UAB

Universitat Autònoma
de Barcelona

2018/2019

Advanced Voice Analysis and Characterization

Code: 103705
ECTS Credits: 6

Degree	Type	Year	Semester
2500893 Speech therapy	OT	4	0

Contact

Name: David Garcia Quintana

Email: DavidG.Quintana@uab.cat

Use of languages

Principal working language: english (eng)

Some groups entirely in English: Yes

Some groups entirely in Catalan: No

Some groups entirely in Spanish: No

Other comments on languages

The course is taught in English. Language doubts will be clarified whenever necessary. Students are free to use the language of their preference.

External teachers

Eduard Baulida

Helen Rowson

Núria Carmona

Prerequisites

Because the course is taught in English, a fair understanding of oral and written English is required. Students are free to use English, Catalan or Spanish in their communications and evaluations.
International students are welcome as long as they have a basic training in voice (SLP, singing...) and no aversion for acoustic physics. Please contact the course coordinator in case of doubt.

Objectives and Contextualisation

The global objective of the course is for the student to acquire specialized skills in **acoustic analysis** of voice, both healthy and pathological, as part of an advanced training as future SLT professionals, be it as vocal therapists, vocal coaches or voice researchers.

Students will experience in a practical manner how the **integrated** use of perceptual and acoustic analysis results in more reliable evaluations, both through mutual validation and by solving uncertainties due to the limitations of each individual approach alone.

In particular, the student will:

- Understand her own voice as starting point to understand the users' voices, thus reaching an in-depth understanding of human voice, the different voice qualities associated with healthy and efficient voice, and the voice qualities related to voice handicap and pathology.

- Acquire *flight hours* in voice analysis, working the complete process of integrated evaluation on real cases, thus acquiring advanced competences in perceptual voice evaluation and acoustic analysis at a professional level.

Skills

- Analyse and synthesise information.
- Critically evaluate the techniques and instruments of evaluation and diagnosis in speech therapy, as well as its procedures of intervention.
- Demonstrate an understanding of disorders in communication, language, speech, hearing, voice and non-verbal oral functions.
- Develop critical thought and reasoning and be able to communicate them effectively, both in your own language and second or third languages.
- Understand, interpret and express orally and in writing, in a foreign language, contents within the ambit of health.
- Use the exploratory techniques and instruments pertaining to the profession, and register, synthesise and interpret the data provided by integrating this into an overall information set.

Learning outcomes

1. Analyse and synthesise.
2. Describe the characteristics of normal and pathological voice.
3. Develop critical thought and reasoning and know how to communicate this effectively, both in ones own and in a foreign language.
4. Interpret data provided by the objective measurement techniques of voice in order to produce a diagnosis.
5. Justify the usefulness of objective voice-measuring methods
6. Understand, interpret and express orally and in writing, in a foreign language, contents within the ambit of health.

Content

1. An overview of voice evaluation

- Perceptual (subjective) evaluation
  - Auditory Scene Analysis
  - Perceptual illusions
  - Perceptual scales: GRBAS and CAPE-V
- Acoustic (objective) analysis of voice
  - Acoustic tools for voice analysis
  - How does acoustic analysis solve cases that the trained ear cannot
  - Limitations of acoustic analysis
- An integrated protocol for voice evaluation

2. Acoustic-perceptual correlates

- Vocal attacks
- Intensity vs loudness
- Ring resonances and loudness: ring is all you need
- Sound duration and perception of intensity: slow and articulate vs effort
- Evaluation of instabilities
  - Pitch instabilities
  - Loudness instabilities
  - Resonance instability
  - Phonation breaks
  - Subharmonics

- Evaluation of voice qualities
    - Resonances in the ring region
    - Roughness
    - Breathiness
    - Strain
    - Asthenia

3. Seminars: Rowson, Baulida, Carmona

4. Analysis of cases.

Methodology

Classes include presentations and demos by the instructor and in-class work by the students, involving peer-discussion, group discussion, practical analysis work.

All sessions integrate theoretical and practical learning, there are no specific theory or practical classes. The course is essentially practical, as it is aimed at conferring skills, a reasonable amount of experience, and self-confidence as a potential voice therapist. The student will be the center of her/his own learning process. Understanding one's own voice as starting point to understand the users' voices.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Classes (see description)	35	1.4	5, 6, 2, 3, 4
Type: Supervised			
Tutorials	4	0.16	5, 6, 2, 3, 4
Type: Autonomous			
Critical reading of articles, book chapters, online resources	25	1	1, 5, 6, 2, 3
Practical exercises	25	1	5, 2, 3, 4
Preparation of learning evidences	6	0.24	5, 6, 2, 3, 4
Studying	50	2	5, 6, 2, 3, 4

Evaluation

Evidence 1 - Short, individual assignments to evaluate specific competences.

Evidence 2 - Individual, mid-term, in-class, written test to evaluate the progress in the acquisition of competences. Analysis of one or more cases . Week 9.

Evidence 3 - Individual, final, in-class, written test to evaluate all the course competences in an integrated manner. Analysis of one or more cases. Week 18.

Students may use Catalan or Spanish during their communications and also in the exams without affecting their marks. However using English will multiply the mark by 1.05 (intermediate level) or 1.10 (correct English).

Definition of passed course: Both EV3 and the global average of EV1,2,3 reached a mark equal or higher than 5 over 10.

Referral test: According to UAB rules, *students who fail the course after handing-in evaluations amounting for at least 2/3 of the global grade (irrespectively of passing or failing them), will qualify to take a referral test*. In this course a final equivalent to EV3 will take place during week 20.

Condition to be considered non-assessable: According to UAB rules, *having handed-in evaluations amounting for less than 40% of the global grade, irrespectively of passing or failing them.*

Misconduct: According to UAB rules, *students who cheat or copy in an exam once, or plagiarize an assignment once, will get a 0 in that test. If misconduct occurs more than once during the course the final mark will be 0.*

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Evidence 1 - Short assignments	15%	1	0.04	1, 5, 6, 2, 4
Evidence 2 - First test, analysis of vocal samples	35%	2	0.08	5, 6, 2, 3, 4
Evidence 3 - Final test, analysis of vocal samples	50%	2	0.08	5, 6, 2, 3, 4

Bibliography

Practical Vocal Acoustics. Kenneth Bozeman (2013). Pendragon Press.

Available at the library.