physiology or Medicine to three Biochemists: Crick, Watson and Wilkins in 1962*

### **What is Biochemistry?**

The study of biological phenomena at the molecular level. The excitement of new discovery in Biochemistry is set to continue for many years to come. Our most important contribution to society will be the young graduates and post-graduates who will be leaders in scientific research, industry, government and teaching.

Biochemistry is often described as the 'Chemistry of Life' because it aims to understand how the molecules that define the structure, function and diversity of all living things interact to create and sustain 'life'. It is an exciting science that combines the molecular approach of Chemistry with the breadth of Biology. Biochemists use varied and powerful experimental techniques to examine living organisms, their component parts and the molecules that play a role in the chemistry of the cell. Biochemists are at the centre of current advances being made in medical and biological research.

### **What will I study as part of my degree?**

At stage 1 in UCD Dublin, students select modules in biology, chemistry and mathematics that form the basis for understanding biochemistry. At stage 2, core modules in biochemistry introduce students to a range of biomolecules, such as amino acids, antibodies, enzymes, receptors, lipids, nucleic acids, neurotransmitters, hormones and genes. Stage 3 in biochemistry offers a range of modules that include cell biology; membrane transport and cell signaling; immunology; intermediary metabolism; molecular genetics and biotechnology; the biochemical basis of disease.

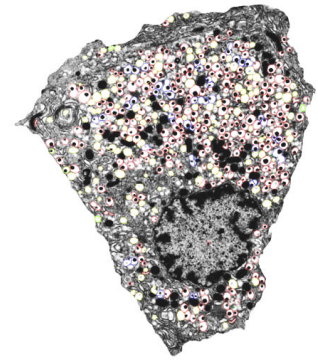
In the final year, each student undertakes a research project in a specified topic in the laboratory of an academic staff member and attends lectures in 8 different modules which cover key areas of biochemical research, such as protein engineering, neurochemistry, cancer studies, the regulation of gene expression, and molecular immunology and endocrinology. The laboratory project will provide training in essential research skills including development of independent ideas, team work and critical appraisal of the literature.

Graduates in Biochemistry at UCD are well equipped with the skills required to pursue a career in any avenue of biochemical research, including the pharmaceutical and biotechnological industries, forensic science and clinical laboratories. Many students will continue studies at PhD level at Universities in Ireland, UK (recent UCD Biochemistry graduates have taken places in leading laboratories in Cambridge and London), Europe and USA.



***Undergraduate practical classes and Stage 4 projects equip students with the skills necessary for the modern science environment.***

Image by Marco Monopoli



*Photomicrograph of a sliced rat pancreatic beta cell that has been processed with modified NASA imaging so as to identify insulin containing granules*

Credit: Tim McClanahan / NASA

### **What are the opportunities for graduates in Biochemistry and Molecular Biology?**

Graduates of both degrees will be able to obtain positions in a wide range of academic, government and industrial facilities, including the pharmaceutical and biotechnological industries, forensic science and clinical laboratories. In addition, graduates may pursue careers in teaching, publishing and management. A degree in Biochemistry would also be most appropriate for those students wishing to apply for graduate entry into Medicine.

A high standard of scientific and biochemical education is crucial in creating a society with a high level of scientific literacy, which is essential as society will rely increasingly on science to provide solutions to problems such as diseases of aging, food security and climate change.