

**COURSE DATA****DATA SUBJECT**

Code: 34288
Name: Human and ocular anatomy
Cycle: Undergraduate Studies
ECTS Credits: 9
Academic year: 2026-27

STUDY (S)

| Degree | Center | Acad. year | Period |
|---------------------------------------|--------------------|------------|--------|
| 1207 - Degree in Optics and Optometry | Facultat de Física | 1 | Annual |

SUBJECT-MATTER

| Degree | Subject-matter | Character |
|---------------------------------------|----------------|-----------|
| 1207 - Degree in Optics and Optometry | Human anatomy | BASIC |

COORDINATION

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SUMMARY

Human and Ocular Anatomy is the first course in which the student of Optics & Optometry accesses to the clinical world and Health Sciences on which you will have to develop your future career.

Therefore Human and Ocular Anatomy is a first-year course that should serve as a first approximation to the Health Sciences.

The matter of Human Anatomy will be taught in a course-Human Anatomy and Ocular - to be held annually in the first year of the undergraduate degree. At the start of the course will be taught the concepts of human anatomy in general and the final part of the course will be taught on ocular anatomy. The course will present the knowledge through classroom lectures and practical workshops held-application to obtain an overall picture of the agenda.

Also taught practical classes in the laboratory for identification and recognition of anatomical structures.

PREVIOUS KNOWLEDGE**RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE**

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS



none

COMPETENCES / LEARNING OUTCOMES

1207 - Degree in Optics and Optometry

Being able to gather and interpret relevant data to make judgments.

Being able to transmit information, ideas, problems and solutions to both a specialized and non-specialized audience.

Development of learning skills necessary to undertake further studies with a high degree of autonomy.

Knowing how to apply the knowledge acquired to professional activity, knowing how to solve problems and develop and defend arguments.

To determine the development of the human visual system.

To know and to describe macroscopically the structures that make up the visual system and the ocular annexes of the human body.

To know the anatomy of the skin, blood, circulatory, digestive, locomotive, reproductive, excretory and respiratory systems; endocrine system, immune system and central and peripheral nervous system of the human body.

To know the embryonic development and human ocular organogenesis.

To recognize with macroscopic methods and imaging techniques the anatomy of tissues, organs and systems of the human body.

To understand and to recognize the normal anatomy of the human body at the tissue, organ and systems level.

DESCRIPTION OF CONTENTS

1. Locomotor System

Anatomy: concept, historical memory. Plan of the course. Organization of the human body. Terminology, position, plans and sections. Concept of organs, organ systems. Life Cycle.

Types of Bones. Types of Joints. Types of synovial joints.

Esqueletología spine. Joints, ligaments. Intervertebral disc. Functional dynamics of the column.

Thorax: ribs and sternum. Diaphragm.

Esqueletología. Lower limb, upper limb.

Back neuromuscular systems.

Thoracic and abdominal muscles. Inguinal canal.

Lower limb neuromuscular systems.

Upper limb neuromuscular systems.



2. Cardio-circulatory Systems

Cardio-circulatory Systems. Heart. Morphology situation and relationships. Cardiac chambers. Endocardium, myocardium, pericardium. Vascularization and innervation. Cardiac plexus. Blood circulatory system. Types of vessels: arteries, arterioles and capillaries. Systemic circulation. Pulmonary Circulation. Venous circulatory system. Types veins. Venous circulation. Circuits. Lymphatic system. Lymph nodes. Collectors and territories nodes. Timo.

3. Respiratory

Upper respiratory tract: nasal passages, pharynx, larynx, trachea. Situation, relationships, structure. Vascularization and innervation. Lower respiratory tract: bronchi, alveoli. Structuring: situation, relationships, lobed segments. Pleura. Vascularization and innervation.

4. Digestive

Mouth. Pharynx. Esophagus. Situation, relationships. Structure. Vascularization and innervation. Stomach. Situation, relationships, structure. Vascularization and innervation. Duodenum, pancreas and spleen. Situation, relationships, structure. Vascularization and innervation. Liver. Situation, relationships, structure. Bile ducts. Vascularization and innervation. Jejunum and ileum and large intestine. Situation, relationships, structure. Vascularization and innervation.

5. Urogenital

rogenital system. Kidney. Gross anatomy. Microscopic structure Renal Nephron: Situation, relationships, structure. Vascularization and innervation. Renal tract. Pelvis, ureter, bladder. Urethra. Situation, relationships, structure. Vascularization and innervation. Adrenals. Pelvic and perineal muscles. Pelvic girdle. Esqueletología. Male genital. Testis. Erectile organ. External genitalia. Female genital tract. Uterus. Tubes, ovaries. External genitalia. Mama. Topographic Grid.

Bones in head. Jaw. ATM.

Nerve tissue. Structural organization. Central and peripheral SN. Autonomic nervous system: sympathetic and parasympathetic

Senses.

Nervous System: Nervous Tissue. Central nervous system: Study of whole brain.

The brain stem and spinal cord

Nervous System: Peripheral nervous system: nerve fiber. Spinal and cranial nerves.



6. Cephalic limb and nervous system

Bones in head. Jaw. ATM.

