



UNICUSANO

Università degli Studi Niccolò Cusano - Telematica Roma

Course	HUMAN PHYSIOLOGY
Main language of instruction	Italian
Other language of instruction	English
Italian Code	BIO-09 - PHYSIOLOGY
Academic Year	2024-2025
Credits	9
Propaedeuticity	
Head Professor	Professor Luca Laudani EMAIL: luca.laudani@unicusano.it
Presentation	The Human Physiology course aims to provide students with the skills necessary to fully understand the functioning of the human body and the main physiological responses induced by physical exercise. Furthermore, the course aims to provide students with all the tools needed to acquire correct terminology, which will be essential to transfer the knowledge acquired to the professional field.
Objectives	At the end of the course, the student must know and be able to describe: <ul style="list-style-type: none"> • the basic physiological functioning of the main human organs and systems; • the acute and chronic physiological responses of the human organism to physical exercise.
Expected Learning Outcomes and Competencies	In summary, the expected learning outcomes are: KNOWLEDGE AND UNDERSTANDING: At the end of the course, the student should have an in-depth knowledge of human physiology and the acute and chronic responses induced by physical exercise. APPLYING KNOWLEDGE AND UNDERSTANDING: The student should be able to: <ul style="list-style-type: none"> • deal with and discuss the main issues in the field of human physiology and sport. • Integrate and synthesize the physiological knowledge acquired. MAKING JUDGEMENTS: The student should be able to judge and evaluate in a critical and autonomous way debated aspects of human physiology and sport. COMMUNICATION SKILLS: At the end of the course, the student must acquire appropriate terminology and language skills suitable for the description and presentation of the main aspects of human physiology. LEARNING SKILLS: The student must be able to update his/her physiological knowledge through the consultation of specific scientific publications in the sector and the use of the computer network.
Organization	The Physiology course requires 9 CFU that correspond to a study load of at least 225 hours by the student. Each module of the course is equivalent to 1.5 CFU for a total of 6 Modules. The course is developed through pre-recorded audio-video lessons, slides, handouts and other teaching support resources. The study materials, which are available on the platform, contain all the elements necessary to tackle the study of the subject. The study load includes at least the following components:

	<ul style="list-style-type: none"> • 189 hours of teaching for viewing and studying the pre-recorded lessons (7 hours of study for 1 hour of video-recorded lesson, of which 2 hours to listen to the lesson and 5 of self-learning to assimilate the contents of the lesson, for a total of 27 hours of video-recorded lessons); • 36 hours of interactive teaching on the forum (virtual classroom) aimed at carrying out exercises and exercises proposed by the teacher, called Eitivity. These are exercises on specific parts of the program that prepare the student to take the final exam. <p>There are also self-assessment tests, of an asynchronous type - which accompany the pre-recorded lessons and allow students to ascertain their understanding and level of knowledge of the contents of each of the lessons - and final self-assessment exercises, of an asynchronous type - which correspond to exam tracks - which allow the student to verify the level of preparation achieved. This activity, which uses the tools provided on the platform, is also interactive and requires additional hours of study at the discretion of the student.</p> <p>Finally, teaching uses synchronous tools such as web-conference reception and chats available on the platform in order to allow real-time interaction with registered students.</p> <p>The student in possession of an official recognition of previous credits relating to the teaching of Physiology by the secretariat of the Area of Motor Sciences, has the obligation to contact the reference tutor of the discipline, who, after a discussion with the reference teacher/teachers, will inform the student on the modules to be taken in order to pass the exam.</p>
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Course Contents	<p>Syllabus</p> <ul style="list-style-type: none"> • MODULE I – INTRODUCTION TO HUMAN PHYSIOLOGY AND BASICS OF NEUROPHYSIOLOGY <p>Definitions</p> <p>Homeostasis and Reflex Arc</p> <p>Nervous system</p> <p>Membrane potentials</p> <p>Synapses</p> <p>Sensory physiology</p> <ul style="list-style-type: none"> • MODULE II – NEUROMUSCULAR PHYSIOLOGY <p>Skeletal muscle</p> <p>Muscle mechanics</p> <p>Muscle architecture</p> <p>Motor unit and control of muscle tension □ Proprioceptors and control of movements</p> <ul style="list-style-type: none"> • MODULE III – CARDIOVASCULAR PHYSIOLOGY <p>Membrane potentials</p> <p>Mechanics and cardiac cycle</p> <p>Hemodynamics and vessels</p> <p>Regulation of blood pressure</p> <ul style="list-style-type: none"> • MODULE IV – RESPIRATORY AND RENAL PHYSIOLOGY <p>Pulmonary ventilation</p> <p>Pulmonary diffusion</p> <p>Gas transport</p> <p>Regulation of ventilation</p> <p>Basics of renal physiology</p> <ul style="list-style-type: none"> • MODULE V – METABOLISM AND THERMOREGULATION <p>Definitions and energy systems</p>
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	<p>Thermoregulation</p> <p>Body composition</p> <p>Energy intake and expenditure</p> <p>Principles of Nutrition</p> <p>• MODULE VI – PHYSIOLOGY OF PHYSICAL EXERCISE AND SPORT</p> <p>Neuromuscular adaptations to resistance training.</p> <p>Cardiorespiratory adjustments and adaptations induced by physical exercise.</p> <p>Metabolic adaptations induced by physical exercise</p> <p>Maximum aerobic and anaerobic power</p> <p>Nutritional strategies in sport</p> <p>Pre-recorded video lessons by the instructor divided into 6 modules (Italian)</p> <p>Teaching support materials by the professor (syllabus, slides, e-book, scientific papers) (Italian/English)</p> <p>Recommended Italian texts for further information:</p> <p><i>P. Widmaier, H. Raff, K.T. Strang "Vander - Fisiologia"- Casa Editrice Ambrosiana ISBN 978-8808-18510-5</i></p> <p><i>G. Alloatti, G. Antonutto et al. "Fisiologia dell'uomo" – edi-ermes ISBN 88-7051-251-7</i></p> <p><i>H. Willmore, D.L. Costill. "Fisiologia dell'esercizio fisico e dello sport" – Calzetti Mariucci EDITORI ISBN 9788888004105</i></p> <p><i>W.D. McArdle, F. I. Katch, V. L. Katch. "Fisiologia Applicata Allo Sport – Aspetti Energetici Nutrizionali e Performance" – Casa Editrice Ambrosiana - ISBN 978-88-08-18224-1</i></p>
<p>Evaluation System and Criteria</p>	<p>The exam will normally consist of a written test or an oral test (a test method that can be carried out at the headquarters in Rome) aimed at ascertaining the analytical skills, the language skills and the ability to rework the concepts acquired.</p> <p>The written test includes 30 multiple-choice questions that concern the entire teaching program. The 30 multiple-choice questions relating to the contents of the exam program are assigned the value of 1 point for each correct answer;</p> <p>The oral test consists of an interview aimed at ascertaining the student's level of preparation. The questions will focus on the entire teaching program for a maximum score of 30.</p> <p>In both exam methods, particular attention in the evaluation of the answers is given to the student's ability to rework, apply and present the material present on the platform with language skills.</p>