



Course guides

370004 - 370004 - Head Anatomy and Histology

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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: 2020 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: SARA LLUCH MARGARIT (<http://futur.upc.edu/SaraLluchMargarit>)

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ANNA BOZZANO

PRIOR SKILLS

The abilities and requirements necessary to assimilate the subject of Anatomy and Histology of the Head are those that any student who has acceded to the studies of Degree in Optics and Optometry, has acquired in previous teachings. In this sense, the knowledge taught in Biology in High School will help to take the subject more easily and successfully

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

CE02. (ENG) Determinar la funció dels aparells i sistemes del cos humà. Conèixer els principis i les bases dels processos biològics implicats en el funcionament normal del sistema visual. Reconèixer amb mètodes macroscòpics i microscòpics la morfologia i estructura de teixits, òrgans i sistemes del cos humà. Conèixer i descriure macroscòpicament i microscòpicament les estructures que componen el sistema visual i els annexes oculars. Conèixer la estructura cel·lular, el desenvolupament embrionari i la organogènesis. Determinar el desenvolupament del sistema visual. Conèixer els diferents microorganismes involucrats en les malalties del sistema visual. Conèixer les propietats i funcions dels diferents elements que componen el sistema visual.

CE07. (ENG) Conèixer i gestionar material i tècniques bàsiques de laboratori.

Generic:

CG11. (ENG) Situar la informació nova i la interpretació de la mateixa en el seu context.

Transversal:

CT6. (ENG) Aprenentatge autònom. Detectar les diferències en el propi coneixement i superar-les mitjançant la reflexió crítica i la elecció de la millor actuació per ampliar aquest coneixement.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

1. Know the basic anatomical concepts.
2. Know the structure of the integrating tissues of organs and systems of the human body.
3. Know the structure of the organs and systems included in the head.



STUDY LOAD

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

Total learning time: 150 h

CONTENTS

INTRODUCTION

Description:

Introduction to histology

- basic histological terms (definition, tissue components)
- classification of tissues (epithelial, connective, muscular, nervous)

2- Introduction to anatomy

- basic anatomical terminology (positions, plans, terms of direction and relation)
- general characteristics of the human body systems

3- Introduction to the anatomy of the head

- description and location of the skull and face
- regions and dissection planes of the skull and face
- body systems constituting the head

Specific objectives:

- Identify the tissues that constitute the organs and systems of the human body
- Define and list the anatomical concepts needed to describe, situate and compare the different systems that constitute the human body
- Find and recognize the structure of the different systems included in the head

Related activities:

Lab Sessions 1-2 (basic anatomical terms and human systems) which will individually assessed after each session.

Full-or-part-time: 20h

Practical classes: 4h

Laboratory classes: 4h

Self study : 12h



HEAD ANATOMY

Description:

Structure of different tissues, organs and systems that constitute the human head

4. Integumentary system

4.1 Constituent tissues (epithelial and connective)

4.2 Skin

4.3 Skin of the head and face

5. Skeletal system

5.1 Constituent tissues (cartilage and bone)

5.2 Bones

5.3 Bones of skull and eye orbit

6. Muscular System

6.1 Constituent tissue (muscular)

6.2 Muscles

6.3 Muscles of the head and face

7. Circulatory system

7.1 Constituent tissue (hemático)

7.2 Heart and blood vessels

7.3 Vascularization of the head and face

8. Lymphatic system

8.1 Lymph

8.2 Vessels and lymph nodes

8.3 Vessels and lymph nodes of the head and face

9. Nervous system

9.1 Constituent tissue (nervous)

9.2 Central nervous system

9.3 Peripheral nervous system

Specific objectives:

- Understand the structure of the tissues integrating the head and face systems
- Identify the characteristics of the different head and face systems
- Establish the basis for the later study of the eye annexes (eyelid skin, eye orbit, muscles, vessels and nerves)

Related activities:

Lab Sessions 3-7 (head systems anatomy) which will individually assessed after each session.

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

Practical classes: 41h

Laboratory classes: 10h

Self study : 76h 30m



ACTIVITIES

INTRODUCTORY LABORATORY OF HISTOLOGY AND ORGANIC SYSTEMS

Description:

Laboratory sessions 1-2, related to the introductory concepts and to the organic systems studied in the theoretical part. The sessions will be held in groups of 2-3 students, lasting 2 hours, using histological sections, slides and / or anatomical models. As an autonomous learning and to facilitate the achievement of the objectives proposed, the student will find in Athena the workbook that must be filled out before the session.

Specific objectives:

Strengthening and assimilating the knowledge acquired in the theoretical classes.