Nerve tissue. Structural organization. Central and peripheral SN. Autonomic nervous system: sympathetic and parasympathetic

Senses.

Neuroendocrine System: pituitary gland. Epiphysis gland. Thyroid, parathyroid and thymus. Adrenal glands.

7. Visual System

General information about the anatomy of the eye

Ontogeny and development of the visual apparatus

Anatomy of the lining: Retina and optic nerve

Anatomy of the tunica media (uvea)

Anatomy of the external tunic. Cornea and sclera

Refracting media of the eye. Lens and suspensory apparatus
vitreous

Anatomy descriptive of the orbit

Anatomy of the extrinsic eye muscles

Eyelids and conjunctiva

Annexes of the eyeball. The lacrimal apparatus

Study group of the vascularization of the orbit

Topographic anatomy of the orbit

The optical path: papilla, optic nerve, chiasm, optic tracts, or lateral geniculate body, optic radiations and visual cortex

WORKLOAD

PRESENCIAL ACTIVITIES

| Activity | Hours |
|--------------------|--------------|
| Tutorials | 15,00 |
| Theory | 60,00 |
| Laboratory | 15,00 |
| Total hours | 90,00 |

NON PRESENCIAL ACTIVITIES

| Activity | Hours |
|---------------------------------------|---------------|
| Attendance at other activities | 0,00 |
| Individual or group project | 20,00 |
| Independent study and work | 45,00 |
| Preparation of lessons | 50,00 |
| Preparation for assessment activities | 10,00 |
| Resolution of case studies | 10,00 |
| Total hours | 135,00 |



TEACHING METHODOLOGY

Theoretical lessons:

Weekly hours of theoretical classroom work will be devoted to the explanation by the teacher of the theoretical content of the course. For a better understanding of the content, the teacher attached material and / or links via internet which may serve to supplement the material referred to the topic. During the lectures will encourage direct discussion between teacher and student on the subject you are explaining. As I finish the syllabus, the teacher will be linking together each of the different parts of the subject through case-theoretical and practical applications that will be solved with the help of students.

PRACTICAL LESSONS

Weekly hours of physical working practices are devoted basically to group work and individual students. In practice, students should be able to work individually and in groups. Through these practices are intended for students to be able to solve problems for which must raise questions, answers and possible solutions. For this task, students will be divided into groups of 4. In each session the teacher made an introductory exposure to the practice of resting on audiovisual and / or anatomical models. Will be given to students with a set of material that must be completed during the hours of practice. To complement the work, students will have the support of anatomical models and / or audiovisual / technology complementary. The student must be self-sufficient and take active attitude to solve the material / practice released to them. The teacher will solve the doubts that have students and occasionally may make explanations to the whole group or have questions collectively. In the final half hour of each practice, and randomly, students should explain the developments during practice.

Seminar sessions

The hours will face workshops for the presentation and discussion between the student group and the teacher of practical-applicative different cases. The contents of the seminars come supported on the theoretical set out in paragraph V, corresponding to:

- Anatomy of the locomotor
- Systems visceral and functionality
- Nervous System
- Eye Anatomy

To reinforce the learning of the students used different web 2.0 tools that help us to promote the acquisition of skills. These tools are especially helpful for those students who for any reason have committed staff attendance and participation in the different classroom activities.

EVALUATION

The evaluation of the first call will be carried out taking into account the following tests or activities, evaluable with scores that add up to a maximum of 100 points.

Exam: An exam of theoretical contents of 50 short questions and/or test (maximum grade 50 points) will be carried out during the academic year. Students may choose to take the exam:



- Option A: At the end of the first term.

- Option B: At the end of the second term

Laboratory: Attendance and completion of the practical work will add up to a maximum of 25 points. Failure to attend 2 practicals, or failure to complete the work, will prevent the student from earning a grade in the practicals.

Seminars: Attendance and completion of Seminar assignments will total a maximum of 25 points. The non-attendance to 2 seminars, or the non-completion of the work, will prevent the student from getting a grade in the seminars section.

The final grade of the first call is obtained as the sum of the grades obtained in the Exam, Practical and Seminars. In order to pass the course it is necessary to obtain a global score of at least 50 points.

In the second call, the Exam must be taken, and the Practical and Seminars marks obtained in the first call are kept.

The final grade of the second round is obtained as the sum of the grades obtained in the Exam, Practical and Seminars. In order to pass the course it is necessary to obtain an overall score of at least 50 points.

REFERENCES

- Drake RL, Vogl AE, Mitchell AMW. Gray. Anatomía para estudiantes. 5ª Ed. 2024. Ed. Elsevier
- Schünke M, Schulte E, Schumacher U. Prometheus. Texto y Atlas de Anatomía. 5ª Ed. 2022. Ed. Médica Panamericana.
- Ansari MW. Atlas de anatomía ocular. 2016. Ed. Springer

Referencias Complementarias

- Pineda Martínez D, Fernández Sánchez A, Martínez Niño CA, Guzmán Ramírez JA. Anatomía: Manual de actividades para el autoaprendizaje. 2021. Ed. Médica Panamericana.