

## Liverpool John Moores University

Title: SYNTHETIC BIOLOGY AND BIOENGINEERING 1  
Status: Definitive  
Code: **5111BCBMOL** (126538)  
Version Start Date: 01-08-2021

Owning School/Faculty: Pharmacy & Biomolecular Sciences  
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
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**Academic Level:** FHEQ5  
**Credit Value:** 20  
**Total Delivered Hours:** 57  
**Total Learning Hours:** 200  
**Private Study:** 143

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	25
Practical	15
Tutorial	5
Workshop	10

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Candidates will have a choice of questions presented in the exam	60	2
Report	Report	Report of practical and workshop activities	40	

### Aims

*To provide the student with the basic concepts of synthetic biology and a good understanding of the foundational science that underpins synthetic biology, and develop appreciation for the importance of social responsibility in bioengineering.*

## **Learning Outcomes**

After completing the module the student should be able to:

- 1 Explain the core principles of molecular biology and their application in engineering biological systems.
- 2 Explain how understanding of parts, systems and devices enable the design, build, test, learn model of synthetic biology.
- 3 Explain the key foundational science that enables modern synthetic biology.
- 4 Critically evaluate the design and operation of genetic circuits built from parts, devices, and systems.

## **Learning Outcomes of Assessments**

The assessment item list is assessed via the learning outcomes listed:

Examination	1	2	3	4
Report of practical work	2	3	4	

## **Outline Syllabus**

- 1) Review of principles of molecular biology that underpins synthetic biology*
- 2) Basic principles of synthetic biology and bioengineering*
- 3) Foundational science enabling synthetic biology*
- 4) Parts, devices, systems in synthetic biology*
- 5) Role of Synthetic Biology in driving innovations in biotechnology*
- 6) Synthetic biology and public engagement*

## **Learning Activities**

Lectures, Tutorials, Workshops, Practicals.

## **Notes**

This module will provide personal development planning support for level 5 students on the Biotechnology programme. As tutorials are within the module students will have small group teaching sessions and individual feedback on tutorial work.