

University of Waterloo Stratford Campus  
Global Business and Digital Arts 229  
Hybrid Digital Media: Sound, Technology, and Design  
Fall 2014  
Wednesday 3-6 PM, Room 2022/2024

## Instructor and P.A. Information

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Course Hashtag: #GBDAsounds

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## Course Description

Students will be introduced to a history of recorded sound, exploring topics ranging from the development of the phonograph, to portable playback devices, to digital recording and autotune. Not only will students develop a context within which to place their musical experiences, but they will also learn practical skills as a foundation for the class' theoretical material. The course is structured to provide students with an understanding of sound that will influence their use of its various applications in design.

## Objectives

By the end of the course, students will:

1. understand the significance and potential of non-veridic recordings
2. be able to place new musical experiences within their historical context of recording
3. possess a practical and theoretical understanding of basic recording/processing methods including:
  - microphone use
  - editing
  - EQ (timbre)
  - compression (dynamics)
  - reverb (space)
4. be able to execute basic tasks using at least one DAW

## Required Materials

All of the required content for the course will be available online. Links to this content will be provided on LEARN, as well as on Twitter with the #GBDAsounds hashtag.

## Resources

Sign up for an account at [freesound.org](http://freesound.org). This website has a huge collection of recordings which you will use throughout the course, and beyond.

Create an account at Soundcloud, where you can post your recording projects from the course.

Finally, the course relies on using a Digital Audio Workstation, or DAW. This may include Logic, Pro Tools, Ableton Live, Cubase, FL Studio, Adobe Audition, or any other DAW of your choice. While many do cost money, you are also welcome to use Audacity, which is a powerful open-source DAW and can be downloaded for free at <http://audacity.sourceforge.net>

## Equipment

### Headphones

Please bring a set of headphones to class. Closed-back headphones are strongly recommended (as opposed to earbuds), in order to deliver a wider and more accurate frequency range. If you don't own a set of closed-back headphones, a limited number will be available to borrow from the **media loans**.

### Computer

We will be using computers for our practical work. Please bring your laptop to class with a DAW installed. If you don't own a laptop or prefer not to bring it to class, you may work in pairs with someone who has one with them

## Course Requirements and Assessment

|                                     |                                  |
|-------------------------------------|----------------------------------|
| Chop & Swap Final project           | 20%                              |
| Participation & Attendance          | 20%                              |
| Blog Reports                        | 20% (3 submissions x 6.66% each) |
| The Greatest Recording in the World | 10%                              |
| Ambient Production                  | 10%                              |
| Final Listening Test                | 5%                               |
| 3 Practical Projects                | 15%                              |
| <i>First Editing Exercise</i>       | ↳ 5%                             |
| <i>Quirky Recording Project</i>     | ↳ 5%                             |
| <i>Binaural Étude</i>               | ↳ 5%                             |
|                                     | <hr/>                            |
|                                     | 100%                             |

# Deliverables

## Chop & Swap Final Project

You will be provided with a speech recording, and will need to apply techniques learned in the course to create a new version. This will primarily involve editing using the DAW of your choice, as well as combining sounds of your own recording, or from online sites such as Freesound.

The final project will be an audio collage. Consider the tone and meaning of the recording, and then edit it to convey your own meaning. Use any of the techniques we've learned during the course as you arrange this project.

This recording will be submitted at the end of class.

You will then take a copy of your recording home, and write a 750-word report on the methods you employed, and how they fit into the context of the course. Ensure to cite your sources if you used sounds from the Internet.

Finally, you will receive a link to a project from another class member. In addition to the report on your own work, write a 250-word analysis of this work, considering questions such as:

- what techniques do you hear?
- what feelings do the production techniques evoke?
- what have we learned about, that can be connected with this work?
- what are some areas of opportunity for this production?

**In-class portion due: end of class, Nov 26**

**Written component due: 3 PM, Dec 3**

## Class Participation and Attendance

The participation grade will depend on: 1) attendance, 2) quality contributions to class discussions. Your attendance will be marked according to a very simple listening quiz at the beginning of each class. Simply completing the quiz and submitting it will earn you your attendance mark.

