



MS 300 SCULPTING SOUNDS: BETWEEN MUSIC MAKING AND SOUND DESIGN

IES Abroad Milan

DESCRIPTION:

The course introduces students to the latest music technologies through a series of theoretical and practical lessons from the privileged point of view of the music software designer. We will first explore the context that gave birth to technological music (with a particular focus on the history of the RAI Music Phonology Studio in Milan and the historical avant-garde of electroacoustic music), and then its evolution in the synthesizer, computer music and the latest sound synthesis techniques such as physical models.

The course will also provide students with a foundation in sound theory and listening methodologies, a basic overview of signal processors, microphones and portable digital recorders equipped with modern ambisonic techniques for immersive audio, and a focus on the concept of soundscape as a foundation of sound design theory. Without focusing solely on music, the course aims to illustrate the enormous potential of sound technology across a broad spectrum of industry applications ranging from music production to sound design to sound art.

The course will provide students with the basic skills necessary to analyze and evaluate sound sculpting strategies and techniques using numerous commercial software developed by the teacher, used by famous musicians, sound designers and universities in more than forty countries around the world. To complete the course, each student will be asked to apply the elements and principles learned in class by developing a music piece or an artificial soundscape.

CREDITS: 3

CONTACT HOURS: 45

LANGUAGE OF INSTRUCTION: English

PREREQUISITES: Students must own a portable computer with audio interface enabled to support standard audio editing software (Windows or Mac) headphones and audio recording device (a smartphone will make it). A minimal familiarity with music editing is welcome.

METHOD OF PRESENTATION: Lectures, discussions, creative sessions, case studies, course-related trips, student presentations (PDF and speech).

REQUIRED WORK AND FORM OF ASSESSMENT:

Course Engagement - 15%

Periodic Assignments - 15%

Midterm Exam - 30%

Final Exam - 40%

Course Engagement

An important part of the learning will be done in class through lectures, discussions, and presentation of different case studies. Students are expected to take an active part in these discussions by contributing their own experiences as well as concepts learned from the assigned readings, desk and field research, homework, and lecture materials. Students must come to every class having completed assigned readings and viewings. They will be asked to discuss and comment on these homework assignments.

Periodic Assignments

Throughout the semester, students will be asked to submit 7 periodic short assignments that require them to apply theoretical principles learned in class or to perform preparatory work for their project. These assignments are intended to help students develop the skills necessary to create their own music/soundscape proposals at the end of the semester. As developmental assignments enabling the instructor to evaluate progress and skill building, they will be graded on a check, check plus, check minus basis.



Midterm Exam

Recording an audio file using Berna software and Audacity or other DAW. 3 to 10 Minutes, stereo AIF or WAV FILE 44.1KHz/24Bit.

Final Project

A musical piece or soundscape. 3 to 10 Minutes, stereo AIF or WAV FILE 44.1KHz/24Bit.

On the last day of class, students will submit their proposals and also present their projects to the class, explaining the evolution of their projects and evaluating their final results. In addition, they will hand-in an analysis of 1,500 – 2,000 words that explains how they completed all the phases of the design process, from research to final outcome. The paper should give an account of the thought processes that motivated their choices throughout the project and situate their project in relation to the principles learnt in class.

LEARNING OUTCOMES:

By the end of the course students will be able to:

Create sounds for music, sound design and sound art with breakthrough technologies

Read/Recognize interfaces of different sound design tools made in MaxMSP

Employ the innovative principles of sound design for different types of audio productions

Edit and create sound files

Apply their creative and technical knowledge and skills to the process of sound sculpting

ATTENDANCE POLICY:

As a member of our class community, you are expected to be present and on time every day. Attending class has an impact on your learning and academic success. For this reason, the IES Abroad Milan attendance policy allows for the following number of absences, which are intended to be used for physical and mental health reasons:

THREE (3) absences in each Italian language course,

TWO (2) absences in each Area Studies course,

ONE (1) absence in each seminar course or course meeting 1 day a week,

ZERO (0) absences in each course of individual music instruction.

Every absence beyond this allowance will automatically result in a penalty of 2 percentage points off the final grade. SEVEN (7) absences will result in a failing grade in Italian language and Area Studies courses. FOUR (4) absences will result in a failing grade in seminar or 1-day-a-week courses. Failure to attend a scheduled exam, test, quiz, or presentation will automatically result in an F grade on that assessment.

ACADEMIC INTEGRITY:

Students are expected to abide by the IES Abroad Code of Academic Integrity. All work submitted by a student for academic credit should constitute the student's own original work. Any work submitted for academic credit may be subject to review by a textual similarity detection service for the detection of plagiarism and AI usage.

ADDITIONAL COSTS:

Students who have Bluetooth headphones and earphones are suggested to purchase professional AKG K49 wired headphones (and any computer adapter). The use of Bluetooth devices is not permitted as these may cause problems with the software.

https://www.amazon.it/AKG-K92-Cuffia-Chiusa-Colore/dp/B01BYAX498/ref=sr_1_5?mk_it_IT=%C3%85M%C3%85%C5%BD%C3%95%C3%91&keywords=akg+k92&qid=1707474449&sr=8

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CONTENT:

