London South Bank University

Module Guide

Anatomy and Physiology

EAA_4_719

School of Applied Science

2015-2016

Level 4

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1. MODULE DETAILS

Module Title:	Anatomy and Physiology
Module Level:	Level 4
Module Reference Number:	EAA_4_719
Credit Value:	20
Student Study Hours:	200
Contact Hours:	45
Private Study Hours:	155
Pre-requisite Learning (If applicable):	None
Co-requisite Modules (If applicable):	None
Course(s):	BSc (Hons)Sports Coaching and Analysis BSc(Hons Sport and Exercise Science BSc(Hons) Bioscience BSc (Hons) Food & Nutrition
Year and Semester	Year 1: Semester 1
Module Coordinator:	??????????
MC Contact Details (Tel, Email, Room)	☎: ✉: Room N°:
Teaching Team & Contact Details	Steve Hunter Dr John Seeley
Subject Area:	Applied Science
Summary of Assessment Method:	Coursework (50%); Examination (50%)
External Examiner appointed for module:	.

2. SHORT DESCRIPTION

This module will develop the student's knowledge and understanding in anatomical language and human anatomy of the musculo- skeletal system as well as the physical and chemical principles that underlie physiological function and metabolic processes. The concept of integration and control in physiology is developed, beginning with the study of cell membrane function and leading to an appreciation of human physiology through an understanding of systems.

3. AIMS OF THE MODULE

The aims of this module are:

1. Introduce the concept of integrated body function, homeostasis and control mechanisms.
2. To develop knowledge of human musculo-skeletal anatomy and functional anatomy in the performance of human movement and sports skills.
3. Provide a background of cell membrane function and an understanding of human systemic physiology.

4. LEARNING OUTCOMES

4.1 Knowledge and Understanding

- Develop an understanding of the organisation of the body highlighting relationships between structure and function.
- Develop an understanding of the structure of the human musculo-skeletal system:
- Muscle origin, insertion and neural innervation.
- Prime movers, antagonists, synergists and stabilisers.
- Types/modes of muscle contraction
- Appreciate the processes by which substances move across cells and epithelia.
- Appreciate the principles of excitable cells as the basis for nerve and muscle function.
- Appreciate the principles of communication systems ie. nervous, endocrine and local control mechanisms.
- Develop an understanding of human physiological function especially the neuromuscular, cardiovascular, respiratory and renal systems.

4.2 Intellectual Skills

- Problem solving.
- Critical thinking.
- Analytical skills.
- Reflective-evidence based skills
- Evaluation of biological control systems.
- Interpretation of biochemical and physiological data

4.3 Practical Skills

- To develop skills in structured basic laboratory assessment of cardio-respiratory and muscular physiology.

4.4 Transferable Skills

- Analytical skills
- Critical thinking.
- Presentation skills

5. ASSESSMENT OF THE MODULE

Coursework 50%
Laboratory report

Examination 50%
Formative and summative multiple choice and short answer question papers will be undertaken at intervals throughout the course. There will be 2 summative phase test assessment elements each worth 25% of the unit mark.

6. FEEDBACK

In keeping with University regulations feedback will normally be given to students 15 working days after the submission of an assignment

7. INTRODUCTION TO STUDYING THE MODULE

7.1 Overview of the Main Content

Human musculo-skeletal system; types/modes of muscle contraction; molecules, bonds, biomolecules; cells, tissues, organs, systems; homeostasis, physiological regulation; cell membrane structure & function; traffic across membranes; overview of communication and signalling; principles of endocrine physiology; excitable cells; principles of neuronal physiology. Principles of muscle physiology; autonomic nervous system; principles of cardiovascular physiology- heart & circulation; principles of respiratory physiology; principles of renal physiology. 3xlaboratory sessions.

7.2 Overview of Types of Classes

Key lectures supported by practical sessions and student centred tasks.

7.3 Importance of Student Self-Managed Learning Time

Student self-managed learning time is essential to the complete understanding of the application of laboratory techniques, methodologies and data interpretation. It requires the students to think clearly about sporting performance and to determine how the mode and methodologies of exercise testing can be used to optimise the identification of key performance limitations. It will require students to study sports/activities that are of interest to them and to consider the scientific theory that explains human performance in these sports/activities. Although this is supported in class, private study time will enhance the skill of the applied sport and exercise scientist.

7.4 Employability

The unit is designed to provide the students with a strong background in the analysis and explanation of human movement/sporting skills and human physiology.

This unit maps to the following specification content of the CYQ L2 Gym Instructor course
Exercise and Fitness knowledge:
The skeletal system.
The muscular and neuromuscular system
Kinesiology theory and muscle action workshop
Exercise and Fitness knowledge:
Cardiovascular and respiratory systems

8. THE PROGRAMME OF TEACHING, LEARNING AND ASSESSMENT

Semester & week Number	**Proposed session**	
Semester 1		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10	Anatomical language and skeletal structure & bone classification	SH
11	Human muscle types and skeletal muscle structure and organisation	SH
12	Skeletal muscle – origin, insertion, action and fibre type	SH
13		

9. STUDENT EVALUATION

This is a new module and has not been reviewed as yet.

10. LEARNING RESOURCES

10.1 Core Materials

Marieb. E & Hoehn. K, (2015) *Human Anatomy and Physiology* 10th Ed Pearson, Harlow, UK

Muscolino. J.E., (2006) *Kinesiology: The skeletal system and muscle function*. Mosby Elsevier. Edinburgh

Tortora G.J. & Derrickson B (2007) *Introduction to the Human Body: The essentials of Anatomy & Physiology,* 7th edition**.** John Wiley & Sons: New York

Wirhed. R. (2006) *Athletic ability and the anatomy of motion* (3rd ed). Mosby Elsevier. Edinburgh.

Widmaier E., Raff H., Strang K. (2008) *Vander Sherman & Luciano's Human Physiology: The Mechanisms of Body Function,* 11th edition. McGraw Hill: New York

NOTES: