

**Neurophonetic Prevention in Geriatrics**

Code: 101692  
ECTS Credits: 6

Degree	Type	Year	Semester
2500893 Speech therapy	OT	4	1

**Contact**

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**Use of Languages**

Principal working language: catalan (cat)  
Some groups entirely in English: No  
Some groups entirely in Catalan: Yes  
Some groups entirely in Spanish: No

**Other comments on languages**

The bibliography can also be in other languages, such as Catalan, English, French, Italian, Portuguese... The tutorials and the resolution of doubts in class will be in Catalan or Spanish at the choice of the students.

**Prerequisites**

Prerequisites:

- Acoustic Physics and Audiology
- Voice Alterations: Assessment and Intervention
- Neurodegenerative Diseases and Dementias

It would be interesting if students are taking, or have already taken, the subject:

- Voice Education and your Health

**Objectives and Contextualisation**

Students will gain the necessary basic knowledge about Voice and Speech, Applied Pathology and Speech Therapy and Basic Speech Therapy.

Students will learn to make a specific anamnesis and exploration of the voice for the elderly, taking into account all the variables that are related to this population.

Students will understand and learn the basics of voice aging.

Students will be prepared to make a correct early detection and prevention of voice in gerontology.

**Competences**

- Act appropriately with respect to the profession's ethical code: respect professional confidentiality, apply professional criteria in the completion and referral of treatment.
- Critically evaluate the techniques and instruments of evaluation and diagnosis in speech therapy, as well as its procedures of intervention.

- Demonstrate an understanding and correct use of the terminology and methodology of speech-therapy research.
- Demonstrate an understanding of disorders in communication, language, speech, hearing, voice and non-verbal oral functions.
- Design, implement and evaluate actions aimed at preventing communication and language disorders.
- Explore, evaluate, diagnose and produce a prognosis of development for disorders of communication and language, from a multidisciplinary perspective.
- Managing communication and information technologies.
- Project design and management.

## Learning Outcomes

1. Collect and interpret all information obtained in anamnesis, physical examinations and complementary explorations.
2. Describe and implement preventive interventions for speech disorders caused by aging.
3. Describe the influence of aging on speech and voice.
4. Describe the main instruments of assessment and diagnosis in speech therapy and in related disciplines (neurology, neuropsychology, etc.), and identify their usefulness.
5. Inform patients and/or their families about the expected outcome of the intervention, without giving false expectations
6. Managing communication and information technologies.
7. Project design and management.
8. Register and select the relevant information provided by the patient and/or those accompanying the patient.
9. Use the basic terminology of research in the field of neurology, speech therapy and related disciplines.

## Content

The subject will consist of the following contents, which will be open to extension according to the advances in the sector.

Initially, as an introduction and to facilitate the achievement of the specific contents of the subject, the necessary basic knowledge on Voice and speech, applied anatomophysiology and basic therapy will be taught.

### INTRODUCTION:

- What is Speech Therapy.
- Anatomical and functional bases of the mechanisms involved in the voice and articulation.
- Normal and pathological voice.
- Anatomical-physiological bases of swallowing.
- Exploration of the voice and articulation.
- Questions about swallowing exploration.
- Optimal functional use of the voice.
- Rehabilitation techniques for voice and speech and swallowing disorders.

### SPEECH THERAPY IN GERONTOLOGY:

- Anatomical and functional concretions of the mechanisms involved in the voice and articulation of the elderly.
- Aging of the voice.
- Exploration of the voice and articulation in the elderly.

- Early detection and prevention in gerontology.

## Methodology

The subject will consist of a theoretical module of each topic.

The practices will deal with clinical cases of which the convenient clinical discussion will be made.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Practical classes of exploration and critical analysis and discussion of practical cases	12	0.48	7, 8, 6
Theory classes with ICT support	24	0.96	4, 2, 3, 7, 5, 1, 8, 9, 6
Type: Supervised			
Tutorials	3.5	0.14	2, 7, 1
Type: Autonomous			
Personal study and search for information	97.5	3.9	4, 2, 3, 7, 5, 1, 8, 9, 6

## Assessment

<https://www.uab.cat/web/estudiar/graus/graus/avaluacions-1345722525858.html>

[EV1] Evidence 1 (25%): First evaluation period. Test-type exam, individual, online. Partial, of the subject taught until the week before the exam.

[EV2] Evidence 3 (30%): Second evaluation period. Group work (maximum three students) on the topic proposed by the teacher at the beginning of the course.

[EV3] Evidence 2 (45%): Second evaluation period. Test-type exam, individual, online. Cumulative of all the matter taught.

Non-assessable student: if he / she has not delivered at least evidence of learning with a minimum weight of 40%.

Passed subject: pass with a 5 (scale 0-10) taking into account the percentage weight of each evidence mentioned above.

Students who enrol for the second time or more: No unique final synthesis test for students who enrol for the second time or more is anticipated.

Reassessment Tests: Recovery period. Individual exam, online, test type. Cumulative of all the matter of the theoretical and practical part.

