



DISCIPLINE SHEET

1. Data about the programme

1.1.	“CAROL DAVILA” UNIVERSITY OF MEDICINE AND PHARMACY
1.2.	FACULTY OF MEDICINE
1.3.	DEPARTMENT -2 PRECLINICAL MORPHOLOGICAL SCIENCES
1.4.	DISCIPLINE -ANATOMY
1.5.	DOMAIN OF STUDY: HEALTH – Sectorally regulated within the European Union
1.6.	STUDY CYCLE: LICENCE
1.7.	STUDY PROGRAME: MEDICINE – ENGLISH MODULE

2. 2. Data about discipline

2.1.	Name of the discipline in the educational plan: CLINICAL EMBRYOLOGY AND ASSISTED HUMAN REPRODUCTION –OPTIONAL DISCIPLINE				
2.2.	Discipline code: DSVI15M				
2.3.	Discipline type (FD/SD/CD):DS				
2.4.	Discipline regimen (MD/OPD/):OPD				
2.5.	The holder of the course activities Assistant Professor Raluca Tulin, MD, PhD				
2.6.	The holder of the seminar activities : Assistant Professor Raluca Tulin, MD, PhD				
2.7. Year of study VI		2.8. Semester 2nd		2.9. Type of evaluation E	

3. Total estimated time (hours/semester of didactic activity an self preparation/study

I. Academic training (teaching, practical application, assessment)						
3.1. Nr hours/week	2	From which:	3.2. lecture	2	3.3. seminary/ laboratory	
3.4. Total hours of educational plan	14	From which:	3.5. lecture	14	3.6. seminary/ laboratory	
Evaluation (nr. of hours) : 24						
II. Self preparation/study						
Time allocation 7 weeks						14 hours
Study of course materials, textbooks, books, study of the recommended minimal bibliography						14
Additional research in the library, research through the internet						4
Performing specific activities for preparing projects, laboratories, elaborating reviews or other tasks						6
Specific preparation activities for projects, laboratory work, assignments, and reports						8
Tutoring						2
Other activities						2
3.7. Total individual study hours						36

3.9. Total hours per semester (3.4.+ 3.7.)	50
3.10. Number of credits	2

4. Preconditions (where applicable)

4.1. of curriculum	That's not the case
4.2. of competences	That's not the case

5. Conditions (where applicable)

5.1. to conduct the lecture	PowerPoint presentations, use of multimedia systems, and projector
5.2. to conduct the seminar / laboratory	Equipped with the necessary apparatus for conducting practical activities

6. Learning outcomes

Knowledge	Skills	Responsibility and autonomy
The student identifies, describe and explains fundamental concepts regarding the characteristic sof the healthy human body, anatomical structures	• Acquiring the knowledge of anatomy and embryology necessary to understand the phenomena of natural reproduction or through methods of assisted human reproduction • Detailed knowledge of the normal anatomy and embryology of the female and male genital tract • Knowledge of developmental abnormalities of the female and male genital systems with the implications they can have in infertility • Detailed knowledge of the first stages of embryonic development that are the basis for understanding the phenomenon of assisted human reproduction and the laboratory procedures necessary to obtain in vitro pregnancies • Knowledge of the different embryology and anatomy of the two sexes and how the hormonal environment influences these processes • Knowledge of the notions of "donation of genetic material" and the stages of embryonic development in which this donation can be made, with the legislative implications deriving from them • Knowledge of laboratory methods for preserving genetic material as well as explaining the physiological	The student integrates fundamental notions, formulates and assumes reasoned conclusions regarding the state of health or illness

	and embryological bases that allow these techniques • Hormonal, molecular and genetic regulation of the embryo in the first stages of development	
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7. Course objectives (aligned with the learning outcomes)

7.1. General objective	The course starts from the need to deepen the basic notions of embryology with an emphasis on detailing the initial processes of embryo development starting from the zygote stage to the blastocyst • Although the mandatory curriculum of the medical student includes general notions of embryology, the emergence of new medical branches such as Assisted Human Reproduction (UA) or in vitro fertilization has led to the need to deepen knowledge in great detail to understand the phenomenon of infertility and sophisticated treatments, sometimes revolutionary, which lead to the solution of these pathologies • Embryology finds its extraordinary clinical utility in the context of the development of modern techniques of assisted human reproduction and this clinicalization forces us to deepen in detail the phenomena of gametogenesis, embryogenesis and fetal development • The experience of the past courses (2015-2018) addressed to students in the 6th year of study, the high addressability and the very high degree of satisfaction supports the need to repeat this course • To support students, the course will have an attached online platform represented by the website www.embriologie.ro with a Facebook page (including a communication group created in 2015 "Clinical Embryology and Assisted Human Reproduction") and Instagram to facilitate access to the necessary information a good performance both in physical format and online if the situation requires it	
7.2. Specific objective	• Explaining the anatomical and functional characteristics of the reproductive system, gamete formation processes, fertilization and the first moments of human embryo development • Analysis of scientific information regarding the normal and pathological characteristics of gamete formation processes, fertilization, pregnancy establishment and the first moments of human embryo development • Elaboration of documentary reports regarding the analysis of the normal and pathological process of conception and development of the human embryo • Identification and characterization of techniques and methods specific to the investigation of the period of pregnancy and the first moments in the life of the human embryo	

