Universidad Zaragoza

Year : 2019/20

26333 - Pharmacology for Physical Activity and Sport

Syllabus Information

Academic Year: 2019/20
Subject: 26333 - Pharmacology 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: 6.0
Year: 3
Semester: Second semester
Subject Type: Optional
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

This course aims to complement and reinforce theory with practice, therefore lectures and practice sessions will support each other to achieve meaningful learning for the students so that they can use it in their future professional work. A wide range of teaching and learning tasks are implemented, such as:

- Lectures, explanatory and participatory sessions, supported by the blackboard, computer, and audiovisual material.
- Practice sessions will consist of:
  - Seminars taught by the teacher.
  - Active participation of the students.
  - Doping control. Protocol and regulation
  - Pharmatutor: Computer simulation
  - Problem-bases learning (PBL1, PBL2 and PBL3)
  - Asthenia: clinic cases.
  - Course portfolio: reports related to the previous tasks and coursework (individual work).
  - Elaboration of a monographic review, in small groups, on a suggested topic. Presentation and defense. During its elaboration, teachers will have several interviews with the groups for academic orientation and supervision.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course

syllabus, as well as other course-specific learning materials. (http://www.unizar.es/dvirtual.htm)

4.2.Learning tasks

This is a 6 ECTS course organized as follows:

- Lectures (35 hours of face-to-face sessions and 25 hours of autonomous work)
- Practice sessions (25 hours of face-to-face sessions and 25 hours of autonomous work)
    - Seminars
    - Problem?based learning.
    - Doping control. Protocol and regulation.
    - Pharmatutor: Computer simulation.
    - Clinic cases.
    - Group work and presentations.

4.3.Syllabus

The course will address the following topics:

Lectures

SECTION 1. GENERAL PRINCIPLES OF PHARMACOLOGY

- Topic 1. Concept of Pharmacology. Definition and contents. Division of Pharmacology
- Topic 2. ADME: Pharmacokinetics
- Topic 3. Pharmacodynamics
- Topic 4. Drug Interactions
- Topic 5. Adverse drug reactions (ADR). Pharmacovigilance

SECTION 2. SPECIFIC THERAPEUTIC DRUGS AND PHYSICAL EXERCISE

- Topic 5. Drugs acting on Autonomic Nervous System and Peripheral Nervous System
- Topic 6. Psychostimulant drugs
- Topic 7. Beta blockers drugs
- Topic 8. Central Nervous System depressants drug
- Topic 9. Pharmacological basis for the pain and inflammation
- Topic 10. Nonsteroidal anti-inflammatory drugs (NSAIDs)
- Topic 11. Opioid analgesics
- Topic 12. Steroids antiinflammatory drugs (Corticosteroids)
- Topic 13. Anabolic androgenic steroids
- Topic 14. Growth hormone, rhGH, IGF-1
- Topic 15. Blood doping
- Topic 16. Erythropoietin. Epoetins
- Topic 17. Masking agents

SECTION 3. ANALYSIS OF INFLUENCE OF EXERCISE ON TREATMENT OF CHRONIC DISEASES.

- Topic 18. Diabetes Mellitus type I and type II
- Topic 19. Asthma. Exercise-induce asthma
- Topic 20. Anemia: iron deficiency anemia, vitamin B12 and folic acid deficiency anemia.
- Topic 21. Arterial Hypertension

Practice sessions

- Seminars:
    - Pharmaceutical forms and route of drug administration
    - New drug development. Clinical trial
- Doping control. Protocol and regulation
- Computer simulation: Autonomic Nervous System: Dose-response curves. Agonist and antagonista drug (competitive or non-competitive). Neuromuscular blocking drugs
- Problem-bases learning (PBL1, PBL2 and PBL3)
- Asthenia: clinic cases
- Reference research. Online Pharmacology directions

- Group work and presentation.

4.4.Course planning and calendar

Provisional course planning

- Week 1. Without practice sessions
- Week 2: Pharmaceutical forms and route of drug administration
- Week 3: New drug development. Clinical trial
- Week 4: Doping control. Protocol
- Week 5: Doping control. Regulation
- Week 6: Pharmatutor. Computer simulation I
- Week 7: Pharmatutor. Computer simulation II
- Week 8 and 9: Problem-bases learning (PBL1)
- Week 10 and 11: Problem-bases learning (PBL2)
- Week 12 and 13: Problem-bases learning (PBL3)
- Week 14: Asthenia: clinic cases
- Week 15 and 16: Group work and presentation.

Students who choose the continuous assessment system:

- The student will make individually a report on the protocol of doping control and legislation
- Computer simulation: After doing the exercise in small groups, the students will submit an analysis of dose-response curves, autonomic nervous system and neuromuscular blocking drugs.
- Problem-bases learning (PBL): the student will make a report analyzing the case from the pharmacological point of view.
- Group work and presentation: elaboration of a monographic review, in small groups, on a suggested topic. Presentation and defense

Students who choose the global assessment system:

- The evaluation will take place in the official date set by the Faculty.

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the "Facultad de Ciencias de la Salud y del Deporte? website and the Degree website (http://fccsyd.unizar.es/, http://moodle2.unizar.es).

4.5.Bibliography and recommended resources