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## MODULE DESCRIPTOR

### Module Title

Fundamental Science For Nutrition

Reference	PL1015	Version	1
Created	May 2022	SCQF Level	SCQF 7
Approved	June 2022	SCQF Points	30
Amended		ECTS Points	15

### Aims of Module

To provide students with knowledge and understanding of the basic concepts of chemistry, biology and food science.

### Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Demonstrate knowledge of the basic concepts and principles of atoms and molecules, bonding and chemical reactions.
- 2 Demonstrate knowledge and understanding of organic chemistry related to food and nutrition.
- 3 Demonstrate knowledge of the basic structures, functions and characteristics of cells and tissues.
- 4 Demonstrate knowledge and understanding of Mendelian genetic inheritance.
- 5 Record experimental observations and results, perform appropriate calculations and form appropriate conclusions from practical chemistry and biology experiments.

### Indicative Module Content

Atoms and molecules. Chemical bonding (hydrogen, ionic and covalent bonding), formulae and reactions (acid-base, redox and polar reactions including oxidation and reduction). General properties of aqueous solutions. Acids, bases and buffers. Nomenclature and properties of major functional groups in carbon-based molecules. Structure and function of the nucleus, ribosomes, endoplasmic reticulum, Golgi body, lysosomes, mitochondria and chloroplasts. Mitosis and meiosis. Structure and function of epithelial, connective, nervous and muscle tissue. Mendel's Laws, inheritance, genotype, phenotype, dominance, sex determination, sex-linkage. Fundamental principles of concentrations, solutions and dilutions. Accurate use of balances and pipettes. Correct and safe use of centrifuges. Light microscopy. Paper and thin layer chromatography. UV/Visible spectrometry. Calculations using and converting between percent by mass, mole fraction and molarity.

### Module Delivery

This is a lecture-based module supplemented by tutorials, practical laboratory classes, on-line support material and guided reading.

**Indicative Student Workload**

	Full Time	Part Time
Contact Hours	62	N/A
Non-Contact Hours	238	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	300	N/A
Actual Placement hours for professional, statutory or regulatory body		

**ASSESSMENT PLAN**

If a major/minor model is used and box is ticked, % weightings below are indicative only.

**Component 1**

Type:	Examination	Weighting:	70%	Outcomes Assessed:	1, 2, 3, 4
Description:	Closed book written examination				

**Component 2**

Type:	Coursework	Weighting:	30%	Outcomes Assessed:	5
Description:	Lab report				

**MODULE PERFORMANCE DESCRIPTOR****Explanatory Text**

The first grade represents Component 1 (Examination, EX1) weighted as major and the second, Component 2 (report, CW1), weighted as minor. A minimum of Module Grade D is required to pass the module, with compensation of grade E in Component 1 or 2 permitted as per the requirements stated below. Non-submission of either component will result in an NS grade.

Module Grade	Minimum Requirements to achieve Module Grade:
<b>A</b>	AA, AB
<b>B</b>	AC, AD, AE, BA, BB, BC, CA
<b>C</b>	BD, BE, CB, CC, CD, DA, DB
<b>D</b>	CE, DC, DD, DE, EA, EB, EC
<b>E</b>	AF, BF, CF, DF, ED, EE, EF, FA, FB, FC, FD
<b>F</b>	FE, FF
<b>NS</b>	Non-submission of work by published deadline or non-attendance for examination

**Module Requirements**

Prerequisites for Module	None, in addition to course entry requirements.
Corequisites for module	None.
Precluded Modules	None.

**INDICATIVE BIBLIOGRAPHY**

- |   |   |
|---|---|
| 1 | KOTZ, J.C., TREICHEL, P. and TOWNSEND, JR., 2012, Chemistry & Chemical Reactivity. 8th ed. Belmont, CA: Thomson/Brooks/Cole |
| 2 | BRUICE, P.Y., 2017. Organic Chemistry. 8th ed. Upper Saddle River: Pearson  |
| 3 | BELITZ, H-D. GROSCH, W. and SCHIEBERLE, P., 2009, Food Chemistry. 4th rev. and extended ed. Berlin: Springer-Verlag         |
| 4 | REECE J.B., et al. 2011. Campbell Biology. 9th ed. Pearson  |