INSTITUTO POLITÉCNICO DE BRAGANÇA

Course Unit	Biochemistry and Clinical Analysis			Field of study	Veterinary Technology		
Bachelor in	Veterinary Nursing			School	School of Agriculture		
Academic Year	2019/2020	Year of study	2	Level	1-2	ECTS credits	6.0
Type	Semestral	Semester	2	Code	9085-408-2201-00-19		

Workload (hours)	162	Contact hours	T	TP	PL	TC	S	E	OT	O
			30	-	30	-	-	-	20	-

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
   - Uurea, 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: bilirrubines 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 exercices. 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, Supplementary, Special)
   - Intermediate Written Test - 30% (Theoretical Component: Frequency (30%))
   - Final Written Exam - 30% (Theoretical Component: Exam (30%))
   - Reports and Guides - 40% (Pratical Component: Diagnostic evaluation of protocols e reports.)
2. Alternative 2 - (Regular, Student Worker) (Supplementary, Special)
   - Final Written Exam - 60% (Theoretical Component: Exam (60 %))
   - Final Written Exam - 40% (Practical Component: Written practical exam. Minimum mark of Practical Component: 8, 5 values.)

Language of instruction

1. Portuguese
2. Portuguese, with additional English support for foreign students.

Electronic validation

Rui Miguel Vaz de Abreu	Paula Cristina Santos Baptista	Hélder Miranda Pires Quintas	Maria José Miranda Arabolaza
21-11-2019	21-11-2019	22-11-2019	22-11-2019

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