

Course Unit	Clinical and Laboratorial Biochemistry II	Field of study	Biomedical Laboratory Sciences
Bachelor in	Biomedical Laboratory Sciences	School	School of Health
Academic Year	2022/2023	Year of study	2
Type	Semestral	Semester	2
Level	1-2	ECTS credits	5.0
Code	9995-550-2201-00-22		
Workload (hours)	135	Contact hours	T - TP 22,5 PL 30 TC - S - E - OT 7,5 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) Antonio Jose Madeira Nogueira

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:
 None

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. Bracht, A. (2003). Métodos de Laboratório em Bioquímica. Barueri: Manole.
2. Burtis, C. A. (1998). Tietz, Fundamentos de Química Clínica (4ª ed.). Rio de Janeiro: Guanabara Koogan.
3. Harris, D. C. (1996). Quantitative chemical analysis (4th ed.). New York, N. Y. : Freeman and Company.
4. Kaplan, L. A. , Pesce, A. J. (2009). Clinical Chemistry Theory, Analysis and Correlation (5th ed.). Missouri: Mosby.

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

1. Alternative 1 - (Regular, Student Worker) (Final)
 - Final Written Exam - 60%
 - Final Written Exam - 20%
 - Reports and Guides - 20%
2. Alternative 2 - (Regular, Student Worker) (Supplementary, Special)
 - Final Written Exam - 60%
 - Final Written Exam - 40%
3. Alternative 3 - (Student Worker) (Final)
 - Final Written Exam - 60%
 - Final Written Exam - 40%

Language of instruction

1. Portuguese
2. English

Electronic validation

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27-10-2022	02-11-2022	03-01-2023	07-01-2023