

Module specification

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Refer to the module guidance notes for completion of each section of the specification.

Module code	SCI543
Module title	Advanced Biochemistry
Level	5
Credit value	20
Faculty	FAST
Module Leader	Dr Amiya Chaudhry
HECoS Code	100344
Cost Code	GAFS

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
BSc (Hons) Biochemistry	Core

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	30 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	30 hrs
Placement / work based learning	170 hrs
Guided independent study	0 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	14/10/2020
With effect from date	01/09/2022
Date and details of revision	
Version number	1

Module aims

The module is intended to build upon the core concepts taught at level 4 and provide students with an in depth understanding on a variety of topics including key biomacromolecules, protein structure/function relationships, enzymatic kinetics/mechanisms, the biochemical underpinnings associated with various diseases, and bioorganic chemistry and its applications.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Demonstrate an advanced understanding of key biomacromolecules in terms of chemistry, structure, and function.
2	Apply knowledge of chemical pathways of metabolism to predict most metabolic interconversions.
3	Describe the consequences of disruption to the biochemical processes leading to disease.
4	Critically evaluate evidence and demonstrate the role of biochemistry in tackling global health and disease problems.

Assessment

Indicative Assessment Tasks:

Assessment 1: Literature review 2500 words covering LOs 3 and 4 (50%). Student to choose a typical biochemical process impacted by disease and research the latest biochemistry knowledge and developments in that area.

Assessment 2: An open book In-class test (2 hours) to cover LO's 1 and 2 (50%). Short answered questions will assess knowledge on topics such as biomolecules, enzymes and catalysis and metabolic pathways.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	3 & 4	Literature Review	50%
2	1 & 2	In-class test	50%

Derogations

N/A

Learning and Teaching Strategies

Students will be taught by a series of online and onsite timetabled lectures throughout the semester. Problem solving exercises and case studies will help reinforce fundamental principles. Students will research case studies and present information to peers. Guidance will be provided for directed learning.

Indicative Syllabus Outline

- Overview of biomolecules (amino acids and proteins, carbohydrates, lipids, nucleotides and nucleic acids, small organic molecules, and combinations) in terms of structure and function.
- Enzymes and catalysis (Properties and specificity of enzymes; enzymatic reactions and chemically catalyzed reactions vs. uncatalyzed chemical reactions; Inhibitors of enzyme reactions)
- Metabolic pathways.
- Selected metabolic pathways involved in disease.
- Use of literature to explore the biochemical causes of disease and latest developments in this area.

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

Berg, J.M., Stryer, L., Tymoczko, J. and Gatto, G. (2019). *Biochemistry*. 9th ed. WH Freeman.

Other indicative reading

- Campbell, M. and Farrell, S. (2014). *Biochemistry*. 8th ed. Brooks Cole.
- Case studies and Journal articles.

Employability skills – the Glyndwr Graduate

Each module and programme is designed to cover core Glyndwr Graduate Attributes with the aim that each Graduate will leave Glyndwr having achieved key employability skills as part of their study. The following attributes will be covered within this module either through the content or as part of the assessment. The programme is designed to cover all attributes and each module may cover different areas. [Click here to read more about the Glyndwr Graduate attributes](#)

Core Attributes

Engaged
Creative
Enterprising
Ethical

Key Attitudes

Commitment
Curiosity
Resilience
Confidence
Adaptability

Practical Skillsets

Digital Fluency

Organisation

Leadership and Team working

Critical Thinking

Emotional Intelligence

Communication