WEEK	CONTENT	READINGS & ASSIGNMENTS
Week 1 <i>Session 1</i>	History of electronic music - History and instruments of technological music before WWII - The dawn of sound recording - The avantgarde of the 20th Century - Musique Concrete	Reading Tom Holmes - <u>Electronic and experimental music</u> , Routledge Listening: Works by, Schaeffer, Henry
Week 1 <i>Session 2</i>	History of electronic music - Elektronische Musik in Germany - Musica Elettroacustica in Italy - Serialists and post serialists	Reading: Tom Holmes - <u>Electronic and experimental music</u> , Routledge, Listening: Works by Maderna, Stockhausen, Berio, Xenakis,
Week 2 <i>Session 1</i>	Sound Theory Basics - Fundamentals of sound theory - Fundamentals of sound perception and psychoacoustics - Measuring sound	Reading: Handbook for Sound Engineers chapters 1 and 2 <u>The Computer Music Tutorial</u> , 2nd edition MIT Press chapter 1 and 2 Assignment: Golden Ears exercise
Week 2 <i>Session 2</i>	The software simulation of the RAI and WDR studios Laboratory: Berna 3 Software simulation of RAI studio	Reading: Maddalena Novati, John Dack - <u>The Studio di Fonologia a Musical Journey</u> , Hal Leonard To watch: Berna3 Tutorial on YouTube Reading: Berna3 User Manual
Week 3 <i>Session 1</i>	Berna3 and Stockhausen: Additive synthesis Studie II, The first electronic music score. Laboratory: Berna 3 Software simulation of RAI studio	Reading: Berna3 User Manual Stockhausen Study II score
Week 3 <i>Session 2</i>	Digital Audio basics Basics of Audio Editing in DAWs Tracks, automations,	Reading: Audacity/Reaper User Manual <u>The Computer Music Tutorial</u> , 2nd edition MIT Press
Week 4 <i>Session 1</i>	Sound Synthesis I: Additive and subtractive synthesis with Berna3	Reading: - Berna3 User Manual - Thom Holmes - Experimental and Electronic Music (Ask the desk to borrow the book).

Week 4 <i>Session 2</i>	• Microphones and microphone techniques	Reading: Microphone Techniques for Recording (download here on Moodle) Zoom H3 VR User Manual (download here on Moodle) <u>The Computer Music Tutorial</u> , 2nd edition MIT Press
Week 5 <i>Session 1</i>	Listening to the world. • John Cage • Murray Schafer: The Soundscape	Reading: The Soundscape, Murray Schefer, Routledge Silence, John Cage, Wesleyan University Press Assignment: record a soundscape in the city (indoor or outdoor) and analyse it.
Week 5 <i>Session 2</i>	Title: Computer music history MIDTERM EXAM DUE	Reading: Thom Holmes - Experimental and Electronic Music (Ask the desk to borrow the book). Kim Cascone: The Aesthetics of Failure The Computer Music Tutorial, 2nd edition MIT Press
Week 6 <i>Session 1</i>	Laboratory: FB Software Granular synthesis theory and practice	Reading: FB user Manual
Week 6 <i>Session 2</i>	Laboratory: Gleetchlab Software Self destroying sounds. Sound degradation as an artistic practice.	Reading: Gleetchlab user Manual
Week 7 <i>Session 1</i>	Ambient Music, from Satie to Eno Gleetchlab Software practice	Assignment: Realization of an ambient music track (44.1KHz/24 Bit Stereo)
Week 7 <i>Session 2</i>	Title: Sound Synthesis II • Modal Synthesis and Substantia Software. • Multiphysics softwares for music: Autodesk Fusion	Reading: • Substantia user Manual • <u>The Computer Music Tutorial</u> , 2nd edition MIT Press chapter on modal synthesis
Week 8 <i>Session 1</i>	Laboratory: Practice with Substantia	Reading: • Substantia user Manual • <u>The Computer Music Tutorial</u>, 2nd edition MIT Press chapter on modal synthesis

Week 8 <i>Session 2</i>	Title: SOUND ART • Sound as a medium of Art • Authors and works	Reading: Peter Weibel, SOUND ART, MIT Press
Week 9 <i>Session 1</i>	Title: Introduction to MaxMSP I • Interface, objects, message and signals, sound generation Laboratory: Practice with Max8	Reading: MaxMSP help reference
Week 9 <i>Session 2</i>	Title: Introduction to MaxMSP I Laboratory: Practice with Max8 Using sound samples	Reading: MaxMSP help reference
Week 10 <i>Session 1</i>	Title: Introduction to MaxMSP II • Working without a timeline • Simple synthesis algorithms Laboratory: Practice with Max8	Reading: MaxMSP help reference
Week 10 <i>Session 2</i>	Title: Introduction to MaxMSP II • Convolution • Recording in MaxMSP Laboratory: Practice with Max8	Reading: MaxMSP help reference
Week 11 <i>Session 1</i>	Final Exam Tutoring	
Week 11 <i>Session 2</i>	Final Exam Tutoring	

COURSE-RELATED TRIPS:

Studio di fonologia musicale della RAI @ Museo degli Strumenti Musicali, Castello Sforzesco.
(Please do not bring bags with you).

REQUIRED READINGS:

Stockhausen, Karlheinz. Studie II Score. Stockhausen Verlag 1954
Cascone, Kim. The Aesthetics of Failure: "Post-Digital" Tendencies in Contemporary Computer Music
Berna 2 Manual
Gleetchlab Manual
Substantia Manual
MaxMSP help reference
Glen Ballou - Handbook for Sound Engineers - Focal Press chapters 1 and 2

SUGGESTED READINGS:

TECHNICAL

Nick Collins, Julio d'Escriván - The Cambridge Companion to Electronic Music, Cambridge University Press



Curtis Roads - The Computer Music Tutorial, 2nd edition MIT Press

HISTORICAL

Pierre Schaeffer - In search of a concrete music, University of California Press

Tom Holmes - Electronic and experimental music, Routledge

John Cage - Silence, Wesleyan University Press

Tara Rodgers - Pink Noises, Duke University Press

Karlheinz Stockhausen, Robin Maconie - On music, Marion Boyars Publishers Ltd

Paul Hegarty - Noise / Music a history, Continuum books

Maddalena Novati, John Dack - The Studio di Fonologia a Musical Journey, Hal Leonard