ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ

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ΕΘΝΙΚΗ ΑΡΧΗ ΑΝΩΤΑΤΑΤΗΣ ΕΚΠΑΙΔΕΥΣΗΣ

HELLENIC REPUBLIC

H .A .H . E .

HELLENIC AUTHORITY FOR HIGHER EDUCATION

University of West Attica

School of Health and Care Sciences

Department of Biomedical Sciences and Midwifery

Postgraduate Studies

Applications of Biomedical Technology in Infertility – Male and Female Factor

Course Outline

Laboratory Investigation of Sperm

ATHENS 2023

COURSE OUTLINE

(1) GENERAL

SCHOOL	of HEALTH and CARE SCIENCES		
ACADEMIC UNIT	BIOMEDICAL SCIENCES AND MIDWIFERY		
LEVEL OF STUDIES	POST GRADUATE		
COURSE CODE	MY 2.2	**SEMESTER**	2
COURSE TITLE	LABORATORY INVESTIGATION OF SPERM		

INDEPENDENT TEACHING ACTIVITIES *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*	**WEEKLY TEACHING HOURS**	**CREDITS**
Theoretical and laboratory lessons	2	8
Add rows if necessary. The organization of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Specialized Mandatory
PREREQUISITE COURSES:	-
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	-
COURSE WEBSITE (URL)	https://moodle.uniwa.gr

(2) 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*

After the end of the course, the student will be able to:

1. To know the tests required to investigate the male factor in infertility.
2. To know how to perform the basic semen analysis (spermodiagram).
3. Know how to process sperm samples to improve their physical characteristics and make them suitable for insemination.
4. Know and perform basic sperm functional tests.
5. To know and perform biochemical tests of semen.
6. To know the modern methods of sperm cryopreservation.

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…* *…….*

- Search, analyze and synthesize data and information using the necessary technologies.
- Work in an interdisciplinary environment.
- Concentration and responsibility for performing laboratory exercises.
- Team work.

(3) SYLLABUS

1. Human sperm, the reference values of its parameters, international standards and basic equipment for its laboratory investigation.
2. The collection of human sperm in a natural and surgical way. The physical characters of sperm.
3. Determination of sperm motility according to international standards and the quality control of repeatability of measurements.
4. The determination of the concentration and the total number of spermatozoa and the quality control of the repeatability of the measurements.
5. The evaluation of sperm morphology.
6. The determination of sperm vitality by staining and the hypoosmotic swelling test.
7. The types of "round" sperm cells and their identification.
8. The aggregates and agglutinates of the spermatozoa, the determination of antisperm antibodies and the chemical analyzes of semen.
9. The DNA fragmentation index. The chromatin integrity detection assay.
10. The Sperm Chromatin Dispersion (SCD) test and the technologies of Computer Assisted Sperm Analyzers (CASA).
11. The differential diagnosis of obstructive and non-obstructive azoospermia.
12. The enrichment/separation of spermatozoa for insemination techniques.
13. The cryopreservation of sperm.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face to face teaching, Laboratory education
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of ICT in teaching, laboratory education Communication with students, Teaching through video and Kahoot tests
TEACHING METHODS *The manner and methods of teaching are*	***Activity*** | ***Semester workload***

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*	<table><tr><td>Lectures with audiovisual media</td><td>40</td></tr><tr><td>Laboratory practice</td><td>40</td></tr><tr><td>Individual project</td><td>40</td></tr><tr><td>Student's study hours</td><td>80</td></tr><tr><td>Course total</td><td>200</td></tr></table>
STUDENT PERFORMANCE EVALUATION *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.*	Theory: • Multiple choice questionnaires • Short-answer questions Laboratory: • Laboratory work • Short-answer questions • Problem solving

(5) ATTACHED BIBLIOGRAPHY

1. Lina E, Lymperopoulos G. The function of human sperm. Vita Medical Editions, 2010
2. WHO laboratory manual for the examination and processing of human semen, Fifth edition, 2010
3. WHO laboratory manual for the examination and processing of human semen, Sixth edition, 2021
4. Mortimer D. Laboratory standards in routine clinical andrology, 2009
5. Rajasingam S. Jeyendran, Interpretation of Semen Analysis Results: A Practical Guide 1st Edition, 2000
6. Garrido N, Rivera R. Practical Guide to Sperm Analysis: Basic Andrology in Reproductive Medicine 1st Edition, 2017