

Course Unit	Clinical and Laboratorial Biochemistry I	Field of study	Biomedical Laboratory Sciences
Bachelor in	Biomedical Laboratory Sciences	School	School of Health
Academic Year	2023/2024	Year of study	2
Type	Semestral	Semester	1
Level	1-2	ECTS credits	5.0
Code	9995-804-2103-00-23		
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. Know the operation of a laboratory of Clinical Biochemistry
2. Acquire important concepts in what respects the general rules of security, hygiene and of personal protection in laboratory
3. Perform correctly the handling of stuff and equipment of current use in laboratory
4. Evaluate the errors in the experimental determination
5. Know the care of sampling biological materials
6. Know and apply the fundamentals of the techniques used in clinical biochemistry
7. Acquire the basic principles of quality control in analysis laboratory

Prerequisites

Not applicable

Course contents

Introduction to Clinical Biochemistry. Fundamentals of Instrumental. Analysis Techniques and Analysis Instrumentation Volumetric Analysis. Internal Means. Water Properties

Course contents (extended version)

1. Introduction to Clinical Biochemistry
2. Fundamentals of Instrumental Analysis
 - Validation of analytical methods
 - Quality control
3. Techniques and Analysis Instrumentation
 - Spectroscopic methods
 - Electrochemical methods
 - Separation methods
4. Volumetric Analysis
5. Internal Means
 - Electrolyte
 - Gases and pH in blood
6. Water Properties

Recommended reading

1. Chang, R. (2010). Chemistry. (10th Ed.). New York: McGRAW-Hill College.
2. Atkins, P. & Jones, L. (1997). Chemistry: molecules, matter and change. (3th Ed.). New York: Freeman & Company.
3. Pombeiro, A. J. L. O. (1998). Técnicas e operações unitárias em Química Laboratorial. (4ª ed.). Lisboa: Ed. Serviço de Educação – Fundação Calouste Gulbenkian.
4. Martinho, S. J. A. et al. (2000). Guia do laboratório de química e bioquímica. (1ª ed.). Lisboa: Lidel-edições técnicas, Lda.
5. Jeffery, G. H. , Basset, J. , Mendham, J. , Denney, R. C. , VOGEL. (1992). Análise Química Quantitativa. (5ª ed.). Rio de Janeiro: Guanabara Koogan S. A.

Teaching and learning methods

Expositive, active and participative classes.

Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final)
 - Intermediate Written Test - 70%
 - Practical Work - 30%
2. Alternative 2 - (Regular, Student Worker) (Supplementary, Special)
 - Final Written Exam - 100%
3. Alternative 3 - (Student Worker) (Final)
 - Final Written Exam - 100%

Language of instruction

Portuguese

Electronic validation

Antonio Jose Madeira Nogueira	Josiana Adelaide Vaz	Luis Migue Fernandes Nascimento	Adília Maria Pires da Silva Fernandes
26-10-2023	07-11-2023	08-11-2023	13-11-2023