



Biochemical Engineering

Industrial Synthetic Biology (BENG0040)

Description

Course content will encompass lectures covering the key topics of synthetic biology that are currently, or may in future be, applied to challenges in industrial biotechnology and bioprocessing of biopharmaceuticals. Fundamental elements of what currently defines synthetic biology will be explained and explored. These elements will include concepts such as the standardisation of molecular biology techniques and resources (BioBricks™), and the International Genetically Engineered Machines (iGEM) competition. Further topics will include introduction to areas relevant to:

- Industrial challenges in 'green' biosynthesis of high-value small molecules and biofuels; modelling of metabolic pathways, flux analysis of metabolism, pathway engineering, protein design, *de novo* pathway design and construction
- Cell-engineering for improved bioprocessing; design and modelling of novel genetic circuits, whole genome editing and construction, novel chassis and hosts.
- Engineering biological systems; mathematical modelling of synthetic gene networks

Upon completion of the course, a student should be able to:

- Acquire knowledge of commercial applications of Synthetic Biology and understand how these arise from interdisciplinary research
- Appreciate how to link information from different biological contexts can be used to build and design new elements, pathways, cells and systems

Key information

Year	2019/20
Credit value	15 (150 study hours)
Delivery	PGT L7, Campus-based
Reading List	View on UCL website
Tutor	Dr Darren Nesbeth
Term	Term 1
Timetable	View on UCL website

Assessment



- Written examination (main exam period): 80%
- Written examination (departmentally managed): 20%

Find out more

For more information about the department, programmes, relevant open days and to browse other modules, visit ucl.ac.uk



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