

Course Title	Clinical Exercise Testing and Prescription			
Course Code	DLSEH501			
Course type	Elective			
Level	Master			
Year / Semester of study	1 st or 2 nd / 2 nd or 3 rd			
Teacher's Name	Click or tap here to enter text.			
ECTS	10	Lectures / week		Workshops / week
Course Purpose	<p>Properly planned exercise can improve the health and physical performance of athletes, the general population and people with chronic diseases. The proper design of effective exercise programs lies in the proper assessment of the individual's physical condition, and the use of the results for exercise planning. Also, the contribution of the trainee himself is important for the exercise to be acceptable.</p> <p>This course deals with the evaluation of physical performance and the prescription of exercise to people with chronic cardiorespiratory diseases and athletes with similar symptoms.</p> <p>It is divided into four sections. Specifically, the first refers to general safety instructions and health assessment before exercise. Emphasis is placed on understanding the immediate risks of participating in exercise programmes for different groups of the population and the various existing evaluation processes. Also in the indications and contraindications for exercise and the appropriate tools for their recognition. The second focuses on stress tests inside or outside the laboratory. Of particular importance is the cardiopulmonary evaluation test for both detailed assessment of athletic performance and identification of underlying pathologies. The practical application of the results of the procedures from the above modules is developed in the remaining two modules of the course. The third section focuses on the cardiopulmonary diseases of athletes, their recognition and their proper treatment by the exercise professional. The last section refers to the use of physical performance assessment data in prescribing effective and safe exercise.</p>			
Learning Outcomes	<p>At the end of the course, students will:</p> <ul style="list-style-type: none"> • Explain the importance of pre-sports health screening for athletes' safety and health. • Classify the situations in which exercise is contraindicated, according to the severity and risk they pose to the athlete's health. • Apply appropriate techniques and methods to analyze and understand the results of stress tests. • Identify risk factors for the development of cardiorespiratory diseases in athletes. 			

	<ul style="list-style-type: none"> Apply the basic principles of exercise to prescribe exercises that are safe and effective for the health of athletes, the general population and people with chronic diseases 	
Prerequisites		Corequisites
Course Content	Module 1	The first module of the course lasts three weeks and discusses introductory information on assessing physical performance in clinical populations and prescribing exercise. It introduces students to pre-exercise health screening procedures and informs about health conditions that are contraindicated in exercise. At the end of this unit, students will be able to discuss about the above, follow similar procedures and evaluate the ability of individuals to participate in exercise programs
	Section 2	This module lasts three weeks and introduces students to the process of cardiopulmonary assessment and the analysis of its results. At the end of the module they will have an in-depth understanding of this process and will be able to select or design appropriate exercise protocols. They will also be able to assess key elements of physical performance based on test results.
	Section 3	This module is the shortest of the course and lasts two weeks. In these, students will be taught about the expected abnormalities in the ECG of athletes but also about cardiorespiratory problems that may occur during exercise. At the end of the module, students will be aware of the above as well as evaluation procedures and control them.
	Section 4	The last unit of the course deals with the prescription of exercise to athletes, people of the general population, but also people living with chronic diseases. It includes information on the guidelines, latest research data, practical application and data from similar programs domestically or abroad. Students will be asked to discuss the differences between research and practice.
Teaching Methodology	<p>The course is structured and developed based on the principles of distance learning, good practices as well as the guidelines of the Evaluation Body and finally the Pedagogical Framework developed and implemented by our University. Also, through the design and development of distance learning courses, synchronous and asynchronous interaction, communication and collaboration are taken into account at 3 levels: 1) between instructor and student, 2) between students, and 3) between students and content.</p> <p>The course is taught entirely online through the electronic platform Moodle LMS. Mandatory, optional and additional bibliography (e.g. books, articles, links, open educational resources, case studies) in combination with notes, course presentations and suggestions for reading study (bibliography) are available to students through an electronic platform. Also, a variety of appropriate educational material is given through the online platform in the form of presentations with notes, presentations with narration, interactive presentations and videos, interactive learning scenarios, gamification activities, avatars, digital twins, audio files, online quizzes). Various online tools, new and emerging technologies are being exploited: communication tools (e.g. video conferencing, chat rooms), collaboration tools (e.g. discussion forums, blogs, wikis), as well as content development tools. Students are encouraged through the platform and various technological tools</p>	