## Blog Reports

Create a blog post reporting on the past week's work - the class discussion, activities, and readings. What inspired you? Aim to connect this to the larger scope of the course.

Experiment! Don't be afraid to try unconventional, creative posts.

If you maintain a blog of your own, I encourage you to post these assignments on that site. If you don't maintain a blog, create a simple one as a home for your posts. Tumblr is an elegant and easy way to do this.

You will be responsible to submit 3 of these assignments over the course of the semester; you may select which weeks to hand these assignments in.

**Due: 1 PM on the Friday after class (2 days after class)**

## The Greatest Recording in the World

In a small group, present a recording of your choice to the class. Begin by giving a 5-minute presentation explaining why your selection is the greatest recording in the world. We'll then listen to the recording, and have a short discussion.

The aim of this exercise is to develop your vocabulary for talking about music and improve your ability to listen with a critical ear.

**Due:** Beginning of class on your given week

## Ambient Production

Building from our week on ambient music and Muzak, create an ambient music recording, working with a partner.

Use recordings from Freesound, and/or your own recordings, combined with any processing techniques you've learned

Consider the environment where this piece is intended to be heard, and how it can be as gentle and unintrusive as possible. How can you design sound to decorate the space?

Post this recording to at least one group-member's Soundcloud account. Along with your piece, submit a 300-word statement on the approach you took, where this piece is designed to be played, and how it complements the environment. Write this report into the track description on Soundcloud, and post the link on the class Tumblr site for that week's project.

**Lab:** during class, Nov 5

## Final Listening Test

Listening skills are extremely important in order to integrate the practical skills in this course. Your attendance quizzes will develop your ability to distinguish different frequencies. These will culminate in a short test at the beginning of the final day of class.

## First Editing Exercise

You will be given a short recording of a speech. Edit it using the DAW of your choice. Change the meaning by chopping up words and putting them into a new order. Aim to get this to sound as smooth and 'natural' as you're able to.

The aim of this project is to improve your comfort using a DAW. Post this project to your Soundcloud account and submit the link through LEARN.

## Quirky Recording Project

Given a choice of speech scripts, in a small group create your own 2-minute recording of any segment of it, completely ignoring the recording best practices we've discussed in class. Don't record this in a quiet room! Background noise, strange reverbs, and hums are all great.

Listen to your project and compare the differences between yours and the original recording (aside from the actual voice speaking).

Create a short video with the excerpt of the original speech you recorded (2 minutes), your recording (2 minutes), and a description of what you learned from this assignment (2-4 minutes).

Post this to YouTube and submit the link through LEARN.

## Binaural Étude

Using either supplied samples, sounds from Freesound, or your own recordings, create a 90-second project using *discrete panning*. That is, every sound must be panned hard left or hard right. You will work in pairs for this project – one group member will be responsible for creating the left channel, and the other for creating the right, and the two of you will work together to blend them and ensure they interact sensibly.

The aim of this project is to explore the interaction between these two channels, and to create a piece that will be most engaging to users wearing headphones (but one which may not work as well with loudspeakers). Post your piece on Soundcloud, and include the link in a description of how you approached your work, and what you learned from this project. Your only limit for this description is that it must be on a single page of paper.

