

Course guide

370004 - ANATOCAP - Head Anatomy and Histology

Last modified: 04/07/2025

Unit in charge: Terrassa School of Optics and Optometry
Teaching unit: 731 - OO - Department of Optics and Optometry.

Degree: BACHELOR'S DEGREE IN OPTICS AND OPTOMETRY (Syllabus 2020). (Compulsory subject).

Academic year: 2025 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Carrio Llach, Maria Mar

Others: ANNA BOZZANO
LAURA DYSON
SILVIA ALONSO

PRIOR SKILLS

The abilities and requirements necessary to assimilate the subject of Anatomy and Histology of the Head they are those that any student who has accessed the Degree in Optics and Optometry will have acquired in previous teachings. In this sense, the knowledge taught in Baccalaureate Biology will help to take the subject with greater ease and benefit.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

CE02. Determine the functions of systems in the human body. Demonstrate knowledge of the principles and foundations of the biological processes involved in the normal functioning of the visual system. Recognise, with macroscopic and microscopic methods, the morphology and structure of the tissues, organs and systems in the human body. Demonstrate knowledge of and describe, macroscopically and microscopically, the structures that make up the visual system and ocular adnexa. Demonstrate knowledge of the structure of the cell, embryonic development and organogenesis. Describe the development of the visual system. Demonstrate knowledge of the microorganisms involved in visual system disorders. Demonstrate knowledge of the properties and functions of the various parts that make up the visual system.

CE07. (ENG) The ability to understand and manage basic laboratory materials and techniques.

Generical:

CG11. Locate new information and interpret it in context.

Transversal:

CT6. Independent learning. Identify and overcome gaps in one's knowledge by thinking critically and choosing the best approach to extending one's knowledge.

TEACHING METHODOLOGY

MD1 - Participatory lecture on theory and problems.

MD3 - Practical problem-solving class requiring student participation in exercises on topics related to the subject matter.

MD6 - Completing problems, exercises and assignments, and resolving doubts via the ATENEA virtual campus.

MD7 - Tutorials.

In order to be able to participate in the laboratory practicals, students must first hand in the completed script (independent learning).

In order to benefit from the course, students must follow the indications that will appear on the ATENEA virtual campus.

LEARNING OBJECTIVES OF THE SUBJECT

1. To understand basic anatomical concepts.
2. To understand the structure of the tissues found in the organs and systems of the human body.
3. To understand the structure of the organs and systems in the head.

STUDY LOAD

Type	Hours	Percentage
Self study	90,0	60.00
Hours medium group	45,0	30.00
Hours small group	15,0	10.00

Total learning time: 150 h

CONTENTS

INTRODUCTION

Description:

1. Introduction to histology.
 - Basic concepts in histology (definition, tissue components).
 - Classification of tissues (epithelial, connective, muscle, nerve).
2. Introduction to anatomy.
 - Basic anatomical terminology (positions, planes, directional terms and orientation).
 - General characteristics of the systems in the human body.
3. Introduction to the anatomy of the head.
 - Description and location of the skull and face.
 - Parts and planes of dissection of the skull and face.
 - Systems located in the head.

Specific objectives:

- To identify and differentiate the tissues that make up the organs and systems of the human body.
- To define and list the anatomical concepts needed to describe, locate and compare the different systems found in the human body.
- To locate and recognise the structures of the various systems that can be found in the head.

Related activities:

Laboratory sessions 1-2 (Basic anatomical concepts and Organ systems) will be graded individually after each session.

Full-or-part-time: 20h

Practical classes: 4h

Laboratory classes: 4h

Self study : 12h

HEAD ANATOMY

Description:

Microscopic and macroscopic structure of the systems that make up the head.