Students who have not met the criteria established to pass the subject and who have been previously evaluated in a set of activities whose weight is equivalent to a minimum of two thirds of the total grade of the subject. Only the option of retrieving evidence in which each student has demonstrated unsatisfactory performance will be given, if the course grade has been at least 3.5 (scale 0-10) and not higher than 5. The re-assessment may consist of two parts: a test-type test and the oral resolution of a case study or, alternatively, the student, in case of having failed a single test, may choose to be re-evaluated from the test not passed.

The teacher reserves the option of supplementing the students' grade by evaluating aspects such as interest in the subject, dedication, among others.

Languages: The exams are in Catalan, they will not be translated. The works and their exhibition may be in Catalan or Spanish.

Honors: In any case, the maximum achievable mark will be a 10, although the relative mark and the involvement of the student will be taken into account when awarding possible Honors.

Chrono: EV2 must be delivered no later than two weeks before EV3.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
EV1. Midterm exam	25%	1	0.04	3, 9, 6
EV2. Group work and public presentation of the final work	30%	10	0.4	2, 3, 7, 6
EV3. Final exam	45%	2	0.08	4, 2, 3, 7, 5, 1, 8, 9, 6

## Bibliography

### FUNDAMENTAL:

- Sataloff RT, Rosen DC, Hawkshaw M, Spiegel JR. The aging adult voice. J Voice 1997; 11: 156-160.
- Evaluación del paciente anciano:  
<https://www.msmanuals.com/es-es/professional/geriatr%C3%ADa/abordaje-del-paciente-geri%C3%A1tr>
- [The ageing voice: changes in fundamental frequency, waveform stability and spectrum.](#)  
Decoster W, Debruyne F. Acta Otorhinolaryngol Belg. 1997;51(2):105-12.
- [A comparative acoustic analysis of voice production by near-total laryngectomy and normal laryngeal speakers.](#)  
Hoasjoe DK, Martin GF, Doyle PC, Wong FS. J Otolaryngol. 1992 Feb;21(1):39-43.
- [Fragments of a Greek Trilogy: impact on phonation.](#)  
Ferrone C, Leung G, Ramig LO.  
J Voice. 2004 Dec;18(4):488-99. doi: 10.1016/j.jvoice.2004.01.001.
- [Speech production of normally aging adults.](#)  
Benjamin BJ. Semin Speech Lang. 1997 May;18(2):135-41. doi: 10.1055/s-2008-1064068.
- [Treatment of dysphonia in older people: the role of the speech therapist.](#)  
Oates JM. Curr Opin Otolaryngol Head Neck Surg. 2014 Dec;22(6):477-86. doi: 10.1097/MOO.0000000000000109.
- Estudio y tratamiento de los problemas de la voz en la población geriátrica.  
<https://www.medigraphic.com/pdfs/actmed/am-2003/am031g.pdf>

### WEB Articles:

[https://www.researchgate.net/publication/309444551\\_False\\_Vocal\\_Fold\\_Characteristics\\_in\\_Presbylarynges\\_and](https://www.researchgate.net/publication/309444551_False_Vocal_Fold_Characteristics_in_Presbylarynges_and)

### COMPLEMENTARY:

- Shindo ML, Hanson DG. Geriatric voice a laryngeal dysfunction. *Otolaryngol Clin North Am* 1009; 23: 1035-1044.
- Woo P, Casper J, Colton R, Brewer D. Dysphonia in the aging: physiology versus disease. *Laryngoscope* 1992; 102: 139-144.
- Mueller PB. GAT is normal aging? Part XII: The senescent voice. *Geriatr Med Today* 1985; 41: 48-57.
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- Luscheii ES, Raming LO, Baker KI, Smith LE. Discharge characteristics of laryngeal single motor units during phonation in young and older adults and in persons with Parkinson's disease. *J Neurophysiol* 1999; 81: 2131-2139.
- Erim Z, Beg MF, Burke DT, De Luca CJ. Effects of aging on motor-unit control properties. *J Neurophysiol* 1999; 82: 2081-2091.
- Odenhaimeier GI. Geriatric neurology. *Neurol Clin* 1998; 1: 561-567.
- Colton RH, Casper JK. *Understanding voice problems: a physiological perspective for diagnosis and treatment*. 2nd ed. Baltimore, MD, USA: Williams/Wilkins; 1996: 91-97.
- Hielel A, Dray T, Miller R, Yorkston K, Konikow N, Strande E, Browne J. Presentation of ALS to the otolaryngologist. Head and neck surgeons getting to the neurologist. *Neurology* 1999; 53: 522-525.
- Robert D, Pouget J, Giovanni A, Azulay JP, Triglia JM. Quantitative voice analysis in the assessment of bulbar involvement in amyotrophic lateral sclerosis. *Acta Otolaryngol* 1999; 199: 724-731.
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- Ford CN. Advances and refinements in phonosurgery. *Laryngoscope* 1999; 109: 1899-1900.
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- Benniger MS, Guillen JB, Altman JS. Changing etiology of vocal fold immobility. *Laryngoscope* 1998; 108: 1346-1350.
- Gamboa J, Jiménez FJ, Nieto A, Cobeta I, Vegas A, Orti-Pareja M. Acoustic voice analysis in patients with essential tremor. *J Voice* 1998; 12: 444-452.
- Berke GS, Gerratt B, Kreiman J, Jackson K. Treatment of Parkinson hypophonia with percutaneous collagen augmentation. *Laryngoscope* 1999; 109: 1295-1299.

