

Academic Year/course: 2022/23

26759 - General Anatomy and Human Embryology

Syllabus Information

Academic Year: 2022/23

Subject: 26759 - General Anatomy and Human Embryology

Faculty / School: 104 - Facultad de Medicina

229 - Facultad de Ciencias de la Salud y del Deporte

Degree: 304 - Degree in Medicine

305 - Degree in Medicine

ECTS: 6.0

Year: 1

Semester: First semester

Subject Type: Basic Education

Module:

1. General information

1.1. Aims of the course

The subject and their expected results respond to the following statements and objectives:

To know the origin of human anatomy and its history.

To understand the different tissues, organs, apparatus and systems of the human body.

To understand embryogenesis (embryonic development) and organogenesis (development and evolution of body apparatus and systems).

These approaches and objectives are in line with the following Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the learning outcomes of the subject Human Anatomy and Embryology provides training and competence to contribute to some extent to their achievement.

The objectives to be developed will be:

? Goal 3: Health and well-being.

? Goal 4: Quality education.

? Goal 5: Gender equality.

1.2. Context and importance of this course in the degree

General Anatomy and human embryology class is one of the basic subjects of medical studies. Introduced in basic and structural processes of formation, growth, maturation and ageing of different equipment and systems of the human body, with an emphasis on developing early embryo and supporting tissues

1.3. Recommendations to take this course

Prior knowledge and skills.

That you have access with an adequate preparation of compulsory secondary education and the Bachelor early embryo and supporting tissues

2. Learning goals

2.1. Competences

To overcome the course, the student will be more competent to...

Basic and General

CB1 - that students have demonstrated to possess and understand knowledge in an area of study that part of the basis of general secondary education, and is often found at a level that, although it is supported by advanced textbooks, includes also some aspects that they involve knowledge from the forefront of their field of study

CB2 - students know how to apply their knowledge to their work or vocation in a professional manner and possess skills that tend to be demonstrated through the elaboration and defence of arguments and solving problems within their field of study

CB3 - That students have the ability to gather and interpret relevant data (typically within their field of study) for making judgements that include a reflection on issues of social, scientific or ethical nature

CB4 - Students can transmit information, ideas, problems and solutions to both specialized as non-specialist audiences

CB5 - That students have developed those learning skills needed to undertake studies with a high degree of autonomy

Cross-cutting

- Capacity for analysis and synthesis
- Capacity for organization and planificacionc
- Oral and written communication in the native language
- Computer skills relating to the field of study
- Information management ability
- Problem solving
- Decision making
- Team work
- Skills in interpersonal relationships
- Recognition of the diversity and multiculturalism
- Critical reasoning
- Ethical commitment
- Autonomous learning
- Adaptation to new situations
- Creativity
- Leadership
- Initiative and entrepreneurial spirit

-Motivation for the quality

-Sensitivity toward environmental issues

Specific

Belt CE03 - cellular communication. Excitable membranes. Cell cycle. Cell proliferation and differentiation. Information, expression and gene regulation. Heritage. Embryonic development and organogenesis

CE04 - Know the morphology, structure and function of the skin, blood, apparatus and systems circulatory, digestive, locomotive, excretory, reproductive and respiratory; endocrine system, immune system and central and peripheral nervous system. Growth, maturation and ageing of the different devices and systems. Homeostasis. Adaptation to the environment

CE05 - Handle material and basic laboratory techniques

CE07 - Recognize with macroscopic, microscopic methods and imaging techniques the morphology and structure of tissue, organs and systems

CE09 - basic physical examination

2.2. Learning goals

The student, to overcome this subject, shall demonstrate the following results...

Student to pass this part of matter must demonstrate that it is capable of:

- Describe, identify, locate, and relate basically, structures, systems, and devices that make up the human body
- Integrate the successive States of the prenatal development of the human being.
- Integrate the structure and function of placenta and its adjoining membranes.
- Identify the processes of fertilization and the leading to the nesting of the Zygote.
- Identify the different embryonic stages including the differentiation of annexes.
- Describe, identify and sequence the basic phenomena of early embryonic development (differentiation, induction, migration) that lead to the emergence of equipment and systems and their evolution, growth and further maturation.
- Describe the basic phenomena that lead to shape the external appearance of the embryo and fetus.
- Recognize scientific criteria mechanisms of development failures and interpret its consequences
- Correlate the macroscopic microscopic optics and the ultrastructural morphology.
- Recognise the structures in development through images of the usual methods of observation of the clinical diagnosis
- Integrate the relationship morphology, structure and function of all periods of development
- Handle tools for studying macro and microscopically, know the meaning and foundations of the basic techniques of Embryological sample preparation - anatomical.
- Mastering basic Embryological and anatomical terminology necessary for the exercise of the medical profession.
- Relate morphological knowledge with the other disciplines of the curriculum.