4. Integumentary system.

4.1 Formative tissues (epithelial and connective).

4.2 Skin.

4.3 Skin of the head and face.

5. Skeletal system.

5.1 Formative tissues (cartilage and bone).

5.2 Bones.

5.3 Bones of the skull and orbit.

6. Muscular system.

6.1 Formative tissue (muscular).

6.2 Muscles.

6.3 Muscles of the head and face.

7. Circulatory system.

7.1 Formative tissue (hematic).

7.2 Heart and blood vessels.

7.3 Vascularisation of the head and face.

8. Lymphatic system.

8.1 Lymph.

8.2 Lymph vessels and nodes.

8.3 Lymph vessels and nodes of the head and face.

9. Nervous system.

9.1 Formative tissue (nerve).

9.2 Central nervous system.

9.3 Peripheral nervous system.

Specific objectives:

- To understand the structure of the tissues that make up the systems found in the head and face.
- To identify the characteristics of the various systems of the head and face.
- To lay the foundation for the later study of the parts related to the eye (eyelids, orbit, muscles, vessels and nerves).

Related activities:

Laboratory sessions 3-7 (Anatomy of the systems found in the head) will be graded individually after each session.

Full-or-part-time: 127h 30m

Practical classes: 41h

Laboratory classes: 10h

Self study : 76h 30m



ACTIVITIES

INTRODUCTORY LABORATORY SESSION ON HISTOLOGY AND ORGAN SYSTEMS

Description:

Laboratory sessions 1-2 concern introductory concepts and the organ systems studied in the theoretical part of the course. Students will complete the 2-hour sessions in groups of 2-3, using histological preparations, slides and/or anatomical models. As independent learning and to facilitate attaining the proposed objectives, students have available to them on ATENEA the script that must be filled in before coming to the session. To finish, students will be graded on an individual exam, the results of which will be used to calculate their final marks in the course.

Specific objectives:

To reinforce and integrate the knowledge previously acquired in the theoretical part of the course.

Material:

AVAILABLE ON ATENEA

- Detailed script of the session with questions. Students must fill in the question sheet before the laboratory session.
- Set of images of different parts related to the eye.

AVAILABLE IN THE LABORATORY

- Histological preparations.
- Slide film with anatomical and histological images.
- Anatomical models.
- Histological and anatomical textbooks.

Delivery:

Students must hand in the previously completed script at the beginning of each session.

Full-or-part-time: 10h

Laboratory classes: 4h

Self study: 6h

HEAD ANATOMY LABORATORY

Description:

Laboratory sessions 3-7 deal with the location and structure of the systems found in the head, which will be covered in the theoretical part of the course.

Students will complete the 2-hour sessions in groups of 2-3, using histological preparations, slides and/or anatomical models.

As independent learning and to facilitate attaining the proposed objectives, students have available to them on ATENEA the script that must be filled in before coming to the session.

To finish, students will be graded on an individual exam, the results of which will be used to calculate their final marks in the course.

Specific objectives:

To reinforce and integrate the knowledge previously acquired in the theoretical part of the course regarding the systems found in the head.

Material:

AVAILABLE ON ATENEA

- Detailed script of the session with questions. Students must fill in the question sheet before the laboratory session.
- Set of images of different parts related to the eye.

AVAILABLE IN THE LABORATORY

- Histological preparations.
- Slides with anatomical and histological images.
- Anatomical models.
- Histological and anatomical textbooks.

Delivery:

Students must hand in the previously completed script at the beginning of each session.

Full-or-part-time: 25h

Laboratory classes: 10h

Self study: 15h

OPTIONAL EXERCISES

Description:

Students will find a set of optional, theoretical and/or practical independent learning exercises to strengthen their knowledge on matters covered in the course in ATENEA.

Specific objectives:

To reinforce the knowledge acquired during face-to-face sessions.

Material:

Optional exercises that will be answered and corrected via ATENEA.

Full-or-part-time: 6h

Theory classes: 6h

LABORATORY EXAMS

Description:

Laboratory exam (individual).

Solving questions and images related to the topics covered during the seven laboratory sessions.

The average of the marks received on the seven exams will account for 20% of the final mark for the course. Students must attend at least 80% of the sessions.

Specific objectives:

To assess the knowledge gained during the laboratory sessions.

Material:

Script and images available on ATENEA.

Equipment available in the laboratory.

Full-or-part-time: 3h 30m

Laboratory classes: 3h 30m

THEORY EXAMS

Description:

Individual in-class exam.