	• Explaining the cellular and molecular embryological bases of assisted human reproduction techniques • Knowing the essential aspects of the processes of fertilization but also of preserving this function • Awareness of the importance of appropriate attitudes regarding the essential aspects of natural reproduction and assisted human reproduction	
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8. Contents

8.1. Lecture	Teaching methods	Observations
COURSE 1. Clinical Embryology and Assisted Human Reproduction topics of great current interest. 1.1 The Importance of Clinical Embryology and Assisted Human Reproduction 1.2 History of Assisted Human Reproduction in the World and in Romania. 1.3 Anatomy and Structure of the Female and Male Reproductive System Anatomical Differences Between the Sexes and Clinical Implications in Reproduction	Interactive presentation of the material according to the analytical program using multimedia means powerpoint presentations, educational films, drawings, charts.	2h
COURSE 2. Female Embryology. Female Infertility in Assisted Human Reproduction. 2.1 Ovarian and Endometrial Cycle – Normal and Pathological Aspects. 2.2 Pathological Aspects. Syndromes	Interactive presentation of the material according to the analytical program using multimedia means powerpoint presentations, educational films, drawings, charts.	
COURSE 3. Male Embryology. Male Infertility in Assisted Human Reproduction 3.1 Spermatogenetic Cycle	Interactive presentation of the material according to the analytical program using multimedia means powerpoint presentations, educational films, drawings, charts.	

3.2 Pathological Aspects. Syndromes		
COURSE 4. Hormonal regulation of gametogenesis. 4.1 The role of the hypothalamic-pituitary-gonadal axis in fertility 4.2 The role of ovarian stimulation in Assisted Reproduction. Hormonal principles of medicinal ovarian stimulation. 4.3 Stimulation of spermatogenesis	Interactive presentation of the material according to the analytical program using multimedia means powerpoint presentations, educational films, drawings, charts.	
COURSE 5. The main methods of assisted reproduction. Embryological basis. Advantages and disadvantages. 5.2 Cultivation of human embryos in the laboratory 5.3 Transfer and manipulation of human embryos in the laboratory 5.4 Embryo classification	Interactive presentation of the material according to the analytical program using multimedia means powerpoint presentations, educational films, drawings, charts.	
COURSE 6. Preimplantation embryonic diagnosis and cryopreservation of human embryos 6.1 Technical and ethical limits	Interactive presentation of the material according to the analytical program using multimedia means powerpoint presentations, educational films, drawings, charts.	
COURSE 7 Ethical and legislative aspects of embryos and assisted human reproduction 7.1 Surrogate mother. 7.2 Donation of genetic material. Embryo donation, oocyte donation, sperm donation	Interactive presentation of the material according to the analytical program using multimedia means powerpoint presentations, educational films, drawings, charts.	
Recent Bibliography 1. Netter's clinical anatomy, second edition - by John T. Hansen 2004		

2. Gray's anatomy, 39th edition - by Susan Standring editor in chief 2010
3. Langman medical embryology, 14th edition Sadler, T W (Thomas W) 2018
4. <https://www.eshre.eu/Guidelines-and-Legal>
5. CENTERS FOR DISEASE CONTROL. 1998 Assisted Reproductive Technology Success Rates . 1998. National Summary and Fertility Clinic Reports. Online at: <http://www.cdc.gov/nccdphp/drh/art.htm>.
6. CUNNINGHAM FG, MACDONALD P, GANT N, LEVENO KJ, GILSTRAP LC, HANKINS G, CLARK S: Williams Obstetrics . 20th Edition. McGraw-Hill 2009
7. Frontline: Making Babies (Aired on PBS television 6-01-99) . 1999 Jun 1. Online at: Transcript available at: <http://www.pbs.org/wgbh/pages/frontline/shows/fertility/etc/tapes.html> 5
8. Human Fertilisation and Embryo Authority . Online at: <http://www.hfea.gov.uk/>
9. Centers for Disease Control . Online at: <http://www.cdc.gov>

9. Evaluation

Activity type	9.1. Evaluation criteria	9.2. Evaluation methods	9.3. Percentage in the final grade
9.4. Lecture		The exam is written 10 questions with a single answer, simple complement type. Each correct answer is marked with one point. Maximum score 10	
9.5. Seminary/ practical activity			
9.6. Minimum performance standard			
Grades lower than 5 will result in the student having to repeat the exam in a future session, for the failed test(s). Failure to pass the stages preceding the final exam will result in the student being denied admission to the exam.			

Date of completion:
16.09.2025

Signature of the course holder
Assistant Professor.Dr.Tulin
Raluca

**Date of approval by the
Department Council:**

Signature of the Department Director
Professor Dr.Costache Mariana