



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze Umanistiche		
ACADEMIC YEAR	2020/2021		
BACHELOR'S DEGREE (BSC)	DISCIPLINE DELLE ARTI, DELLA MUSICA E DELLO SPETTACOLO		
INTEGRATED COURSE	HUMANISTIC COMPUTER SCIENCE		
CODE	13563		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	ING-INF/05		
HEAD PROFESSOR(S)	MAZZOLA GIUSEPPE	Ricercatore a tempo determinato	Univ. di PALERMO
OTHER PROFESSOR(S)	MAZZOLA GIUSEPPE	Ricercatore a tempo determinato	Univ. di PALERMO
CREDITS	9		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	2		
TERM (SEMESTER)	2° semester		
ATTENDANCE	Not mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	MAZZOLA GIUSEPPE Wednesday 10:00 - 13:00 Ex Dipartimento di Ingegneria Informatica, edificio 6, terzo piano		

DOCENTE: Prof. GIUSEPPE MAZZOLA

PREREQUISITES	Basic computer skills.
LEARNING OUTCOMES	<p>KNOWLEDGE AND UNDERSTANDING The student will acquire knowledge and methodologies to define, address, and solve problems related to the production and enjoyment of digital audio content. The student will be able to select and evaluate algorithms and fundamental data structures. The course includes class lectures and exercises, analysis, and discussion of simple applications and case studies. For the verification of this objective, the final test consists of an interview on the course topics and the presentation of an essay.</p> <p>ABILITY TO APPLY KNOWLEDGE AND UNDERSTANDING The student will be able to apply the acquired knowledge to the use of methods and techniques for the representation and use of digital audio. He/she will also learn how to relate the market realities concerning devices, processes, and applications of the sector. The course includes theoretical and computer exercises (individual and in a group) and the preparation of an essay. For the verification of this objective, the test consists of the discussion of an essay.</p> <p>AUTONOMY OF JUDGEMENT Through the methodological approach acquired during the course, the student will gain the ability to use and integrate the learned tools in different application areas. He/she will be able to face new problems and propose solutions even in the presence of limited and incomplete data, integrating the knowledge acquired during the course, and will be able to analyze the merits and defects of the proposed solutions. The course includes class lectures, theoretical and computer exercises (individual and group), the preparation of an essay. For the verification of this objective, the exam includes an interview on the topics of the lectures and the discussion of an essay.</p> <p>COMMUNICATION SKILLS The student will be able to work in a group to communicate with competence and language properties problems of digital audio processing, structuring, and management, even in specialized contexts. He/she will be able to interact with designers and technicians for the realization of systems for the production and use of digital audio. The course includes individual and group lectures and exercises. The exam consists of the final interview on the lecture topics; the discussion of an essay.</p> <p>LEARNING ABILITY The student will be able to face the problems related to the production and enjoyment of digital audio content. The course includes individual and group exercises. For the verification of this objective, the test consists of the discussion of an essay.</p>
ASSESSMENT METHODS	<p>The assessment of learning (final examination) is subdivided into two phases: 1) Presentation of an essay on topics previously assigned by the teacher; 2) Oral test.</p> <p>The essay prepared by the student consists of a simple application project for the management of digital audio. It aims to ascertain the possession of the skills and abilities to apply knowledge and understanding of the methods and systems studied during the course. The oral test consists of an interview on the topics of the course.</p> <p>The result of the assessment of learning is a score in 30/30.</p>
TEACHING METHODS	Class lectures. Computer exercises. Development of simple application projects.

MODULE MUSIC COMPUTER SCIENCE

Prof. GIUSEPPE MAZZOLA

SUGGESTED BIBLIOGRAPHY

Vincenzo Lombardo, Andrea Valle: Audio e Multimedia, quarta edizione, Apogeo

AMBIT	10645-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	120
COURSE ACTIVITY (Hrs)	30

EDUCATIONAL OBJECTIVES OF THE MODULE

The general topics of Sound and Music Computing are in agreement with the ACM Computing Classification System. In particular, the educational objectives of the course cover all or parts of the Sound and Music Computing 2007 roadmap of the S2S2 (Sound to Sense, Sense to Sound) Consortium, established as Coordination Action by European Commission under 6th FET Open Call: <http://smcnetwork.org/roadmap>

More in details, the lectures of the course will cover the "in-focus content areas" reported in Appendix A of the roadmap, representing the core disciplines of a course in Sound and Music Computing:

- Sound Modelling
- Sound Analysis and Coding
- Music Information Processing - Music Performance

SYLLABUS

Hrs	Frontal teaching
3	Introduction of sound and music computing
3	Fundamentals of acoustics and sound perception
3	Digital representation of sound and music
3	Audio file compression
3	Sound synthesis
3	MIDI protocol
3	Algorithmic composition
3	New frontiers of computer music
Hrs	Practice
3	The software system Audacity
3	The MIDI software system MuLab

**MODULE
COMPUTER SCIENCE FOR ARTS**

Prof. GIUSEPPE MAZZOLA

SUGGESTED BIBLIOGRAPHY

De Santo, Colace, Napoletano. "Informatica per le arti visive, la musica e lo spettacolo". Mc Graw Hill.

AMBIT	10645-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	15

EDUCATIONAL OBJECTIVES OF THE MODULE

The course focuses on methodologies of representation and elaboration of multimedia information, such as sounds, images and videos. The main opensource software for arts will be illustrated. The course will be structured by alternating practical sessions and frontal lessons. The exercises will be a baseline for the preparation of a final project that will be used to evaluate the acquired skills.

SYLLABUS

Hrs	Frontal teaching
5	Digital representation of information. Digital Representation of Images. Resolution. Bit rate.
5	Digital representation of video. Video production techniques. Examples of DVE.
5	Methodologies for Animation
2	Digital representation of sounds. Representation formats. Physical and psychophysical characteristics of sound.
Hrs	Practice
4	Practical exercises using Gimp.
4	Exercises with DVE programs
4	Exercises with Blender
1	Introduction to Audacity