

30807 - Biochemistry

Syllabus Information

Academic year: 2023/24

Subject: 30807 - Biochemistry

Faculty / School: 105 - Facultad de Veterinaria

Degree: 568 - Degree in Food Science and Technology

ECTS: 6.0

Year: 1

Semester: Second semester

Subject type: Basic Education

Module:

1. General information

Biochemistry is indispensable for the knowledge of the structure of biomolecules and the reactions they undergo in organisms. Since biomolecules are the main source of food, biochemistry is key to the training of qualified food technicians.

The general objective of this subject is to teach students the basic fundamentals of biological molecules that, in later subjects, will be applied to the study of the alterations they may undergo during their processing as food.

These objectives are aligned with the next Sustainable Development Goal of the United Nations 2030 Agenda: Health and wellness.

2. Learning results

In order to pass this subject, the students shall demonstrate they have acquired the following results:

To be able to identify and know the structure of biomolecules, the metabolic reactions of transformation and synthesis of these biomolecules, as well as the mechanisms of regulation.

To get to know the mechanisms to obtain metabolic energy;

To know the molecular basis of genetic inheritance;

To be able to manage in a biochemical laboratory and to perform the most basic biochemical techniques;

To be able to use basic internet tools for bioinformatics applications in Spanish and English.

3. Syllabus

Theoretical teaching:

1. Amino acids; 2. Proteins; 3. Enzymes; 4. DNA; 5. RNA; 6. Proteins; 7. Carbohydrates; 8. Glycolysis and gluconeogenesis; 9. Cycle of citric acid; 10. Oxidative phosphorylation system; 11. Photosynthesis; 12. Pentose phosphate pathway; 13. Metabolism of glycogen; 14. Lipids: structure; 15. Lipids: metabolism; 16. Protein catabolism; 17. Amino acid biosynthesis; 18. Nucleotides.

Practical teaching:

1. Quantitative determination of proteins. Protein electrophoresis; 2. Determination of enzyme activity; 3. DNA preparation; 4. DNA manipulation. PCR amplification and restriction enzyme digestion; 5. Determination of cholesterol and glycogen in food.

4. Academic activities

Master classes: 45 hours

Laboratory practices: 10 hours

Seminars: 5 hours

Supervised work: 12 hours

Student's autonomous work: 75 hours

Assessment tests. 3 hours

5. Assessment system

Theoretical contents:

There will be a final exam (first official call) consisting of 50 multiple-choice questions. To pass the test, it will be necessary to obtain 30 correct answers (5 on a scale from 0 to 10). . In the rest of the official calls, the exam will consist of a single final exam, as in the first call. This grade will account for 80% of the student's final grade.

Evaluation of practices:

There will be a written test, consisting of 10 multiple-choice questions, which will be held at the same time as each official call.. To pass the test, it will be necessary to obtain 6 correct answers (5 on a scale of 0 to 10). This grade will account for 10% of the final grade, provided that they have passed the test. The student's participation in the practices may be assessed to compensate for written tests with only 5 correct answers.

Evaluation of tutored work:

The tutored work is group work and will be evaluated in written form (originality of the topic, structure of the work, bibliography consulted, clarity of the written presentation, use of scientific terminology, etc.). The grade will be from 0 to 10 and will represent 10% of the final grade, as long as it has been passed. The evaluation will take place at the end of the month of April. In official calls, the supervised work may be done individually.