

# Sound Design for Games

## CTIN 406L (2 Units)

Fall 2015

**Objective** Familiarity with the technical and aesthetic considerations of implementing audio for video games. This course covers the technical, logistical, organizational, and creative elements of the major production areas for games: sound effects, ambience, dialog, and music. By the end of the course, students should be familiar with the various creative and technical challenges involved in creating an interactive soundscape for a video game and be comfortable creating original audio for student game projects within the Interactive Media department and beyond.

**Concepts** We will discuss basic goals for audio production as well as more advanced implementation challenges, looking at specific examples in existing games and other interactive media. Topics include: requirements of game audio systems; developing non-repetitive sound effects and score; building sounds that intelligently respond to game state and player actions; use of real-time multichannel technologies to create an immersive soundscape; the challenges of scheduling, organization, and hard/soft/wetware resource constraints with techniques for circumvention; the audio production pipeline and supporting tools; and creative uses of sound specifically suited to gameplay. Throughout the course, students will be utilizing techniques learned in class to create and implement their own audio for a game started outside of the class.

**Instructor** Vincent Diamante  
Office hours: 3-5 PM in SCI L113 (by appointment)  
Email: vincent.diamante@gmail.com

**Prerequisite** None. Familiarity with Windows is assumed.

**Lecture/Lab** Fridays 12:00 PM to 3:00 PM  
SCI L113

**Grading** The following point structure will be used in determining the grade for the course. Final grade will be based upon the total points received.

Lab Assignments:	100
Homework:	50
Midterm Exam:	50
Midterm Project:	50
Final Exam:	50
Final Project:	100
<b>TOTAL</b>	<b>400</b>

**Policies** *Make-up policy for exams:* To make up for a missed exam, the student must provide a satisfactory reason (as determined by the instructor and university policy) along with proper documentation. Make-up exams are only allowed under extraordinary circumstances.

*Projects:* It is the student's responsibility to turn in projects on or before deadlines as set by the instructor.

*Late Assignments:* There will be a 2% reduction of the project's grade for each calendar day it is late.

**Academic Integrity** The School of Cinema-Television expects the highest standards of academic excellence and ethical performance from USC students. It is particularly important that you are aware of and avoid plagiarism, cheating on exams, submitting a paper to more than one instructor, or submitting a paper authored by anyone other than yourself. Violations of this policy will result in a failing grade band be reported to the Office of Student Judicial Affairs. If you have any doubts or questions about these policies, consult "SCAMPUS" and/or confer with the instructor.

**Students with Disabilities** Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776. E-mail contact is at: [ability@usc.edu](mailto:ability@usc.edu)

# Sound Design for Games

## CTIN 406L (2 Units)

- Week 1 (8/28) **An Introduction to Game Audio**
- Overview of the class, the role of audio in games, comparing games with other media, and close listening.
- Week 2 (9/4) **Audio Basics, Computer Sound, and Pure Data**
- Sound basics, digital storage and playback, and an introduction to visual dataflow programming and patch creation in pd.
- Week 3 (9/11) **Sound Design History and Synthesis Basics**
- A historical perspective on game and sound design, audio engineering and game implementation, digital signal processing and simple synthesis using pd.
- Week 4 (9/18) **Game Audio Design**
- Early game audio examples, close listening, analysis and replication. Sequence and design using pd.
- Week 5 (9/25) **Audio Deconstruction & (the Illusion of) Interactivity**
- Designing sound to animation and mechanics.
- Week 6 (10/2) **Modern Audio Interactivity and DSP**
- More game implementation concepts, the Eastern/Western game design divide, signal processing using pd.
- Week 7 (10/9) **Interactivity in Continuous Sounds and Soundscapes**
- Looping sounds, granular synthesis, and procedural sound driven by in-game data.
- Week 8 (10/16) **Midterm Exam Review**
- Week 9 (10/23) **The Midterm Report and Assignment**
- Intro to the midterm assignment and final project.
- Week 10 (10/30) **Intro to Audio Middleware (Fmod)**
- Fmod structure: events, banks, definitions, and nested design.
- Week 11 (11/6) **Business of Game Audio and...?**
- Historical perspective, contracting issues, case studies, and something really weird.
- Week 12 (11/13) **Music and Interactivity**
- Notable historical examples, music formats, close listening, interactive music with Fmod Studio.

**Week 13 (11/20) The Game Music Exchange and Audio Innovation**

- The jaded and the optimistic duke it out, the connection between outsourcing and changing game audio design needs, crazy indie audio projects and fun stuff.

**Week 14 (11/27) THANKSGIVING**

**Week 15 (12/6) The Final Mix – Class Review and Other Stuff**

- Random rantings and ravings of a mad man.

**FINAL EXAM PERIOD: December 11<sup>th</sup>, 11 AM – 1 PM**