Material:

AVAILABLE IN ATENEA

- Detailed workbook with the questionnaire that the student must complete before the lab session
- Collections of images of the different annexes

AVAILABLE IN THE LABORATORY

- Histological sections
- Slides with anatomical and histological images
- Anatomical models
- Histological and anatomical

Delivery:

At the beginning of each session, the student must submit the pre-filled workbook.

Full-or-part-time: 10h

Laboratory classes: 4h

Self study: 6h

LABORATORY OF THE HEAD'S ANATOMY

Description:

Laboratory sessions 3-7, related to the location and structure of the systems integrating the head, previously studied in the theoretical part. The sessions will be held in groups of 2-3 students, lasting 2 hours, using histological sections, slides and / or anatomical models. As an autonomous learning and to facilitate the achievement of the objectives proposed, the student will find in Athena the workbook that must be filled out before the session.

Specific objectives:

Strengthening and assimilating the knowledge previously acquired in the theoretical classes, related to the systems integrating the head.

Material:

AVAILABLE IN ATENEA

- Detailed workbook with the questionnaire that the student must complete before the lab session
- Collections of images of the different annexes

AVAILABLE IN THE LABORATORY

- Histological sections
- Slides with anatomical and histological images
- Anatomical models
- Histological and anatomical atlas

Delivery:

At the beginning of each session, the student must submit the pre-filled workbook.

Full-or-part-time: 25h

Laboratory classes: 10h

Self study: 15h



OPTIONAL EXERCICES

Description:

The student will have in Athena a series of theoretical and/or practical exercises optional, of autonomous learning, to strengthen the knowledge acquired in the theoretical classes.

Specific objectives:

Strengthen the knowledge acquired in the theoretical classes.

Material:

Optional exercises that will be answered and corrected through ATENEA.

Full-or-part-time: 6h

Theory classes: 6h

LABORATORY TEST

Description:

Individual test in the laboratory.

Resolution of questions and images of the aspects analyzed in the 7 laboratory sessions.

The average of the scores of the seven tests represents 20% of the final mark of the subject.

Attendance at at least 80% of the sessions is mandatory

Specific objectives:

Evaluate the knowledge gained in the laboratory sessions.

Material:

Workbook and images available at ATENEA

Learning material available in the lab

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

Laboratory classes: 3h 30m

THEORETICAL EVALUATION TESTS

Description:

Individual test in the classroom

Completion of two exercises (VF test with penalty for wrong answer) related to the contents of the thematic blocks that will contain all the general learning objectives of the subject, thus demonstrating the student autonomous learning capacity (transversal competence)

The resolution of the tests represents 70% (35% + 35%) of the final mark of the subject.

Specific, generic and transversal competences will be obtained provided that the final grade for the course is equal or superior than 5

Specific objectives:

- Demonstrate the ability to apply the anatomical and histological knowledge of the head and face acquired during the theoretical sessions.

Material:

Learning material available at ATENEA.

Recommended bibliography.

Full-or-part-time: 3h

Practical classes: 3h

GRADING SYSTEM

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

Theoretical exam T1 (VF test with penalty for wrong answers; 35%)

Theoretical exam T2 (VF test type with penalty for wrong answers; 35%)

There will be seven practical tests: L (20%)

Laboratory tests L1 to L7 (recognition of anatomical structures of the head; 2.85% each one)

Participation in optional activities: PA (10%)

Nota final = $0.35 \cdot T1 + 0.35 \cdot T2 + 0.2 \cdot L + 0.1 \cdot PA$

EXAMINATION RULES.

- Attendance in both theory and laboratory sessions is mandatory.
- Attendance in all assessable activities is required.
- If any of the assessable activities is not performed, it will be considered as not scored (0).
- The UPC regulations will be applied in case of detecting someone copying in the exams.

BIBLIOGRAPHY

Basic:

- Sobotta, J. Sobotta. Atlas de anatomía humana vol 3: Cabeza, cuello y neuroanatomía. 24 ed. Elsevier, 2018. ISBN 9788491133681.
- Netter, Frank H. Atlas de anatomía humana. 7a ed. Elsevier, 2019. ISBN 9788491134688.
- Wilson-Pawles, L. Nervios craneales. en la salud y en la enfermedad . 3a ed. Panamericana, 2013. ISBN 9786077743811.
- Young, B et al. Wheater's histología funcional : texto y atlas en color. 6a ed. Barcelona: Elsevier, 2014. ISBN 9788490226889 .
- FitzGerald, Gruener, Mtui, Mtui, Gruener & Dockery. Fitzgerald. Neuroanatomía clínica y neurociencia. 7a ed. Elsevier, 2017. ISBN 9788491131021.

RESOURCES

Audiovisual material:

- Nom recurs. Resource