

Course Title	<b>CLINICAL EXERCISE PHYSIOLOGY</b>			
Course Code	SSCEP414-1			
Course Type	PHYSICAL EDUCATION AND SPORT SCIENCE ELECTIVE			
Level	BSc (Level 1)			
Year / Semester	4th / Spring			
Teacher's Name	Dr Elena Papacosta & Dr. Giorgos Charalambous			
ECTS	6	Lectures / week	1	Laboratories / week / 2
Course Purpose	<p>The purpose of the course is to introduce students to the concept of Clinical Exercise physiology. It is the science that studies the body's responses in people suffering from chronic diseases both during movement and regular exercise. In particular, how exercise can improve many health parameters of patients with chronic diseases, such as cardiovascular diseases, type I &amp; II diabetes, chronic renal failure, various forms of cancer, obstructive or restrictive type lung diseases, neurological diseases, etc., and improve patients' quality of life. Finally, the participation of patients in regular exercise and exercise programs as a means of recruitment and rehabilitation of chronic diseases will be mentioned.</p>			
Learning Outcomes	<p>Upon completion of the theoretical part of the course, students are expected to be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the basic principles of Clinical Exercise physiology and its applications in clinical populations</li> <li>2. Interpret and understand physiological, metabolic, biochemical and neuromuscular parameters, in different patient groups</li> <li>3. Understand the role of exercise in the acute and chronic adaptations in human functional systems.</li> <li>4. Describe the individual components of the exercise stimulus that aim to maintain and promote the health of an individual, a group, a community, in different environments</li> <li>5. Identify techniques for assessing patients' health status</li> <li>6. Explain and identify functional ability and how it changes through different forms of exercise.</li> </ol> <p>Upon completion of the laboratory part of the course, the student is expected:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> To conduct a detailed evaluation of the patient in need of cardiorespiratory or neuromuscular rehabilitation</li> <li><input type="checkbox"/> It will be able to evaluate</li> </ul>			



	<ul style="list-style-type: none"> <li>• Physical examination, evaluation, setting exercise goals, design of exercise program, implementation of exercise program,</li> <li>• Ergometric interventions and techniques according to the theoretical content of the course, such as:</li> <li>• Physical examination, Evaluation, Setting exercise goals, Exercise program design, Exercise program implementation, Evaluation.</li> <li>• Ergometric assessment of physical competence of people of developmental ages, gender differences and elderly people</li> <li>• Control and maintenance of body weight</li> <li>• Practical application for assessing functional capacity of people with lung diseases</li> <li>• Maximum stress test to check patients' aerobic capacity</li> <li>• Submaximal tests for control and assessment of functional capacity</li> <li>• Measurement and evaluation of upper and lower limb muscle function in patients with chronic diseases</li> <li>• Recording and evaluation of cardiorespiratory indices from the application of ergospirometry (comparison of normal values and pathological conditions)</li> </ul>
Teaching Methodology	<p><b>Theory</b></p> <p>The teaching of the course includes lectures to offer the theoretical background of clinical exercise physiology. The teaching uses detailed notes with PowerPoint and material rich in images and videos. Methods such as case studies, clinical scenarios, discussion, questions/answers are used depending on the nature of the course. Relevant research-based material published in international scientific journals is also used to monitor the latest developments related to the subject of the course.</p> <p><b>Laboratory</b></p> <p>During the laboratory courses, students develop their clinical skills in ergophysiological assessment and intervention of the cardiorespiratory system to be able to apply in a real clinical environment successfully and safely.</p>
Bibliography	<p>Ehrman J. Clinical Exercise Physiology 4th Edition with Web Resource, (2018) Human Kinetics Publishers</p> <p>McArdle, W.D., Katch, F.I. and Katch, V.L., (2001). <i>Φυσιολογία της Ασκήσης</i>, Τόμοι I &amp; II. Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης</p> <p>McArdle, W.D., Katch, F.I. and Katch, V.L. (2009), <i>Exercise physiology: energy, nutrition, and human performance</i>. 7<sup>th</sup> Edition. Lippincott Williams &amp; Wilkins.</p>