Completion of two exercises (VF exam with penalisations for incorrect answers) related to the topics seen in the subject areas that cover all of the course's general learning objectives. This will demonstrate students' capacity for independent learning (cross-disciplinary competency).

Exam results will make up 70% (35% + 35%) of students' final marks in the course.

The specific, generic and cross-disciplinary competencies will be considered to have been achieved if a student receives a final mark of 5 or greater.

Students who fail the subject with a mark greater than or equal to 3 have the option to pass it by taking a resit examination. This resit examination will be conducted under the conditions established by the Academic Regulations for Bachelor's and Master's Degrees at the UPC (NAGRAMA) and the specific conditions established by the Terrassa School of Optics and Optometry. It consists of an exam on all of the topics covered throughout the course. Students who pass the resit exam are given a final mark of 5 in the course. Otherwise, they keep the highest mark of the two received previously.

Specific objectives:

To demonstrate the ability to apply the anatomical and histological knowledge of the head and face that was acquired in lectures.

Material:

Teaching material available on ATENEA.

Recommended reading list.

Full-or-part-time: 3h

Practical classes: 3h

EUROPEAN DIPLOMA IN OPTOMETRY COMPETENCES

Description:

This module contributes to the European Diploma in Optometry competencies indicated in the following link:

https://drive.google.com/drive/folders/1bwmHBsvkrGnY63DfXAnWZB_i0I2pXa-I?usp=drive_link

Full-or-part-time: 1h

Self study: 1h

GRADING SYSTEM

There will be two exams on theoretical knowledge: T1 and T2 (70%).

Theory exam T1 (VF exam with penalisations for incorrect answers: 35%).

Theory exam T2 (VF exam with penalisations for incorrect answers: 35%).

There will be seven exams on practical laboratory knowledge: L (20%).

Laboratory exams L1 to L7 (Recognising histological and anatomical structures of the head: 2.85% each).

Participation in optional activities: PA (10%).

Final mark = $0.35 \cdot T1 + 0.35 \cdot T2 + 0.2 \cdot L + 0.1 \cdot PA$

EXAMINATION RULES.

- Attendance at lectures and practicals is compulsory.
 - Attendance at all graded activities is compulsory.
 - If any of the graded activities are not completed, students will be given a mark of 0 for the activity.
 - UPC regulations will be enforced if cheating is suspected on any exams.
 - If copying (either partial or total) is found to have taken place on any course assessment, that which is stipulated in the Academic Regulations for Bachelor's and Master's Degrees at the UPC will apply:
"Irregular actions potentially leading to a significant variation of the marks obtained by one or more students will be considered a breach of the assessment regulations. Such behaviour will result in a descriptive mark of "Fail" and a numerical mark of 0 for the examination in question and for the subject, without prejudice to any disciplinary proceedings that may result from that behaviour. If students disagree with this decision, they may file a complaint with the dean or director of the school. If students are not satisfied with the response, they may lodge an appeal with the rector.
- The total or partial reproduction of academic and research works, or their use for any other purpose, must have the express permission of the author or authors of the works.
- The director or dean of the school makes decisions regarding allegations about any aspects not covered in the regulations."

BIBLIOGRAPHY

Basic:

- Young, Barbara; Heath, John W. Wheater's histología funcional : texto y atlas en color. 6a ed. Barcelona: Elsevier, 2014. ISBN 9788490226889.
- Netter, Frank H. Atlas de anatomía humana. 7a ed. Barcelona: Elsevier, 2019. ISBN 9788491134688.
- Sobotta, Johannes. Sobotta: Atlas de anatomía humana, vol 3. Cabeza, cuello y neuroanatomía. 24ed. Barcelona: Elsevier, 2019. ISBN 9788491133681.
- Mtui, Estomih; Gruener, Gregory; Dockery, Peter. Fitzgerald. Neuroanatomía clínica y neurociencia. 7a ed. Barcelona: Elsevier, 2016. ISBN 9788491131021.
- Wilson-Pauwles, Linda. Nervios craneales: en la salud y en la enfermedad. 3a ed. Buenos Aires: Panamericana, 2013. ISBN 9786077743811.

RESOURCES

Audiovisual material:

- Nom recurs. Resource