Universidad Zaragoza

Academic Year/course: 2023/24

26736 - Clinical Biochemistry

Syllabus Information

Academic year: 2023/24
Subject: 26736 - Clinical Biochemistry
Faculty / School: 104 - Facultad de Medicina
Degree: 304 - Degree in Medicine
ECTS: 4.0
Year: 5
Semester: First semester
Subject type: Optional
Module:

1. General information

This subject aims to provide students with the following knowledge:

1.- Pathophysiology and biochemical basis of diseases.

2.- The basic laboratory tests, as well as the various functional tests and their application in the diagnosis and prognosis of diseases.

3.- The different analytical methods.

4.- Some diagnostic algorithms (BQ clin) that improve diagnostic efficiency.

5.- Aspects related to adequate quality controls.

6. The reference values of biochemical parameters and their alterations, with a character applicable to the diagnosis and monitoring of diseases.

7.- The economic cost of the tests requested.

8.- Latest advances in the field of clinical biochemistry.

Approaches and objectives aligned with the following SDGs of the UN 2030 Agenda (https://www.un.org/sustainabledevelopment/es/): Goals (3) Health and wellness (4) Quality education.

2. Learning results

2.1. Learning Results

The student, in order to pass this subject, must demonstrate the following results: 1) Understands the use of molecular markers and their semiology value in diseases; 2) Understands the use of these markers in the diagnosis and follow-up of metabolic diseases; 3) Uses of these markers in the diagnosis, prognosis and follow-up of the alterations of organs and systems; 4) Is able to deal with the integration of the results; 5) Understands and appreciates the relevance of the advances in the field of clinical biochemistry; 6) Is able to search for and analyse specific information and transmit aspects of the subject in an understandable way; 7) Is able to explain and argue adequately the fundamentals of the various aspects that make up the subject; 8) Is able to present and expose work done individually.

2.2. Importance of learning results

The learning results will contribute, together with the rest of the competences acquired in other subjects, to the students' ability to understand and solve the biochemical-metabolic alterations that occur in the disease and that will have later application in the professional practice. They also contribute, together with the rest of the disciplinary modules, to the training of students for the performance of the professional profiles of the Graduate in Medicine.

All the work is aimed at familiarizing the student with the aspects described above, and more specifically, in the use of information of biochemical markers for the diagnosis, prognosis and follow-up of the alterations of the organs and systems

3. Syllabus

1. Introduction to clinical biochemistry.
2. Interpretation of results.
3. Water and electrolytes
4. Study of renal function.
5. Acid-base balance disorders.
6. Proteins and enzymes.
7. Cardiovascular function.
8. Liver function.
9. Glucose metabolism.

10. Lipid metabolism.
11. Calcium phosphate and magnesium regulation.
12. Metabolic bone diseases.
13. Hemoglobinopathies. Iron, zinc, copper and selenium metabolism.
14. Growth disorders.
15. Thyroid function.
16. Function of the adrenal cortex.
17. Gonadal function.
18. Digestive disorders.
19. Nutritional evaluation.
20. High intensity exercise. Metabolic reaction to injury.

Laboratory practice, computer lab, PBAs and visit to the HCU laboratory.

4. Academic activities

Theoretical classes: 20 hours (0.8 ECTS)

Laboratory practices, problems and cases: 10 hours (0.4 ECTS)

All students will be informed about the risks that may be involved in the practices of this subject, as well as handling dangerous products and what to do in case of an accident. A commitment to comply with work and safety standards must be signed in order to carry out the work. For more information, consult the information for students of the Occupational Risk Prevention Unit: http://uprl.unizar.es/estudiantes.html.

Works and other activities: 16 hours (0.64 ECTS)

Assessment: 4 hours (0.16 ECTS)

Study: 50 hours (2 ECTS)

5. Assessment system

The assessment of the learning results will consist of three parts: **1) written exam** (75% of the final grade), **2) practices evaluation** (10%), **3) tutored work** (15%).

Passing the written exam is a *sine qua non* requirement to pass the subject

A) Objective tests: There will be two objective tests: **first midterm and final** (second midterm with the possibility to recover the first one). Each midterm will consist of 20 multiple-choice questions on the theoretical contents of the subject. The multiple-choice questions will have 5 answers (only one will be true). The objective test will be graded from 0 to 10. The grade will be calculated according to the following equation for the midterm **y = 0.625x - 2.5** (where Y is the grade out of 10 and X is the number of correct answers on the test).

B) Assessment of attendance and participation in the practices of the subject. It will be graded from 0 to 10**.**

C) Preparation and presentation of a group work. Papers will be presented in writing and orally for a maximum time of 10 minutes . This work and presentation will be discussed by the teacher of the subject and the rest of the students To pass the learning result it will be necessary to get at least 5/10 in each of the parts A, B and C that make up the evaluation of the subject.