

Module specification

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Module Code	NAD405
Module Title	Introduction to Genetics, Immunology and Biochemistry
Level	4
Credit value	20
Faculty	FSLS
HECoS Code	100744
Cost Code	GADT

Programmes in which module to be offered

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

Pre-requisites

N/A

Breakdown of module hours

Learning and teaching hours	30 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	6 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	36 hrs
Placement / work based learning	0 hrs
Guided independent study	164 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	31/8/22
With effect from date	September 2022

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Date and details of revision	29/04/2024 – AM1 updated module hours table with implementation from Sep 2024.
Version number	2

Module aims

This module aims to support students to become familiar with cell structural components, biochemistry and how cells function; with particular emphasis on metabolic pathways, immunology, genetics and DNA structure. To introduce students to laboratory techniques for the study of cell biology, biochemistry and genetics.

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

1	List the structural elements of various cell categories.
2	Define the structure and function of common microbes and pathogens.
3	Describe the structure of DNA and mechanisms involved in gene transcription and immunity.
4	Outline the principal biochemical pathways involved in the metabolism of macronutrients.
5	Demonstrate understanding of the fundamentals of the immune system, including both innate and adaptive immunity

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

Assessment: Students will be required to complete a series of questions under examination conditions lasting 2 hours.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1 - 5	Examination	100



Derogations

A minimum grade of 40% must be achieved to permit progression to level 5.

Learning and Teaching Strategies

The Active Learning Framework (ALF) will be utilised in the delivery of this module through synchronous and asynchronous content. It will consist of lectures, seminars, interactive online content and laboratory-based practical sessions. The practical sessions will support class lectures and enable students to develop applied skills and foster creativity and innovation through the sharing of ideas.

Indicative Syllabus Outline

The module will cover the following indicative content:

- Cell structure – cell membrane and organelles
- Microscopy
- Prokaryotic and eukaryotic cell function
- Principles of human immunology
- Biochemistry of cellular biomolecules
- Biochemical reactions of the cell and metabolic regulation
- Genetics, DNA structure and gene expression
- DNA technology

Indicative Bibliography:

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

Essential Reads

Alberts, B., Hopkin, K., Johnson, A.D., Morhan, D. and Raff, M. (2018), *Essential Cell Biology*. 5th ed. London: Norton & Company.

Frayn, K.N. and Evans, R.D. (2019), *Human Metabolism: A Regulatory Perspective*. 4th ed. New Jersey: Wiley-Blackwell.

Other indicative reading

Alberts, B. (2017), *Molecular Biology of the Cell*. 6th ed. London: Norton & Company.

Lanham-New, S., McDonald, I. and Roche, H. (2011), *Nutrition and Metabolism*. Oxford: Wiley-Blackwell.

Moore, J.T. and Langley, R.H. (2022), *Biochemistry for Dummies*. 3rd ed. New Jersey: For Dummies.

Reed, R. (2021), *Practical Skills in Biomolecular Sciences*. 6th ed. New York: Pearson.