

26828 - Audiometry and Auditory Prostheses

Syllabus Information

Academic year: 2023/24

Subject: 26828 - Audiometry and Auditory Prostheses

Faculty / School: 100 - Facultad de Ciencias

Degree: 297 - Degree in Optics and Optometry

ECTS: 6.0

Year:

Semester: Second semester

Subject type: Optional

Module:

1. General information

The *Audiometry and hearing aids* subject qualifies the Optics and Optometry students for a very frequent professional option: the hearing assessment and hearing aid fitting for adults and children. Visual and hearing impairments are commonly associated, and patients may benefit from a comprehensive evaluation and correction of their sensory deficits at the same center.

Hearing impairment is diagnosed and medically treated by the Otolaryngologist, who might prescribe hearing aids in some patients with permanent hearing loss. The fitting of hearing aids is a task for the audioprosthologist, but the optometrist can also do the initial assessment and handle sales in an authorized center.

This subject looks to achieve the following goals:

- To contribute to prevention of ear diseases and hearing loss.
- To collaborate with health education of the population in terms of early diagnosis of ear diseases and hearing loss.
- To know the role of hearing aids and devices in the rehabilitation and treatment of the most common diseases that present hearing loss.
- To establish the proper criteria to refer a patient for specialized diagnosis and treatment of ear diseases and hearing loss.

2. Learning results

To successfully complete the subject, the student must be able to:

- Know the basic anatomy and physiology of the ear, and understand the physiopathology of the most common conditions that cause hearing loss.
- Take an elemental anamnesis and conduct the physical examination of the ear.
- Determine the complementary examinations and tests that might be needed to assess the patient's hearing.
- Interpret the results of the hearing tests.
- Identify the presence of ear diseases and correctly refer the patient for medical attention when needed.

3. Syllabus

Subject outline:

1. Introduction
2. Sound
3. Intensity, pressure and decibel
4. Anatomy and physiology of the external and middle ear
5. Anatomy and physiology of the inner ear and the auditory pathway
6. Pathology of the external and middle ear
7. Pathology of the inner ear and the auditory pathway

8. Basic examination
9. Hearing examination
10. Electrophysiological tests
11. Hearing aids
12. Implantable devices
13. Childhood hearing loss

Reading list:

- Salesa-Batlle E, Perelló-Scherdel E, Bonavida-Estupiñá A. Tratado de audiolología. 2ª ed. Barcelona: Elsevier Masson; 2013.
- Kramer S, Brown DK. Audiology (Science to Practice). 4th ed. San Diego: Plural Publishing, Inc.; 2021.
- Kramer S, Brown DK. Audiology Workbook. 4th ed. San Diego: Plural Publishing, Inc.; 2021.
- Vallés-Varela H et al. Otorrinolaringología. 1ª ed. Zaragoza: Prensas de la Universidad de Zaragoza; 2016.
- Gil-Carcedo LM, Vallejo LA, Gil-Carcedo E. Otología. 3ª ed. Madrid: Médica Panamericana; 2011.

4. Academic activities

This subject includes theoretical lectures, workshops and practical sessions at a hearing aid center.

The theoretical topics of the subject will be covered in 1 to 2-hour lectures. The workshops will complement some of the lectures and include:

- Basic physical examination and otoscopy.
- Acumetry.
- Clinical cases.

Students must attend a practical session at a hearing aid center chosen by the instructor, where they will be introduced to the audioprosthologist's work and participate in the following guided activities:

- Otoscopy.
- Tonal audiometry.
- Tympanometry.
- Hearing tests interpretation.
- Getting molded ear impressions.
- Familiarizing with different types of hearing aids and implantable devices.
- Introduction to choosing and fitting hearing aids with real clinical cases.

Individual tutoring sessions will be available in the appointed days and hours, and will be scheduled in advance with the instructor.

5. Assessment system

80% of the overall grade will be obtained in a theoretical exam at the end of the subject. The exam consists of 14 multiple choice questions, worth 0.5 points each, and 2 essay questions, worth 1.5 points each. Multiple choice questions will have 4 options and only one correct answer, with no penalty for wrong answers.

Satisfactory participation in lectures, workshops and practical sessions in a hearing aid center will grant the remaining 20% of the global grade. Students must prove to be able to take a basic patient history, carry out the appropriate physical examination and hearing tests, interpret the results and do a basic hearing aid assessment.