

<b>GENERAL INFORMATION</b>		
Course	<b>Embryology</b>	
Course coordinator	Prof. Tatjana Belovari, MD, PhD	
Assistant/Associate	Prof. Srećko Gajović, MD, PhD Asst. Prof. Anton Glasnović, MD, PhD Josip Grbavac, MD Sandra Lea Lucić, MD Marko Sablić, MD	
Study Programme	<b>Integrated undergraduate and graduate university study of Medicine in German language</b>	
Status of the course	Mandatory	
Year of study, semester	2 <sup>nd</sup> year, 3 <sup>rd</sup> semester	
Grading scale and workload	ECTS	<b>2</b>
	Hours (L+S+E)	<b>25 (19+10+5)</b>
<b>COURSE DESCRIPTION</b>		
<b>Course objectives</b>		
Acquiring knowledge about the development of human embryo from fertilization to the end of intrauterine development, which enables understanding of the complex structural relations in the human body and the anomalies during organ development. The acquired knowledge helps to understand the clinical medical disciplines such as gynaecology, obstetrics, paediatrics, and corrective surgery.		
<b>Enrolment requirements and entry competencies</b>		
Completed Histology classes (1 <sup>st</sup> year of study).		
<b>Learning outcomes at the Programme level</b>		
1.1., 2.1., 3.1., 4.2.		
<b>Learning outcomes (5-10)</b>		
After completing lectures, seminars and exercises, individual learning and passing the exam, the students will be able to: <ol style="list-style-type: none"> <li>1. Estimate the importance of different events during gametogenesis, fertilization, cleavage, and implantation for the embryo development.</li> <li>2. Critically evaluate the impact of genetic and environmental factors on embryonic and foetal development of human embryo and their clinical significance</li> <li>3. Estimate the sensitive periods of development and possible congenital anomalies following exposure to teratogens</li> <li>4. Demonstrate the relationship between embryonic development of organs and organ systems with normal anatomy and development of congenital anomalies</li> <li>5. Judge about the importance of embryonic membranes during prenatal development and birth</li> </ol>		
<b>Course content</b>		

**Lectures:** Introduction into embryology. Reproductive system. Gametogenesis, menstrual and ovarian cycle, fertilization. First and second week of development, gastrulation, neurulation. Ectoderm, mesoderm, and endoderm derivatives. Development of the gastrointestinal tract, liver and pancreas. Development of the circulatory system. Development of the nervous system and sensory organs. Development of the urinary system and the reproductive system.

**Seminars:** Fertilization. Pre-embryo, embryo and fetus. Twins. Disorders of implantation. Teratogenic factors and congenital malformations. Development of the skin. Development of the skeletal and muscular system. Monthly foetal development. The time of birth. Prenatal diagnostics. Development of the respiratory system. Development of the eye, the ear and the nasal cavity. Development of the face, anomalies of the face and the neck. Development of the urogenital system, developmental anomalies of the urogenital system. Anomalies of the circulatory system development.

**Exercises:** Placenta. Umbilical cord. Tooth development - early and late stage.

<b>Mode of teaching</b>	<input checked="" type="checkbox"/> lectures	<input type="checkbox"/> independent tasks
	<input checked="" type="checkbox"/> seminars and workshops	<input type="checkbox"/> multimedia and network
	<input checked="" type="checkbox"/> exercises	<input checked="" type="checkbox"/> laboratory
	<input type="checkbox"/> distance education	<input type="checkbox"/> mentoring work
	<input type="checkbox"/> field teaching	<input type="checkbox"/> other

### Student obligations

Students are expected to attend all class sessions, as well as to take all the examinations. However, they are allowed for excused absences, totalling 30% of all classes. Missed exercise must be made up for.

### Monitoring student work

Attending classes	x	Class activity	x	Seminar work		Experimental work	
Written exam		Oral exam	x	Essay		Research	
Project		Continuous knowledge verification	x	Paper		Practical work	x
Portfolio							

### Grading and evaluation of student work during classes and of the final examination

Teaching activity	ECTS	Learning outcome	Student activity	Assessment methods	Grade points	
					Min.	Max.
Attending classes	0,2	1-5	Attendance at classes (L, S, E)	Keeping records	7	10
Seminars	0,4	1-5	Active participation in seminars and exercises	Keeping records of seminar activity.	12	20
Exercises	0,2			Exercise logs Written evaluation	6	10
Final exam	1,2	1-5	Studying for the final exam	Oral part	25	60
<b>Total</b>	<b>2</b>				<b>50</b>	<b>100</b>

*Calculation of final grade:*

## Final exam

**Oral part of the exam** consists of six (6) questions for embryology: 3 questions for general embryology and 3 questions for special embryology.

### Evaluation of the oral part of the exam:

25-33 grading points: the knowledge meets the minimal criteria

34-42 grading points: average knowledge with noticeable mistake

43-51 grading points: very good knowledge with minor mistakes

52-60 grading points: excellent knowledge

### **Forming the final grade:**

Based on the total sum of the points awarded during the course and the final exam, the final grade is determined according to the following distribution:

A – excellent (5): 80-100 grade points; B – very good (4): 70-79.99 grade points; C – good (3): 60-69.99 grade points; D – sufficient (2): 50-59.99 grade points

## Required reading

1. Sadler TW: Taschenlehrbuch Embryologie, 13. unveränderte Auflage, Thieme (Verlag), 2020.

## Additional reading

1. Welsch U, Kummer W, Deller T: Histologie, 5. Auflage, Urban & Fischer in Elsevier (Verlag), 2018

2. Online embryology atlas. <https://embryology.ch/de/>

## Number of copies of required literature in relation to the number of students currently attending classes in the course

Title	Number of copies	Number of students
Sadler TW: Taschenlehrbuch Embryologie, 13. unveränderte Auflage, Thieme (Verlag), 2020.	20 / 44	

## Course evaluation procedures

Anonymous, quantitative, standardized student survey providing feedback on the course as well as on the work of course coordinators and their assistants/associates is being conducted by the QA Office of the Faculty of medicine Osijek.