LONDON SOUTH BANK UNIVERSITY

module guide

Human Nutrition

Faculty of Engineering Science
and the Built Environment

2011/12

become what you want to be

MODULE DETAILS

Module Title	Human Nutrition	
Level	5	
Reference No	EAC 5_409	
Credit value:	2 credits = 30 CAT points	
Student Study Hours:	Contact Hours	84
	Student Managed Hours	216
Pre-requisite learning	120 credit points at level 4	
Co-requisites	None	
Excluded Combinations	None	
Module Coordinator:	Dr. A. Cunliffe Room B145 Tel: 020 7815-7156 Email: Cunliffa@lsbu.ac.uk	
Faculty/Department	ESBE/Applied Science	

Short Description:

The science of human nutrition is a rapidly evolving discipline. This module will consolidate and expand on introductory concepts from level 4. The breadth of the subject will be explored including perspectives from physiology, cell biology, epidemiology and public health. Applied aspects of the area will be introduced and the human being as the central subject emphasised. Students will foster an appreciation of the multidisciplinary nature of nutrition and gain practical experience of assessing nutritional status.

Aims:

- To develop student understanding of the scope and application of nutritional science
- To explore key aspects of macronutrient metabolism according to activity level
- To develop student understanding of the range and application of methods for assessing nutritional status in man
- To develop in students an appreciation of the considerations behind dietary reference values and their derivation
- To allow students appreciate the complex nature of systems controlling food intake and energy balance
- To examine the changing nature of nutritional requirements through the life cycle
- To encourage synthesis in thought with respect to the complex cellular and physiological events involved in whole body metabolism
- To foster in students an appreciation of evidence based nutrition science
- To enable students to critically evaluate relevant literature from diverse sources

Learning Outcomes:

Knowledge and Understanding:

- Review the key aspects of macronutrient metabolism in humans.
- Develop a critical understanding of changing rates of substrate utilisation according to activity level and metabolic status.
- Demonstrate clear understanding of micronutrient deficiency syndromes and identify which populations are at risk of developing these syndromes.
- Demonstrate understanding of the diverse means of assessing human nutritional and health status including biochemical, dietary, functional, clinical and epidemiological perspectives.
- Explain the physiological mechanisms by which food and energy intake are controlled.
- Discuss the physiological, metabolic and sociological considerations that relate to governmental dietary recommendations for nutrient intake.
- Demonstrate the ability to interpret dietary records in the light of recommendations and individual characteristics
- Evaluate the importance of behaviour in food selection and discuss the challenges of changing human behaviour in relation to food choice and consumption levels.

Intellectual Skills:

The student will be expected to develop a range of skills in identifying and understanding the interrelations between nutritional biochemistry, physiology and behaviours. A range of skills will be required with respect to information gathering, evaluation and dissemination. Students will create a case history based on themselves and their peers which will involve interpreting, explaining and presenting health related data. Communication and presentation will also be formative skill development exercises embedded within the module.

Practical Skills:

The students will undertake laboratory collection of human health data including body composition, plasma glucose and cholesterol and metabolic rate. Health and safety and ethical considerations of working with people in a laboratory environment will be key aspects of the practical dimension to this module.

Transferable Skills:

- Data analysis and presentation.
- Development of deductive reasoning and criticism. Evaluation of the limits of data.
- Development of literacy skills, principally in dealing with complex subjects that need to be ordered systematically and described clearly and comprehensively.
- Working independently and within a group.

Employability:

This module will develop practical and intellectual skills in human nutrition. The student will expand their knowledge and be equipped with knowledge relevant to diverse areas of nutrition in both the public and private sectors.

Teaching and Learning Pattern:

A series of lectures, student led seminars and computer sessions will form the main teaching methods in this module. Practical skills will be engendered through laboratory sessions in which students will work using each other as subjects gathering data on a range of physiological and health related parameters.

Indicative Content:

The nature and manifestations of nutritional adequacy, inadequacy; manifestations of over and undernutrition and the concept of normal weight malnutrition. The origin, application and critical evaluation of dietary recommendations for energy, macro and micronutrients – international comparisons. Approaches to assessing nutritional status of an individual/population by examination of clinical, anthropometric, dietary, functional and biochemical indices. Applications of nutritional status data at clinical and public health level. Links between nutritional biochemistry and metabolism, genotype and phenotype in relation to individual nutrients. Neurohormonal and behavioural aspects of food selection and intake control systems; role of the hypothalamus and recent neurochemical theories of food intake control. Substrate utilisation at varying rates of physical activity intensity; the concept of respiratory quotient/respiratory exchange ratio. Nutritional requirements and challenges in infancy, during growth and in older age. Theoretical and applied aspects of energy balance; measurement techniques – direct and indirect calorimetry, activity logs,

doubly labelled water, derived equations for BMR and total energy expenditure, PALs, PARs. Basic blood biochemistry – glucose, cholesterol, Hb, triglycerides and their relationship to human health and disease states. Practical anthropometry, BMI, waist:hip, Ashwell chart, bioelectrical impedance, use of surrogate measures. Introduction to clinical nutrition and clinical nutrition research techniques. Introduction to behaviour change and communicating science in the context of nutrition and health promotion.

Assessment:
The pass mark for the module is 40%.
60% of the marks will be derived from an end of semester 1 examination and 40% from a portfolio of work compiled through the unit. There will also be a number of formative in-class exercises.

Importance of Student Self-Managed Learning Time

It is important for you to plan your work schedule in advance (use this module guide to help). Use time efficiently. Make effective notes (Use key words, flow charts, diagrams and personal short-hand). Review material (Re-read lecture notes following each session; this will aid learning). Carry out directed reading. Remember, you must make an effort! Lectures are there for overview and guidelines. Learning must come from your own reading. Private study: you are expected to contribute to your learning by participating in the designated private study time associated with this module. You will not pass the module by simply attending sessions. Ask for help (don't be afraid to ask!!).

Employability

This module provides those students who want to work within the area of dietetics with the understanding of the links between diet and disease and how dietary manipulation can play a major role in the treatment of disease.

End of module review – your feedback is valuable

It is University policy to obtain student feedback at the end of each module. This is carried out using a standard form that should be completed and returned in a way that should maintain your anonymity. The results of the tick-box responses and any additional commentary are presented and discussed at the Subject Area Review & Planning Meetings that are held twice per year. Should it be required, members of staff at these meetings agree to modify aspects of module delivery and assessment for the next time that the module will be presented (usually for the following year).

Indicative Sources:

Core reading:

- Human Nutrition, 11th ed. Geissler and Powers (2005)
- Human Nutrition and Dietetics 10th ed. Garrow, James and Ralph (2000) Human Nutrition and Dietetics 9th ed. Garrow & James - Churchill Livingstone (1993)..

Optional reading:

- Department of Health (1991) *Dietary Reference Values for Food Energy and Nutrients for the Moduleed Kingdom.* Report on Health and Social Subjects No. 41. The Stationery Office: London.
- Food Standards Agency (2002) *Food Portion Sizes*, 3rd edition. The Stationery Office: London.
- Food Standards Agency (2002) *McCance and Widdowson's The Composition of Foods. Sixth summary edition.* Royal Society of Chemistry: Cambridge.