



Module Definition Form (MDF)

Module code: MOD007149	Version: 2 Date Amended: 23/Apr/2024
-------------------------------	---

1. Module Title
Fundamentals of Nutrition, Drugs, and Metabolism

2a. Module Leader
Michelle Hawkins

2b. School
School of Allied Health and Social Care

2c. Faculty
Faculty of Health, Medicine and Social Care

3a. Level
4

3b. Module Type
Standard (fine graded)

4a. Credits
30

4b. Study Hours
300

5. Restrictions			
Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:			

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Explore the basic concepts of human nutrition, drugs and medicines and associated metabolism, illustrating the importance of a multidisciplinary approach from these applied fields and how they align to optimise health and wellbeing. You'll gain a solid basis to enable an appreciation of nutritional status, balance and turnover and the major nutrient needs and sources through the lifespan, how nutrients and medicines are absorbed into our bodies and the subsequent metabolic reactions that occur. You'll also appreciate the role of the major biochemical processes occurring in human cells including the major pathways of carbohydrate, amino acid, lipid metabolism; understand the relationship between diet, energy production and health to get a foundation in whole-body homeostasis and connect the disease states caused by alteration in homeostasis resulting from conditions such as obesity, malnutrition, endocrine imbalances, or genetic mutations. We'll intertwine these with medicinal concepts involving formulation, the design of dosage forms, factors that influence the route of administration as well as the basic physicochemical principles underlying the formulation and stability of liquid and colloidal dosage forms. We'll teach you this through lectures, workshops, tutorials, and practical sessions.

6b. Outline Content

Introduction and basic principles of human nutrition.

Overview of nutritional status, balance and turnover (synthesis and breakdown), excess, deficiency and associated disorders.

Macronutrients (carbohydrates, fats and proteins) and micronutrients (vitamins and minerals), alcohol and water.

Collating and interpreting dietary/anthropometrical data, food sources and dietary reference values.

Introduction to metabolism: metabolic pathways; organisation of pathways; enzymes and enzyme-mediated reactions; bioenergetics: an introduction to biological thermodynamics; enzyme-mediated control of metabolic pathways.

Dynamic and quantitative aspects of metabolism: Bioenergetics and enzyme kinetics (bioenergetics: the application of thermodynamic principles to biological systems; enzyme kinetics; energy generating metabolic processes).

Principles of metabolic control: enzymes, substrates, inhibitors and genes (general principles; glycolysis and the Krebs cycle as models of control of metabolic pathways).

Biochemistry of intercellular communication; metabolic integration and coordination (key pathways; physiological aspects; signaling molecules; synthesis of hormones; target tissues response to signals; receptor tyrosine kinase).

Basic physicochemical principles underlying the formulation and stability of dosage forms.

An introduction to the range of dosage forms that are used clinically and the factors affecting dosage form design and route of drug administration.

6c. Key Texts/Literature

The reading list to support this module is available at: <https://readinglists.aru.ac.uk/>

6d. Specialist Learning Resources

Face-to-face learning – Laboratory sessions– computer sessions – referencing and library sessions

7. Learning Outcomes (threshold standards)

No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	Define the key functional roles of macro and micro nutrients including food sources, dietary reference values, and associated disorders with deficiency or excesses.
2	Knowledge and Understanding	Describe the metabolic pathways, dynamic and quantitative aspects of metabolism including biological thermodynamics, metabolic control, and biochemistry of intercellular communication.
3	Knowledge and Understanding	Describe the basic physicochemical principles underlying dosage from design and selection of route of administration.
4	Intellectual, practical, affective and transferrable skills	Operate safely in a laboratory environment and develop basic laboratory skills.
5	Intellectual, practical, affective and transferrable skills	Using laboratory techniques, collect, analyse and interpret data.

8a. Module Occurrence to which this MDF Refers

Year	Occurrence	Period	Location	Mode of Delivery
2025/6	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence

Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	24	1-4	12 x 2 hours lectures
Other teacher managed learning	24	1-4	4 x 3h lab skills sessions, 5 x 2h workshops, and/or computer sessions 2 x 1hr tutorials
Student managed learning	252	1-4	Self-directed study
TOTAL:	300		

9. Assessment for the above Module Occurrence					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Examination Chelmsford	1, 2, 3	70 (%)	Fine Grade	30 (%)
MCQ Examination					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Coursework	4, 5	30 (%)	Fine Grade	30 (%)
Coursework: Laboratory reflections task					

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:

- (a) achieve the qualifying mark for each element of fine graded assessment as specified above
- (b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]