



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ

HELLENIC REPUBLIC

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ΕΘΝΙΚΗ ΑΡΧΗ ΑΝΩΤΑΤΑΤΗΣ ΕΚΠΑΙΔΕΥΣΗΣ

HELLENIC AUTHORITY FOR HIGHER EDUCATION

University of West Attica

School of Health and Care Sciences

Department of Biomedical Sciences

Postgraduate Studies

“Biomedical Methods and Technology in Diagnosis”

Course Outline

MODERN DIAGNOSTICS IN HEMATOLOGY



ATHENS 2023

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Health and Care Sciences		
ACADEMIC UNIT	Biomedical Sciences		
LEVEL OF STUDIES	Postgraduate Studies		
COURSE CODE	IA1	SEMESTER	First
COURSE TITLE	MODERN DIAGNOSTICS IN HEMATOLOGY		
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
Review of existing literature		4	8
Experimental procedure			
<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>	Skills development Special background-general knowledge specialization		
PREREQUISITE COURSES:	HEMATOLOGY		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBSITE (URL)	https://eclass.uniwa.gr/courses/TIE194/		

(2) LEARNING OUTCOMES

<p>Learning outcomes</p> <p><i>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.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i>
<p>After successfully attending the course, students have proven knowledge and understanding of the subject of modern laboratory Hematology techniques. They will be able to use their knowledge and skills to solve problems related to anemias and blood malignancies. They will acquire the ability to combine knowledge and handle complex issues, as well as to formulate judgments. At the end, they will acquire the background of modern diagnostics used to diagnose hematological diseases, bleeding disorders, thrombophilia and coagulation disorders. Emphasis is placed on techniques of molecular and cell biology, genetics, flow cytometry, immunocytochemistry and cytogenetics. Postgraduate students are trained in the recognition and processing of all cellular components of blood, hematopoietic tissue malignancies, leukemias and lymphomas in both peripheral blood and bone marrow.</p>

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
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Others...
.....

- Search, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations in the modern hematology laboratory
- Autonomous work
- Teamwork
- Work in an interdisciplinary environment

(3) SYLLABUS

1. Structure and functions of white blood cells. Differential diagnosis of white blood cell changes. Microscopy.
2. Diagnostic problems in the general blood test.
3. Thrombocytosis and Thrombocytopenia. Laboratory approach.
4. Laboratory Exercise 1st . Platelet count.
5. Hematology Techniques in the diagnosis of Hemoglobinopathy
6. Laboratory Exercise 2nd . Osmotic fragility of Red Blood Cells
7. Growth factors – Cell cultures – Transgenic experimental models.
8. Diagnostic approach to Hemolytic Anemias of Immune Principle
9. Myeloproliferative diseases. Modern diagnostics.
10. Myelodysplastic diseases. Modern diagnostics.
11. Molecular Biology and Genetics in Hematology.
12. Presentation of Case reports
13. Proteomics and Metabolomics in Hematology

Laboratory/Tutorial Exercises

1. Quality assurance in the general blood test. Diagnostic pitfalls.
2. Blood and bone marrow smear. Microscopic Examination of Blood
3. Detection of erythrocytes by flow cytometry.
4. Measurement of absolute white blood cell count by flow cytometry.
5. Differential diagnosis of bleeding and thrombosis.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	In the classroom and in the Lab face to face.	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Video recording and/or simulation of Molecular Histopathology - Oncology techniques	
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. 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>	Activity	Semester workload
	Lectures	45
	Laboratory/Tutorial	45
	Exercises	
	Writing Assignment	30
	Specialized seminars	30
	Writing Assignment	50
	Course total	200
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure 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 Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	1. Written final exam (100%) which includes: <ul style="list-style-type: none"> • Multiple choice questions • Short Answer Questions • Written exam in a selected thematic section • Laboratory work in techniques 	

(5) ATTACHED BIBLIOGRAPHY

<p>Suggested bibliography:</p> <p>Greek</p> <ol style="list-style-type: none"> 1. Αιματολογία την κλινική πράξη, Πάγκαλης Γεράσιμος, εκδόσεις ΠΧ Πασχαλίδης, 2008. 2. Βασική Αιματολογία, Hoffbrand AV, Moss PAH, Pettit JE, εκδόσεις Παρισιάνου, 2009. 3. Ερυθροκύτταρο και αναμίες, Ζάραλης Αριστείδης, εκδόσεις Χαβαλές Α & Χατζησυμεών Κ ΟΕ, 2008. <p>Foreign</p> <ol style="list-style-type: none"> 1. Hematology: Clinical Principles and Applications, Bernadette F. Rodak, George A. Fritsma, Elaine Keohane, Elsevier, 2011. 2. Clinical Hematology Atlas, Bernadette F. Rodak, Jacqueline H. Carr, Elsevier, 2012. 3. Essential Haematology: Includes Free Desktop, A. Victor Hoffbrand and Paul Moss, Willy Blackwell 2012. 4. Haematology (Fundamentals of Biomedical Science), Andrew D. Blann, Gavin Knight and Gary Moore, Oxford, 2010. 5. <p>- Related academic journals:</p> <ol style="list-style-type: none"> 1. Blood 2. Blood transfusion
