

Course Unit	Biochemistry II	Field of study	Biology and Biochemistry
Bachelor in	Dietetics and Nutrition	School	School of Health
Academic Year	2019/2020	Year of study	2
Type	Semestral	Semester	1
Level	1-2	ECTS credits	5.0
Code	8149-501-2102-00-19		
Workload (hours)	135	Contact hours	T - TP 30 PL 30 TC - S - E - OT 6 O -

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Rui Miguel Vaz de Abreu, Sandra Sofia Quinteiro Rodrigues

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
 1. To identify the clinical importance of several biomolecules.
 2. To apply analytical methodologies used in Clinical Biochemistry.

Prerequisites

Before the course unit the learner is expected to be able to:
 To have knowledge in Structural and Metabolic Biochemistry.

Course contents

1. Type of sample, dosage methodologies, clinical importance and reference values for several biomolecules. 2. Urine tests.

Course contents (extended version)

1. Type of sample, dosage methodologies, clinical importance and reference values for biomolecules.
2. Proteins
 - Total proteins and individual plasmatic proteins: albumin.
3. Nitrogen non-protein compounds
 - Urea, creatinine, creatine and uric acid.
 - Renal clearance and glomerular filtration tax. Evaluation of glomerular permeability.
4. Carbohydrates and derivatives
 - Glucose, ketonic bodies and glycosylated proteins.
5. Lipids
 - Cholesterol, cholesterol bound to lipoproteins and triglycerides.
6. Electrolytes
 - Sodium, potassium and chloride.
7. Markers of mineral bone metabolism
 - Calcium, phosphate and magnesium.
8. Markers of hepatic function
 - Bile pigments: bilirubines and urobilinogen.
9. Pharmacs and drugs.
10. Urine tests.
11. Enzymes
 - ALT, AST, CK, LDH, PAL, GGT, amylase, lipase, cholinesterase, PA, 5'-nucleotidase, myoglobin.

Recommended reading

1. Burtis, C. A. (2016). Tietz, Fundamentos de Química Clínica (7ª ed.). Rio de Janeiro: Guanabara Koogan.
2. Gaw, A. (2013) Clinical Biochemistry: an illustrated colour text. (5ª ed.). Churchill Livingstone, Elsevier.
3. Devlin, T. M. (2010). Textbook of Biochemistry with Clinical Correlations (7ª ed.). John Wiley & Sons.
4. Kaplan, L. A. , Pesce, A. J. (2009). Clinical Chemistry Theory, Analysis and Correlation (5th ed.). Missouri: Mosby.
5. Bracht, A. (2003). Métodos de Laboratório em Bioquímica. Barueri: Manole.

Teaching and learning methods

Theoretical-practical Classes: Lectures of theoretical contents and resolution of exercises. Practical laboratorial Classes: Realization of experimental protocols in the in the Clinical Biochemistry area: Summary examination of urine samples and Analysis of biocompounds in seric samples.

Assessment methods

- Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
 - Reports and Guides - 40%
 - Final Written Exam - 60%

Language of instruction

1. Portuguese
2. English

Electronic validation

Rui Miguel Vaz de Abreu	Ana Maria Gerales Rodrigues Pereira	Teresa Isaltina Gomes Correia	Adília Maria Pires da Silva Fernandes
31-10-2019	19-11-2019	19-11-2019	19-11-2019