

UCL DEPARTMENT OF
BIOCHEMICAL ENGINEERING



UCL

A close-up photograph of a scientist with dark curly hair and glasses, wearing a white lab coat, using a pipette in a laboratory. The scientist is looking down at their work. In the background, there is a metal mesh tray with various laboratory equipment, including pipettes and a rack. The lighting is bright, typical of a laboratory environment.

LIFE

AT THE CUTTING EDGE

www.ucl.ac.uk/biochemeng

Nina Remtulla (2005-2008) is currently completing her PhD in Biochemical Engineering. Nina is working on an interdisciplinary project with the London Centre for Nanotechnology (LCN). Her project is looking at developing a high throughput analytic system to look at damage to proteins during bioprocessing and manufacturing. Having completed her first degree in Biochemistry at Imperial College she went on to do research work at government labs in Switzerland before progressing to MRes in Functional Genomics at York.

“ I chose this department as I feel that it has an excellent reputation with first class research facilities allowing a high quality of research. I really feel that this PhD has rounded not only my education but also my interpersonal skills. Over the past three years I have encountered many different areas of the industry leaving me with job options I had never thought of. After completing my PhD I will be going into Management Consultancy at Accenture hoping to specialise in their life science and health care sector.

Neil Bingham studied for his MSc in Biochemical Engineering in 1995. On completion he took a position with Lonza Biologics UK working on the recovery of antibodies. In 2004, he joined Amgen in Thousand Oaks, California as a senior engineer, Neil works on process transfer and support of late stage, commercial processes to Amgen's clinical and commercial manufacturing facilities.

“ Having the Masters degree from UCL definitely helped me get started in the biopharmaceutical industry, and continues to help me in my everyday work. The reputation of UCL's Department of Biochemical Engineering definitely extends far beyond the UK.

Ihsan Al-Marzouqi (2001-2005) from the United Arab Emirates completed his Masters and PhD in Biochemical Engineering before returning to the UAE to join Dubai Biotechnology and Research Park (DuBiotech). As Director of Business Development, Ihsan works on developing the necessary regulatory framework and environment to attract biotech/pharma companies and their related scientific activities to the park. He is also developing biotech funds in the Middle East and identifying joint venture and equity stake proposals.

“ I definitely think a UCL degree helped me excel to enhance my leadership skills and decision making ability I am entrusted to make on behalf of the UAE government. Employers worldwide value a UCL degree, and it always surprises me how many top executives in pharmaceutical and biotechnology companies were ex-UCL students.

After completing his Masters and PhD in Biochemical Engineering (1995-2000), **Michael Boychyn** went to work in the US biotechnology industry, including Eli Lilly, Abbott Laboratories and currently Amgen in Colorado.

“ My time at UCL gave me a broad base of scientific and engineering knowledge, and skills critical to overcoming the numerous challenges faced in delivering industrial projects. The Department of Biochemical Engineering at UCL is at the forefront of applied research and educating engineers and scientists not only on theory, but also on the latest bioprocess equipment and instrumentation within modern laboratory facilities.

DISTINCTIVE APPROACH

Postgraduate study in Biochemical Engineering at UCL is highly flexible and aims to produce future leaders of the international bioindustry. Masters programmes provide graduate bioscientists and engineers with the necessary insights to deliver the next generation of advanced medicines. Doctoral programmes allow cutting edge study of the science and engineering underpinning these new therapies.

A strong strategic input from industry and commerce ensures that Masters and Doctoral degrees are set in the global context of a rapidly expanding field. We've invested £5 million in a new training facility with a state-of-the-art bioprocess design studio, and UCL has recently invested £24 million in dedicated facilities, so you'll learn and work on the best systems.