2.3. Importance of learning goals

In a generic way, the objective is to get students to acquire an adequate basic training in knowledge, skills and values of the student which brings you the morphology and structure of macro and microscopic bodies, equipment and systems of the human body in training and development as key that are the functional meaning in normal conditions and its projection to the clinic as a knowledge base.

3. Assessment (1st and 2nd call)

3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

The student must demonstrate that it has achieved learning outcomes expected by the following evaluation activities

The evaluation will be carried out through written exams of the theoretical and practical matter.

The written exams will consist of multiple choice questions. The maximum score shall be 6 points.

The practical exams will consist of images (the student will be included in the exam to comment on, identify or locate anatomical structures related to theory and practice). The maximum score shall be 3 points.

If any of the parts (theoretical or practical) are not passed, they will NOT be compensated for each other.

The assessment percentages for the calculation of the final grade will be 90% for the exams and 10% will be the evaluation of the practical notebook (tutored work), as well as the results of the different tests that will be carried out in the practical room.

The final grade will be the weighted sum of partial qualifications obtained in all training activities, according to the criteria communicated at the beginning of the course.

It obtained in its theoretical/practical a note less than 5 in any of the tests do not average.

In accordance with article 5 of the RD-1125 / 2003 (BOE 18 September), the results obtained by the student will qualify according to the following numerical 0 to 10 scale, with expression of a decimal, to which can be added the corresponding qualitative rating:

0-4, 9: suspense (SS)

5, 0-6, 9: approved (AP)

7, 0-8, 9: remarkable (NT)

9, 0-10: excellent (SB)

Honours will be awarded among the best grades in our subject. In the event that there are several students with the same grade who are eligible for MH, an examination may be performed.

Dates of global assessments

In Zaragoza: Strip time from 8 to 14 hours

<https://medicina.unizar.es/horarios>

In Huesca: Schedules and dates of global assessments are proposed by the Center and will appear at the following link: <https://fccsyd.unizar.es/horarios-y-calendarios-medicina>.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

Methodology of the learning process designed for this subject:

Given the nature of the discipline, we combine the theoretical and practical training so that the student will provide a better understanding of what is explained. To this end, the theoretical contents so as to allow the understanding of the conceptual aspects, this should ideally work the habitual use of practical examples to clarify the subject under study will be developed. As for how to impart the theoretical teaching, lesson largest group is used, the discussion addressed during the seminars and tutorial system. Coordinated and parallel to the theoretical-practical teaching will be developed through personal study of biological and models related to the topics covered in lectures and through media images common diagnoses in clinical preparations. The teacher will guide and oversee the development of the class and will discuss the practical cases previously assigned.

4.2. Learning tasks

The course includes the following learning tasks:

- **The lectures**, expository, explanatory and/or demonstration of content sessions using the blackboard and/or audiovisual material with computer support. They give students having prior knowledge of the subject, which should be actively involved and try to complement data or solve the problems that generate the most contentious points of the topic. Mandatory attendance 80%.
- **Presentation and discussion seminars**, problem-solving, case studies, simulations, discussion of scientific articles. Conducting individual or group work on a scientific topic or proposed a practical problem. Reporting. Oral presentations. Sessions dissecting room, microscopy or laboratory, using appropriate instruments, classical methodologies and recent. They will include in-depth discussions of the issues already studied.
- **Practical** sessions in the dissection room or in the laboratory, using appropriate materials and instruments, applying classic and current methodologies. In groups of 5-6 students depending on the number of enrolled.

Mandatory attendance 80%

The practical training program of the course is constituted, in general, for the following activities:

- Observation and analysis of biological preparations and models, so tutored.
- Description and discussion of schemes and images obtained with different observation techniques and instruments provided by the teacher.
- The students will work with a notebook that will serve as a "tutored work" by the teacher.
- Assessment of the competences acquired, based on the objectives defined in each practical, in any of the available formats, mainly as Game Based Learning or Gamification.
- **Tutorials:** Personal interview with a teacher for the academic and personal guidance of the student. Consultation questions to the teachers. Students will have over the course of 5 hours of tutorials for personal or group consultations with teachers to clarify the difficulties, comments on the work and exam review

Students have at their disposal the **ADD** or a website, where they can find:

- The program of theoretical and practical classes
- The schedule of lectures, seminars and practical
- Teaching materials for each of the topics.
- Official exam dates.
- The recommended bibliography and some links to other websites

" All students will be informed about the risks that may have the realization of the practices of this subject, and if dangerous products are handled and what to do in case of an accident, and must sign a commitment to comply with labor standards and safely carry them out. For more information, see the information for students Unit Occupational Health and Safety. [Http://uprl.unizar.es/estudiantes.html](http://uprl.unizar.es/estudiantes.html)"

4.3. Syllabus

The course will address the following topics:

It begins with the presentation of the different organs and systems that make up the human body. To introduce in basic and structural processes of formation, growth, maturation, and aging of the different systems of the human body, with emphasis on early embryo development and supporting tissues

General Program of Anatomy and Human Embryology. The course will address the following topics:

- 1.- General Anatomy. Introduction to Anatomy. Definitions, axes, planes, and basic structural elements. Organization by systems and devices.
- 2.- Concept of structures of support, integumentary, splanchnic, endocrine and nerve.
- 3.- Introduction to the locomotor system. Bones. Morphology, classification, and architecture.
- 4.- Joints. Morphology, classification, and dynamics.
- 5.- Muscles. Morphology, classification, and dynamics.
- 6.- Introduction to the circulatory system
- 7.- Introduction to the respiratory system
- 8.- Introduction to the digestive system
- 9.- Introduction to the urinary system
- 10.- Introduction to the reproductive system
- 11.- Introduction to the endocrine system
- 12.- Introduction to the nervous system
- 13.- Introduction to the study of embryology. Germ cells. Fertilization.
- 14.- Germinal period: I and II Development week. Nesting.
- 15.- Germinal period: III Development week. Differentiation of embryonic soma.
- 16.- Formation of fetal membranes. Placenta.
- 17.- Hematogenesis. Vasculogenesis. Cardiogenesis.
- 18.- Development of the arterial, venous and lymphatic systems.
- 19.- Genesis of the primitive intestine. Formation of the mouth and nostrils. Facial sketch.
- 20.- Branquiogenesis and its derived organogenesis.
- 21.- Genesis of the respiratory system. Genesis and development of the coelom. Pericardium pleura
- 22.- Organogenesis derived from the caudal and transitional region of the anterior intestine.
- 23.- Evolution of the posterior intestine. Formation of proctodeo. Evolution of allantois, cloaca, anus and end sections of the large intestine.
- 24.- Evolution of the midgut. Development of the coelom. Peritoneum

- 25. Nephrogenesis. Evolution of the nephrogenic cord. Evolution of metanephros.
- 26.- Development of the urogenital system.
- 27.- Introduction to the development of the nervous system. Neurogenesis Neurohistogenesis. Derivatives of the neural crest. Wraps of S.N.C.
- 28.- sensory placodes. Development of smell, taste, and touch.
- 29.- Development of the hearing apparatus.
- 30.- Development of the vision apparatus.
- 31.- Development of the central nervous system
- 32.- Development of the peripheral nervous system and the autonomic nervous system. Paraganglios. Neuroendocrine system. Hypophysis. Adrenal gland
- 33. Skeletogenesis and Atherogenesis. Skeletal development of trunk, limbs, skull, and face.
- 34.- Myogenesis. Development of neuromuscular groups.
- 35.- Genesis of the integumentary systems. Odontogenesis

Practical program*

- 1.- First stages of development.
- 2.- Development of the circulatory system.
- 3.- Development of the digestive and respiratory apparatus.
- 4.- Development of the urogenital apparatus.
- 5.- Development of the nervous system.
- 6.- Development of the locomotor and integumentary systems.

* During the first weeks of the course, students will be introduced to basic concepts of general anatomy.

Seminars

Current topics will be discussed at the beginning of the course by the teacher

- 1.- Origin and destination of the blastodermal layers. Perinatal changes in systems.
- 2.- Embryology in Images
- 3.- Teratogenesis
- 4.- New reproductive techniques.

4.4. Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the Facultad de Medicina web

Schedule sessions and presentation of works

The program

Presential Theoretical classes: 3 hours a week

- Practice sessions: 2 hours a week in the dissecting room
- Practices heads: One session a week
- Seminars: to determinate

Distance: Studio and self-posted on the Web the course of ADD from the University of Zaragoza

Tutorial: Optional, for guidance, strengthening and educational support in the curriculum.

The practical organization is in each session, half the group distributed in tables 5-6 coordinated by a head table students (the head may be rotating)

For sessions in the dissection room are required, mask, gown and gloves (current law)

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=26759>