#### WEB Articles:

<https://www.researchgate.net/scientific-contributions/Clark-A-Rosen-39783561/publications> :

- [https://www.researchgate.net/publication/309444551\\_False\\_Vocal\\_Fold\\_Characteristics\\_in\\_Presbylaryngeal\\_Dysphonia](https://www.researchgate.net/publication/309444551_False_Vocal_Fold_Characteristics_in_Presbylaryngeal_Dysphonia)
- [https://www.researchgate.net/publication/49857971\\_Treatment\\_Success\\_for\\_Age-Related\\_Vocal\\_Fold\\_Atrophy](https://www.researchgate.net/publication/49857971_Treatment_Success_for_Age-Related_Vocal_Fold_Atrophy)
- [https://www.researchgate.net/publication/251728316\\_How\\_Much\\_Pharyngeal\\_Acid\\_is\\_Normal\\_Normative](https://www.researchgate.net/publication/251728316_How_Much_Pharyngeal_Acid_is_Normal_Normative)
- [https://www.researchgate.net/publication/49739709\\_Vocal\\_Fold\\_Injection\\_Review\\_of\\_Indications\\_Technique\\_and\\_Outcomes](https://www.researchgate.net/publication/49739709_Vocal_Fold_Injection_Review_of_Indications_Technique_and_Outcomes)
- [https://www.researchgate.net/publication/40485226\\_Current\\_Practice\\_in\\_Injection\\_Augmentation\\_of\\_the\\_Vocal\\_Fold](https://www.researchgate.net/publication/40485226_Current_Practice_in_Injection_Augmentation_of_the_Vocal_Fold)
- [https://www.researchgate.net/publication/26257881\\_Trial\\_Vocal\\_Fold\\_Injection](https://www.researchgate.net/publication/26257881_Trial_Vocal_Fold_Injection)
- [https://www.researchgate.net/publication/24189996\\_Vocal\\_fold\\_augmentation\\_with\\_calcium\\_hydroxylapatite](https://www.researchgate.net/publication/24189996_Vocal_fold_augmentation_with_calcium_hydroxylapatite)
- [https://www.researchgate.net/publication/23493756\\_Revision\\_Laryngeal\\_Surgery\\_for\\_the\\_Suboptimal\\_Injection](https://www.researchgate.net/publication/23493756_Revision_Laryngeal_Surgery_for_the_Suboptimal_Injection)
- [https://www.researchgate.net/publication/5458140\\_The\\_Frequency\\_of\\_Perceived\\_Stress\\_Anxiety\\_and\\_Depression\\_in\\_Patients\\_With\\_Vocal\\_Fold\\_Dysphonia](https://www.researchgate.net/publication/5458140_The_Frequency_of_Perceived_Stress_Anxiety_and_Depression_in_Patients_With_Vocal_Fold_Dysphonia)
- [https://www.researchgate.net/publication/319762499\\_Principles\\_of\\_Vocal\\_Fold\\_Augmentation](https://www.researchgate.net/publication/319762499_Principles_of_Vocal_Fold_Augmentation)
- [https://www.researchgate.net/publication/345943818\\_Abnormal\\_Laryngeal\\_Electromyography\\_Findings\\_in\\_Patients\\_With\\_Vocal\\_Fold\\_Dysphonia](https://www.researchgate.net/publication/345943818_Abnormal_Laryngeal_Electromyography_Findings_in_Patients_With_Vocal_Fold_Dysphonia)
- [https://www.researchgate.net/publication/272082712\\_Comparison\\_of\\_Voice\\_Outcomes\\_After\\_Trial\\_and\\_Final\\_Injection](https://www.researchgate.net/publication/272082712_Comparison_of_Voice_Outcomes_After_Trial_and_Final_Injection)
- [https://www.researchgate.net/publication/259387282\\_What\\_is\\_the\\_role\\_of\\_the\\_larynx\\_in\\_adult\\_obstructive\\_sleep\\_apnea](https://www.researchgate.net/publication/259387282_What_is_the_role_of_the_larynx_in_adult_obstructive_sleep_apnea)
- [https://www.researchgate.net/publication/272029394\\_Neurogenic\\_Cough](https://www.researchgate.net/publication/272029394_Neurogenic_Cough)

#### Software

- Praat (Mac, Windows, Lynux) ..... Freeware
- Overtone Analyzer (Mac, Windows) ... Mac: v. 5 o sup. (€). Windows: v. 4 (freeware), v. 5 (€)
- Gram (Windows) ..... Freeware
- S/Z (App iOS) ..... (€)

