



Course Code NUTR-514	Course Title Physiology & Biochemistry for Performance	ECTS Credits 7.5
Prerequisites None	Department Life & Health Sciences	Semester 1 st
Type of Course Required	Field Dietetics/Nutrition	Language of Instruction Greek /English
Level of Course 2 nd Cycle	Lecturer(s) Dr Marios Hadjicharalambous Dr Demetris Iacovides	Year of Study 1 st
Mode of Delivery Face to face	Work Placement N/A	Co-requisites None

Objectives of the Course:

The main objectives of the course are to:

- Understand the physiological characteristics and demands of various Sports.
- Understand the physiological characteristics of athletes who engage in serious training in various Sports, with the objective of improving performance.
- Study the response of physiological systems of the human body to various modes of training of different volume and intensity.
- Study, recognize and understand etiology of fatigue.
- Study and understand how to effectively use various means of exercise stimulus and adequate recovery in order to improve athletic performance.
- Study and understand some aspects of youth Sports, especially at elite level, as international competitions at world level are currently held in many Sports.

Learning Outcomes:

After completion of the course students are expected to be able to:

1. Understand the responses of body physiological systems to exercise training.
2. Be aware of the physiological and metabolic demands of different Sports.
3. Understand the physiological and metabolic adaptations to training and the physiological characteristics of elite Sports performers.
4. Search and find suitable bibliography using selected keywords relevant to exercise physiology.
5. Recognize and assess strong and weak points of relevant journal papers.
6. Critically interpret data and text from studies on human physiology and metabolism.
7. Understand and interpret numerical data.

Course Contents:

1. Physiological adaptations to various types of strength training; improved strength performance following strength training.
2. Physiological adaptations to endurance training; improved performance following endurance training, lactate threshold, aerobic power, running economy.
3. Physiological adaptations to sprint training; improved performance following speed training, force-velocity relationships during maximal intensity exercise, speed of movement and performance in various Sports.
4. Physiology of team Sports.
5. Biochemical aspects of elite performance.
6. Anaerobic power, lactate production and tolerance, repeated sprints, aetiology of fatigue, physiological aspect of suitable regimes to increase lactic tolerance and improve athletic performance.
7. The endocrine system and hormonal responses at various exercise modes and intensities.
8. Specific characteristics of youth athletes and special physiological concerns when working with adolescent athletes.
9. Thermoregulation.
10. Exercise in the heat, response of the body's systems in the heat, recommendation of specific measures to optimize Sports performance in a hot environment.
11. Exercise in cold environments, response of the body's systems in cold environments, recommendation of specific measures to optimize Sports performance in cold environments.
12. Altitude training and its effects on athletic performance, specific concerns when training and competing at altitude.

Learning Activities and Teaching Methods:

Lectures, class discussion, assignments, Presentations from students

Assessment Methods:

Projects, Presentations, Final Examination

Required Textbooks / Reading:

Title	Author(s)	Publisher	Year	ISBN
Φυσιολογία της Άσκησης και του Αθλητισμού - τόμος I	Wilmore J. - Costill D	Ιατρικές Εκδόσεις Πασχαλίδης	2006 (ISBN: 9603994162)	Print copy available
Φυσιολογία της Άσκησης και του Αθλητισμού-τόμος II	Wilmore J. - Costill D	Ιατρικές Εκδόσεις Πασχαλίδης	2006	Print copy available

Recommended Textbooks / Reading:

Title	Author(s)	Publisher	Year	ISBN
Physiological Bases of Sports Performance	Hargreaves, M. and Hawley, J. (Editors)	McGraw-Hill Australia, Sydney	2003	Print copy available
			ISBN-13 9780074711019	
The Biochemical Basis of Sports Performance	Maughan, R.J. & Gleeson, M.	Oxford University Press, Oxford	2010	Print copy available
			ISBN: 9780199208289	
Exercise Metabolism (2 nd edition)	Hargreaves, M. and Spriet, L.L. (editors)	Human Kinetics, Champaign, IL.	2006	E-book available
			ISBN: 0736041036	