	<p>to interact with their fellow students and the instructor, in order to become active members of the online learning community created within the framework of the course. Finally, with the use of various technological tools, each student is expected to create his own online learning community. More information about distance learning at Frederick University, the Pedagogical Background developed and implemented, as well as the toolkit used, can be found at the following link.</p> <p>About Distance Learning - Frederick University</p>	
Bibliography	Unit	Online bibliographic references and suggestions for further study
	1st	<p>Digital Multimedia Material</p> <ul style="list-style-type: none"> • Presentation on Module 1 <p>Mandatory Bibliography</p> <ul style="list-style-type: none"> • ACSM's guidelines for exercise testing and prescription, 11th edition (2021). Philadelphia: Lippincott Williams & Wilkins. p. 22-42 <p>Further bibliography</p> <ul style="list-style-type: none"> • ACSM blog. Available at: https://www.acsm.org/blog-detail/acsm-certified-blog/2018/02/01/exercise-preparticipation-screening-removing-barriers-initiating-exercise (Accessed: 19 January 2024). • Price OJ, et al. ACSM Preparticipation Health Screening Guidelines: A UK University Cohort Perspective. Med Sci Sports Exerc. 2019 May; 51(5):1047-1054. • Halasz G, et al. Cost-effectiveness and diagnostic accuracy of focused cardiac ultrasound in the pre-participation screening of athletes: the SPORT-FoCUS study. Eur J Prev Cardiol. 2023 Nov 9; 30(16):1748-1757.
	2nd	<p>Digital Multimedia Material</p> <ul style="list-style-type: none"> • Presentation on Module 2 <p>Mandatory Bibliography</p> <ul style="list-style-type: none"> • Moore VC., Spirometry: step by step Breathe Mar 2012, 8 (3) 232-240; • Glaab, T., Taube, C. Practical guide to cardiopulmonary exercise testing in adults. Respir Res 23, 9 (2022). • Levett DZH, Jack S, Swart M, et al. Perioperative cardiopulmonary exercise testing (CPET): consensus clinical guidelines on indications, organization, conduct, and physiological interpretation. Br J Anaesth. 2018; 120(3):484-500.
3rd	<p>Digital Multimedia Material</p> <ul style="list-style-type: none"> • Presentation on Module 2 <p>Mandatory Bibliography</p> <ul style="list-style-type: none"> • Oxford Medical Education (2016) ECG (EKG) interpretation, Oxford Medical Education. Available at: https://oxfordmedicaleducation.com/ecgs/ecg-interpretation/ 	

		<ul style="list-style-type: none"> • Athlete ecgs: How to interpret and know when and how to investigate further (no date) American College of Cardiology. Available at: https://www.acc.org/Latest-in-Cardiology/Articles/2019/07/17/07/03/Athlete-ECGs (Accessed: 19 January 2024). • British Thoracic Society (no date) Athletic individuals British Thoracic Society Better lung health for all. Available at: https://www.brit-thoracic.org.uk/quality-improvement/clinical-statements/athletic-individuals/ (Accessed: 19 January 2024). <p>Further bibliography</p> <ul style="list-style-type: none"> • Basu J, Malhotra A. Interpreting the Athlete's ECG: Current State and Future Perspectives. <i>Curr Treat Options Cardiovasc Med.</i> 2018 Nov 19; 20(12):104. . • Han J, Lalario A, Merro E, Sinagra G, Sharma S, Papadakis M, Finocchiaro G. Sudden Cardiac Death in Athletes: Facts and Fallacies. <i>J Cardiovasc Dev Dis.</i> 2023 Feb 5; 10(2):68.
4th	Digital Multimedia Material	<ul style="list-style-type: none"> • Presentation on Module 2 <p>Mandatory Bibliography</p> <ul style="list-style-type: none"> • Verdicchio C, Freene N, Hollings M, et al. A Clinical Guide for Assessment and Prescription of Exercise and Physical Activity in Cardiac Rehabilitation. <i>A CSANZ Position Statement. Heart Lung Circ.</i> 2023; 32(9):1035-1048. • Garvey C, Bayles MP, Hamm LF, et al. Pulmonary Rehabilitation Exercise Prescription in Chronic Obstructive Pulmonary Disease: Review of Selected Guidelines: AN OFFICIAL STATEMENT FROM THE AMERICAN ASSOCIATION OF CARDIOVASCULAR AND PULMONARY REHABILITATION. <i>J Cardiopulm Rehabil Prev.</i> 2016; 36(2):75-83. • Konnyu KJ, Thoma LM, Cao W, et al. Prehabilitation for Total Knee or Total Hip Arthroplasty: A Systematic Review. <i>Am J Phys Med Rehabil.</i> 2023; 102(1):1-10. • Michael CM, Lehrer EJ, Schmitz KH, Zaorsky NG. Prehabilitation exercise therapy for cancer: A systematic review and meta-analysis. <i>Cancer Med.</i> 2021 Jul; 10(13):4195-4205.
Evaluation		<p>The evaluation of the course includes activities of continuous / formative assessment (formative), self-evaluation (self-evaluation and debriefing / final evaluation (summative). Specifically, the evaluation of this course includes the following: final written exam, 2 evaluation assignments (task 1 &2), Weekly Training Activities (20%), various weekly educational activities such as interactive activities, interactive presentations/ videos and self-assessment activities.</p> <p>From the above, the following are scored:</p> <ul style="list-style-type: none"> • Weekly Training Activities (20%) • Task 1 (10%) • Task 2 (10%)

	<ul style="list-style-type: none">• Final exam (60%) <p>All assignments (except the final exam) are assigned and delivered to the online platform, as well as a plagiarism check through the turnitin tool. The final exam is developed by the instructor and completed by the students on a special platform used exclusively for the exams.</p>
Language	English /Greek