

26313 - Basic physiological principles for physical activity and sport

Syllabus Information

Academic year: 2024/25

Subject: 26313 - Basic physiological principles for physical activity and sport

Faculty / School: 229 - Facultad de Ciencias de la Salud y del Deporte

Degree: 295 - Degree in Physical Activity and Sports Science

ECTS: 12.0

Year: 2

Semester: Annual

Subject type: Basic Education

Module:

1. General information

The goal of this subject is to know the functioning of the systems and apparatuses of the human organism in relation to physical exercise and its effects on health. The contents are oriented to the student to know the physiological bases human and understand the mechanisms of adaptation to physical exercise based on the physiological functioning of the systems studied previously.

These approaches and goals are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the subject learning results provides training and competence to contribute to some extent to their achievement: Goal 3: Health and wellness. Goal 4: Quality Education. Goal 5: Gender Equality.

2. Learning results

Integrate the physiological process, being able to recognize the causes, relationships and fundamentals of the same.

Analyze the physiological process at the molecular, cellular, apparatus and system levels, being able also to identify the different mechanisms of its regulation.

Explain the basis of the modifications in the functioning of the human body during physical exercise.

Propose and/or choose the appropriate method of evaluation depending on the type of effort studied, in order to subsequently understand

Apply the physiological principles of exercise, in the planning and execution of sport activities adjusted to the individual reality and the context

Organize, plan and work in teams, starting from the appropriate bibliographic bases.

Apply the physiological principles of exercise in the planning and execution of sport activities adjusted to the individual reality and the context

3. Syllabus

PART 1. General human physiology.

1. Introduction to general physiology.
2. Nervous system (NS). Reflexes. SN Autonomous
3. Locomotor system. Muscle physiology.
4. Internal environment and functions of the kidney.
5. Blood and immunity.
6. Cardiovascular system.
7. Respiratory function
8. Digestive system
9. Metabolism and endocrine system.

PART 2. Exercise physiology

1. Introduction

2. Energy production. Aerobic and anaerobic metabolism during exercise.
3. Respiratory responses and adaptations to exercise.
4. Cardiovascular responses and adaptations to exercise.
5. Thermoregulation and exercise.
6. Muscular responses and adaptations to exercise.
7. Neuroendocrine control of exercise.
8. Immune system, exercise, training and disease.

4. Academic activities

1. Theoretical classes. Face-to-face sessions, explanatory and/or demonstrative of contents.
2. Seminars, problem solving and case studies. Interactive teamwork sessions where the application of theoretical concepts to real situations (problems/cases) is sought.
3. Laboratory practices. Performance of functional tests, exercises and data analysis using material biomedical. The students will be involved in the internship and what to do in case of an accident. For more information, please contact: <http://uprl.unizar.es/estudiantes>
Supervised practical work. In-depth study of specific contents under the guidance of a teacher.

The time of dedication is completed with tutorials, evaluation and autonomous work.

5. Assessment system

PART 1. General human physiology (50% of the subject):

Continuous evaluation

- A) Written test (80% grade):
 - 40 test questions. 70% of the test
 - Open-ended and/or graphic questions: 30% of the test
 - B) Tutored practical work (10% of the grade)
 - C) Attendance and development of practices/case studies (10% of the grade).
- It will be evaluated by rubric and/or report, questions, questionnaires.

The student must attend practicals and hand in the tutored practical work (except for students from previous years), which will only be considered if the written test has been passed. If there are >2 absences, an exam of the practice(s) must be taken.

Overall evaluation

- A) Written test (80% of the grade): Same structure as Option 1A.
- B) Tutored practical work (10% of the grade)
- C) Examination of the practical test(s) (10% of the grade)

PART 2. Exercise physiology (50% of the subject):

Continuous evaluation.

- A. Written test (80% of the grade):
 - 40 test questions. 70% of the test
 - Open-ended and/or graphic questions. 30% of the test.
 - B. Follow-up of the subject (20% of the grade): Evaluated through tests at the end of each topic.
- * The student must complete at least 80% of the tests at the end of each topic and attend 80% of the practicals to be eligible for this option.

Global evaluation.

- A. Written test (100% of the grade): Same structure as Option 1

FINAL GRADE: In both parts, passing (≥ 5) the written test is mandatory to pass the subject. When the grade of part 1 or 2 is equal to or higher than 6, it will be kept until the second round in the case of failure of the other part. Each of the parts will be weighted 50% of the final grade.

Fraud or total or partial plagiarism in any of the evaluation tests will result in not passing the subject with the minimum grade, in addition to the disciplinary sanctions adopted by the Guarantee Committee for these cases.

6. Sustainable Development Goals

- 3 - Good Health & Well-Being
- 4 - Quality Education
- 5 - Gender Equality