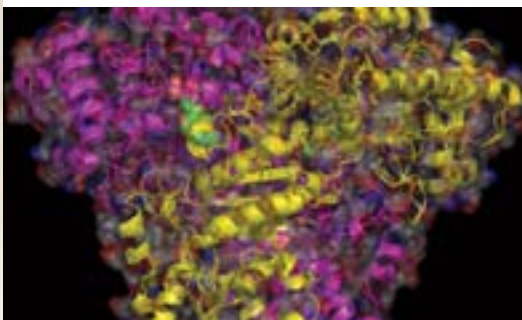


Biochemical Engineering at UCL



BIOCATALYSIS RESEARCH

New enzyme catalysts can be engineered, for example, by techniques of 'molecular evolution' and whole pathways of enzymes enhanced to yield new products such as novel pharmaceuticals. The Department is active in linking such methods with a 'whole bioprocesses' approach to biochemical engineering research. This allows a blend of the best new science and engineering to make, for example, advanced medicines using environmentally benign processes.



MACROMOLECULES RESEARCH

Especially in healthcare biochemical engineers are being called on to create processes for increasingly complex macromolecules. The Department is, for example, examining the challenges of producing and purifying human genes to create safer vaccines. It is devising tiny mimics which predict the behaviour of large bioprocesses. These, with design models verified in large scale bioprocess facilities, allow biological discoveries to be brought more quickly to fruition. Precise targeting of medicines in the body is demanding a biochemical engineering knowledge of how reproducibly to combine complex macromolecules such as genes with other materials such as lipids and antibodies. The Department is active also in this research.



ABOUT THE DEPARTMENT

The Department has worked in collaboration with researchers throughout the UK and beyond to lay some of the most important foundations for producing life-saving new medicines, including the method by which all advanced penicillins are now produced, key design information for producing the first widely applicable anti-flu drug, and pioneering work on vaccines for AIDS and pandemic flu.

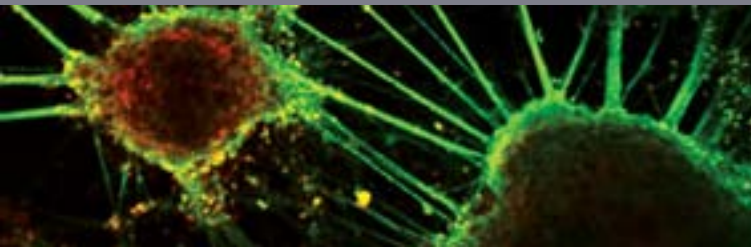
REGENERATIVE MEDICINE RESEARCH

Stem cells have generated much excitement as they represent an unlimited supply of functional cells for the treatment of degenerative diseases such as Parkinson's and Diabetes. Making these treatments a reality will require Biochemical Engineering approaches to ensure the consistency, functionality and safety of cellular therapies prior to their transplantation. Our research focuses on how the engineering environment affects the quality of cells from their initial derivation through to their expansion, differentiation, purification and implantation.

UCL lectures are now available for free download on Apple iTunes U. To download Chris Mason's lecture '*Stem cell therapies are no more drugs than souffles are fast food*' visit the UCL iTunes U homepage.

KEY FACTS

- International reputation for excellence and unparalleled industry links
- £40m investment provides the most comprehensive and unique facilities in the world
- Flexible programmes that allow you to select the taught or research programme that suits best
- Excellent and diverse career destinations for sought after UCL biochemical engineers
- All graduate students benefit from attending elements of the renowned Modular Training for the Bioprocess Industries Programme (MBI[®]) designed for post-experience industrialists



FIND OUT MORE AT
www.ucl.ac.uk/biochemeng



LIFE AT UCL

Right in the heart of London, UCL is one of the top five UK universities, and has the best student:staff ratio in the top 100. UCL has always been at the cutting edge: UCL's academics and graduates have won 18 Nobel Prizes, and many of our researchers are world leaders in their field. As a founding laboratory in the field of Biochemical Engineering we're the best place to study. Our excellent track record in graduate teaching attracts students from all around the world.

We are rated as 'Internationally leading' for research and have the largest concentration of staff, students and researchers in Biochemical Engineering worldwide.

FIND OUT MORE

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