Module Title **Micronutrients** **Keywords** Vitamins, minerals, trace elements, antioxidants, bioavailability, supplementation, fortification.	Reference AS2023 SCQF Level SCQF 8 SCQF Points 15 ECTS Points 7.5 Created August 2002 Approved September 2004 Amended September 2011 Version No. 3

This Version is No Longer Current

The latest version of this module is available here

Prerequisites for Module

None.

Corequisite Modules

None.

Precluded Modules

None.

Aims of Module

To provide students with an understanding of the requirements for micronutrients, their dietary sources, their functions and metabolism, and the consequences of inadequate or excessive intakes.

Learning Outcomes for Module

On completion of this module

Indicative Student Workload

Contact Hours	Full Time
Assessment	2
Lectures	24
Practicals	6
Tutorials	4
Directed Study	
Directed Study	14
Private Study	
Private Study	100

Mode of Delivery

Theoretical material is delivered by lectures and web based material supported by tutorials and laboratory practicals including dietary analysis.

Assessment Plan

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

1. Describe food sources of micronutrients and outline the factors influencing these sources, including dietary interactions, food handling, and fortification.
2. Describe the processes involved in micronutrient absorption, metabolism, storage, interactions, and excretion.
3. Describe the functions of micronutrients.
4. Explain the requirements for micronutrients and describe the causes and consequences of inadequate and excessive intakes of micronutrients including prevention and treatment.
5. Explain the importance of consumption of a varied diet and advise about modifying an imbalanced diet to meet dietary recommendations.

Indicative Module Content

Structures and isomeric forms of vitamins; minerals; trace elements; availability and bioavailability; non-dietary sources, supplementation, fortification; absorption; transport; activation; storage; functions; homeostatic

	Learning Outcomes Assessed
Component 1	1,2,3,4
Component 2	5

Component 2 is a report including a computer printout.

Component 1 is an examination.

Indicative Bibliography

1. BENDER, D.A., 2008. *Introduction to nutrition and metabolism*, 4th ed. Boca Raton FL: CRC Press.
2. DEPARTMENT OF HEALTH, 1991. *Dietary reference values for food, energy and nutrients for the United Kingdom. Report on health and social subjects, 41.* London: HMSO.
3. GIBNEY, M.J., et al., 2009. *Introduction to human nutrition*, 2nd ed. Oxford: Wiley-Blackwell.
4. LANHAM-NEW, S., MACDONALD,I.A. and ROCHE, H., 2011. *Nutrition and metabolism*, 2nd ed. Oxford: Wiley-Blackwell.
5. INSEL, P.M., et al., 2011. *Nutrition*, 4th ed. Sudbury MA: Jones and Bartlett Publishers.

regulation; catabolism; excretion; requirements; dietary reference values; nutritional status, average intakes, and prevalence of deficiencies; deficiency signs, symptoms, and their treatment; biochemical measures; upper limits and toxicities.