

COURSE OUTLINE "Clinical Chemistry"

GENERAL

SCHOOL	Health Sciences		
ACADEMIC UNIT	Faculty of Medicine		
LEVEL OF STUDIES	Post-graduate		
COURSE CODE	BBE 208	SEMESTER	B'
COURSE TITLE	Clinical Chemistry		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
Lectures and Laboratory exercises	3	7	
	2		
	5		
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	General background Special background		
PREREQUISITE COURSES:	There are no prerequisite courses		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)			

LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course material has two main objectives:

- a) To offer to students the necessary background for the understanding of the classic methods of analyzing biological markers, as well as for the evaluation of their application in clinical practice.
- b) To teach students new analytical techniques and acquaint them with new, emerging biomarkers in the field of Clinical Chemistry.

The theoretical part of the course is taught through classroom lectures, while there are also laboratory exercises on the use of basic Biochemistry and Molecular Diagnostics analytical techniques.

Upon successful completion of the course, students are expected:

- To be familiar with the operation of the Biochemical Laboratory of the Hospital.
- To have acquired sufficient knowledge on the most important biomarker analytical techniques, their applications and their limitations.
- To have understood the clinical value of the most widely used biomarkers and to be able to choose the right ones for the diagnosis, prognosis and monitoring of the therapeutic treatment of patients in specific pathological conditions.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas

Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
.....
Others...
.....

Learning objectives for the students:

- Search for, analysis and synthesis of data and information, with the use of the necessary technology.
- Working in an interdisciplinary environment

SYLLABUS

The course material includes the following thematic sections:

- The operation of the Biochemical Laboratory, collection of biological samples, pre-analytical factors.
- Limits, reference values and quality control in the Biochemical Laboratory.
- Basic principles of analytical methods in Clinical Chemistry.
- Water Homeostasis and Electrolytes. Laboratory evaluation of renal function.
- Plasma proteins.
- Cancer markers: classic and emerging.
- Liquid biopsies: clinical value and analytical techniques.
- Disorders of carbohydrate metabolism. Laboratory evaluation of liver function.
- Metabonomics.
- Lipids-lipoproteins (metabolism, disorders and diagnostic approach). Lipidomics.
- Endocrine system (disorders and diagnostic approach).
- Issues of toxicological analysis
- Molecular Diagnostics.
- Laboratory determination of glucose and creatinine.
- Laboratory exercise using Real Time-PCR

TEACHING and LEARNING METHODS - EVALUATION

<p style="text-align: center;">DELIVERY <i>Face-to-face, Distance learning, etc.</i></p>	Face-to-face.	
<p style="text-align: center;">USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	Communication with students	
<p style="text-align: center;">TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i></p> <p><i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i></p>	Activity	Semester workload
	Lectures	36
	Laboratory practice	6
	Preparation for lectures and exercises	16
	Bibliography Analysis	21
	Independent Study	96
Course total	175	
<p style="text-align: center;">STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i></p> <p><i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>The language of evaluation is Greek and the evaluation is performed through multiple choice questionnaire and short-answer questions.</p>	

ATTACHED BIBLIOGRAPHY

Suggested bibliography:

- Clinical Biochemistry: An Illustrated Colour Text. Gaw A. et al
- Clinical Chemistry - Marshall, Bangert

Related academic journals: Clinical Chemistry