	<p>Κλεισούρας Β. (2011) Εργοφυσιολογία. Αθήνα: Ιατρικές εκδόσεις Π.Χ. Πασχαλίδης.</p> <p>Brown, S.P., Miller, W.C., and Eason, J.M., 2006. <i>Exercise Physiology</i>. Lippincott Williams &amp; Wilkins American College of Sports Medicine, (2002). ACSM's Resources for Clinical Exercise Conditions. Εκδόσεις Lippincott Williams &amp; Wilkins</p> <p>American College of Sports Medicine, (2005). <i>Advance Exercise Physiology</i>. Εκδόσεις Wiliams &amp; Wilkins</p> <p>American College of Sports Medicine, (2009). <i>ACSM'S guidelines for exercise testing and prescription</i>. Εκδόσεις Wiliams &amp; Wilkins</p> <p><b>References:</b></p> <p>Keteyian, Steven J., and Alexander Michaels. (2022) "Heart failure in cardiac rehabilitation: a review and practical considerations." <i>Journal of Cardiopulmonary Rehabilitation and Prevention</i> 42.5: 296-303.</p> <p>Sabbahi, Ahmad, et al. (2022). "Exercise training in cardiac rehabilitation: Setting the right intensity for optimal benefit." <i>Progress in Cardiovascular Diseases</i>.</p> <p>Yingtong, Meng, et al. (2022) "The effects of early exercise on cardiac rehabilitation-related outcome in acute heart failure patients: a systematic review and meta-analysis." <i>International Journal of Nursing Studies</i>: 104237.</p> <p>Souto-Miranda, Sara, et al. (2022) "Pulmonary rehabilitation outcomes in individuals with chronic obstructive pulmonary disease: a systematic review" <i>Annals of Physical and Rehabilitation Medicine</i> 65.3: 101564.</p> <p>Soril, Lesley JJ, et al. (2022) "The effectiveness of pulmonary rehabilitation for post-COVID symptoms: A rapid review of the literature." <i>Respiratory medicine</i>: 106782.</p> <p>Uzzaman, Md Nazim, et al. (2022) "Effectiveness of home-based pulmonary rehabilitation: systematic review and meta-analysis." <i>European Respiratory Review</i> 31.165.</p>
<p>Assessment</p>	<p><b>Continuous evaluation (50%):</b></p> <p>The assessment may include any combination of the following:</p> <ul style="list-style-type: none"> <li>• <b>Group problem solving exercises (20%)</b> to assess how students can apply theoretical knowledge in real-world situations. Students</li> </ul>

	<p>are presented with scenarios that require analysis, critical thinking and application of theoretical concepts and are assessed based on their ability to make oral presentations, to be examined face-to-face, to identify and evaluate relevant information, propose solutions, and justify their choices.</p> <ul style="list-style-type: none"> <li>• <b>Class discussions:</b> Students participate in class discussions to assess their theoretical knowledge. Active participation is encouraged to hone their critical thinking skills, ask open-ended questions, and facilitate their dialogue.</li> </ul> <p><b>Laboratory assessment (25%)</b> consists of the assessment of expected skills and abilities, critical thinking, problem-solving, and teamwork skills. During laboratory meetings, students are closely monitored as they deal with the tasks assigned to them and notes are taken on the actions, approach, and any relevant observations that demonstrate their understanding of the subject and the application of their skills. After the evaluation of the laboratory work, constructive feedback is provided to students. Highlight their strengths and areas for improvement, linking them to learning outcomes to help students understand their progress and guide them in their further development. Depending on the laboratory work, peer review may be integrated, where students evaluate each other's work against the established criteria to promote self-reflection, collaboration, and a deeper understanding of the subject.</p> <p><b>Final exam (50%):</b> Comprehensive final exam to assess students' overall theoretical knowledge. These assessments cover a wider range of topics and learning outcomes from across the curriculum, to assess students' understanding and integration of knowledge in various areas.</p>
Language	Greek / English