1. BASIC INFORMATION

Course	Exercise physiology II
Degree program	Physical Activity and Sport Sciences
School	Physical Activity and Sport Sciences and Physical Therapy
Year	Second
ECTS	6
Credit type	basic
Language(s)	Spanish and English
Delivery mode	On-site
Semester	S4
Academic year	25/26
Coordinating professor	Elena Santana Sosa

2. PRESENTATION

Exercise physiology is an important branch of human physiology that studies the responses and adaptations of the human body to physical exertion. These responses and adaptations vary according to multiple factors, such as the intensity, duration or frequency of the physical activity performed, or others, such as diet, environmental circumstances or the genetic inheritance of each individual. Knowledge of this science is fundamental to scientifically plan training programmes aimed at improving performance, to help improve the individual's functional capacity and state of health, as well as to plan the appropriate doses of physical exercise in chronic pathology in order to achieve the desired benefits and exercise safely.

3. LEARNING OUTCOMES

KNOWLEDGE
KON1. Identifies Identify the anatomical structures and functions of the various systems of the human body and consider pathophysiology to determine its applicability and development through physical exercise.
KON2. Identifies Identify the different aspects of energy efficiency in various forms of exercise.
KON3. Adopts Adopt a comprehensive approach in order to identify the cellular and molecular basis of adaptations to exercise.
KON4. Describes Describe how physical activity affects the different components of blood, taking into account differences between men and women, and how it affects the immune system.
KON5. Explores Explore the implications of physical activity at altitude and in other extreme environments.

KON6. Identifies Identify the mechanisms involved in temperature regulation during physical activity, with a focus on the role of water balance.
KON7. Adopts Adopt a comprehensive approach to studying the primary mechanisms related to the onset of fatigue during exercise.

COMPETENCES
COMP5. Develop the expertise to lead, plan, and implement physical exercise and fitness programmes, and conduct technical/scientific evaluations of them, based on scientific evidence, in different fields, contexts and activities for the entire population, with a focus on particular groups such as senior citizens (the elderly), schoolchildren, people with disabilities and people with diseases, health problems or similar conditions (diagnosed and/or prescribed by a physician), taking into account gender and diversity considerations.
COMP6. Develop the expertise to identify, communicate and apply anatomical, physiological and biomechanical scientific principles in order to develop and carry out appropriate procedures, strategies, initiatives, activities and guidance, as well as conduct technical/scientific evaluations of them; ultimately to prevent and/or minimise the health risks to which all groups of the population are exposed in the practice of physical activity and sport.
COMP8. Develop and draw on the expertise needed to analyse, design and evaluate tests that seek to assess and control physical fitness, and physical/sporting performance.
COMP37. Strategic communication. Transmit messages (ideas, concepts, feelings, arguments), both orally and written, strategically aligning the interests of the different stakeholders involved in the communication in the academic and professional environment.
COMP40. Teamwork. Cooperate with others in shared academic or professional objectives, participating actively, empathically and exercising active listening and respect for all members.
COMP41. Critical analysis. Integrate analysis with critical thinking in a process of evaluating different ideas or professional possibilities and their potential for error, based on evidence and objective data that lead to effective and valid decision-making.

4. CONTENT

Topic 1. Energy expenditure and physical activity Assessment of and factors related to energy efficiency during physical activity
Topic 2. Haematological and immune system responses and adaptations to exercise, with a focus on differences between men and women
Topic 3. Physical activity and extreme environments: responses and adaptations
Topic 4. Water, electrolytes and temperature regulation during physical activity
Topic 5. Fatigue and exercise: mechanisms responsible for fatigue
Topic 6. The molecular physiology of exercise: the primary mechanisms and signalling pathways responsible for adaptations to fitness training

5. TEACHING-LEARNING METHODOLOGIES

The types of teaching-learning methodologies used are indicated below:

Master Class
Simulation
Laboratory-based learning

6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

Campus-based mode:

Learning activity	Number of hours
Master Class	12
Practical application classes	18
Independent work	56
Discussions and colloquiums	8
On-site assessment tests	2
Design of intervention strategies and plans	12
Tutorials	12
Preparation of written reports	22
Workshop and Laboratory activities	2
Oral presentations	6
TOTAL	**150**

7. ASSESSMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

Campus-based mode:

Assessment system	Weight
Face-to-face assessment tests	40% -50%
Oral presentations	5%- 10%
Reports and written papers	15%-35%

practice notebook	20% - 25%

When you access the course on the *Campus Virtual*, you'll find a description of the assessment activities you have to complete, as well as the delivery deadline and assessment procedure for each one.

7.1. First exam period

To pass the course in the first exam period, you must obtain a final course grade of at least 5 out of 10 (weighted average).

In any case, you will need to obtain a grade of at 4.0 in the final exam in order for it to count towards the final grade along with all the grades corresponding to the other activities.

7.2. Second exam period

To pass the course in the second exam period, you must obtain a final grade of at least 5 out of 10 (weighted average).

In any case, you will need to obtain a grade of at 4.0 in the final exam in order for it to count towards the final grade along with all the grades corresponding to the other activities.

The student must deliver the activities not successfully completed in the first exam period after having received the corresponding corrections from the professor, or those that were not delivered in the first place.

8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

Assessable activities	Deadline
Activity 1. Analysis of recently published relevant articles	Week 3-4
Activity 2. Practical applications of content learned in the learning environment.	Week 5-7
Activity 3. Objective multiple-choice test	Week 8
Activity 4. Writing a theoretical paper on a relevant topic.	Week 9-12
Activity 5. Case study analysis	Week 13 - 15
Activity 6. Laboratory practicals	Week 16 - 18

Activity 7. Final multiple-choice test	Week 19

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change as and when appropriate.

9. BIBLIOGRAPHY

- J.L CHICHARRO, A.F. VAQUERO, Fisiología del Ejercicio, 4º ed., Madrid, Panamericana, 20.

- McArdle W.D., Katch F.L, Katch V.L. Fisiología del ejercicio: Energia, nutricion y rendimiento humano 2º ed. McGraw-Hill –Interamericana. Traducido al español 2004

- McARDLE W.D., F.L. KATCH, V.L. KATCH, Exercise physiology: Energy, nutrition and Human performance 5º ed., USA, Lippincott Williams Wilkins, 2001.

- J. H. WILMORE Y D. COSTILL, Physiology of Sports and exercise, Human Kinetics, 1999
- Winter, Edward M., Jones, Andrew M., Davison, Richard C.,Bromley, Paul D.
- Sport and exercise physiology testing guidelines v. 1 Sport testing. ROUTLEDGE LTD. 2006, 384 Págs., ISBN: 978-0-415-36141-5, Inglés, Rústica

10. EDUCATIONAL GUIDANCE AND DIVERSITY UNIT

From the Educational Guidance and Diversity Unit we offer support to our students throughout their university life to help them reach their academic achievements. Other main actions are the students inclusions with specific educational needs, universal accessibility on the different campuses of the university and equal opportunities.

From this unit we offer to our students:

1. Accompaniment and follow-up by means of counselling and personalized plans for students who need to improve their academic performance.
2. In terms of attention to diversity, non-significant curricular adjustments are made in terms of methodology and assessment for those students with specific educational needs, pursuing an equal opportunities for all students.
3. We offer students different extracurricular resources to develop different competences that will encourage their personal and professional development.
4. Vocational guidance through the provision of tools and counselling to students with vocational doubts or who believe they have made a mistake in their choice of degree.

Students in need of educational support can write to us at:

orientacioneducativa@universidadeuropea.es

11. ONLINE SURVEYS

Your opinion matters!

The Universidad Europea encourages you to participate in several surveys which help identify the strengths and areas we need to improve regarding professors, degree programs and the teaching-learning process.

The surveys will be made available in the “surveys” section in virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.