## Course Schedule

| Date                        | Topic & Deadlines  | Practical Skills  | Resources<br>(❖ = reading<br>© = video)   | Projects Due |
|-----------------------------|--|---|---|--------------|
| <b>INTRO</b>                |  |   |   |              |
| Sept 10                     | <ul style="list-style-type: none"> <li>• course intro</li> <li>• what's a great recording?</li> <li>• the physics of sound</li> </ul>  |   |   |              |
| <b>THE FIRST RECORDINGS</b> |  |   |   |              |
| Sept 17                     | <ul style="list-style-type: none"> <li>• psychoacoustics</li> <li>• sound before recording</li> <li>• phonograph and Edison</li> <li>• from wax to shellac to vinyl</li> </ul> | Microphones: <ul style="list-style-type: none"> <li>• angles</li> <li>• placement</li> </ul> Volume | <ul style="list-style-type: none"> <li>❖ <a href="#">"Edison Film &amp; Sound: History of the Edison Phonograph"</a></li> <li>❖ <a href="#">Chicago Tribune, "The Future of the Phonograph"</a></li> <li>❖ <a href="#">Sousa, "The Menace of Mechanical Music"</a></li> <li>❖ <a href="#">Mandel, "D is for Decibel"</a></li> </ul> |              |
| <b>EARLY INNOVATION</b>     |  |   |   |              |
| Sept 24                     | <ul style="list-style-type: none"> <li>• Radio, Tape, and the War</li> <li>• Les Paul, overdubbing, and multitrack</li> </ul>  | Editing   | <ul style="list-style-type: none"> <li>❖ <a href="#">Creating the Craft of Tape Recordings</a></li> <li>© <a href="#">History of Magnetic Audio Tape</a></li> <li>© <a href="#">Editing Audio Tape</a></li> </ul>   |              |

| PROCESSING: FROM DISTORTION TO AUTOTUNE |  |                                    |   |                          |
|---|--|------------------------------------|---|--------------------------|
| Oct 1                                   | <ul style="list-style-type: none"> <li>early reverb, doubletracking, reverse guitar, echo, dub</li> <li>autotune</li> <li>time stretch</li> </ul>  | Reverb, Echo, Delay                | <ul style="list-style-type: none"> <li>❖ <a href="#">How Humans Conquered Echo</a></li> <li>❖ <a href="#">Conquering Reverb</a></li> <li>© <a href="#">Know Your Meme: Autotune</a></li> </ul>  | First Editing Exercise   |
| STUDIO AS INSTRUMENT                    |  |                                    |   |                          |
| Oct 8                                   | <ul style="list-style-type: none"> <li>music from time to space dimension</li> <li>The Beatles</li> <li>one-man bands</li> <li>studio best practices</li> <li>designing records</li> </ul>         | EQ                                 | <ul style="list-style-type: none"> <li>❖ <a href="#">Eno, "The Studio as Compositional Tool"</a></li> <li>❖ <a href="#">Gould, "The Prospects of Recording" (<i>The Splendid Splice</i>)</a></li> <li>❖ <a href="#">Mandel, "E is for Equalizer"</a></li> <li>© <a href="#">Making of Sgt. Pepper</a></li> </ul>  |                          |
| SURROUNDED BY SOUND: STEREO AND BEYOND  |  |                                    |   |                          |
| Oct 15                                  | <ul style="list-style-type: none"> <li>loudspeakers</li> <li>home theatre as a listening environment</li> <li>the legitimacy of the record</li> <li>working with many speakers</li> </ul>          | Compression                        | <ul style="list-style-type: none"> <li>❖ <a href="#">Radio Adds Third Dimension</a></li> <li>❖ <a href="#">History of Surround</a></li> <li>❖ <a href="#">Mandel, "C is for Compressor"</a></li> <li>© <a href="#">How Speakers Work</a></li> <li>© <a href="#">Emil Torick: "Quadraphonic Sound"</a></li> <li>© <a href="#">Dolby Atmos</a></li> </ul> | Quirky Recording Project |
| PORTABLE AND PRIVATE LISTENING          |  |                                    |   |                          |
| Oct 22                                  | <ul style="list-style-type: none"> <li>Walkman</li> <li>music for all activities</li> <li>music as lifestyle design</li> <li>soundtracking &amp; isolation</li> </ul>                              | Panning<br><br>Binaural processing | <ul style="list-style-type: none"> <li>❖ <a href="#">Story behind the Walkman</a></li> <li>❖ <a href="#">Smithsonian History of Headphones</a></li> <li>❖ <a href="#">The Argument Against Headphones</a></li> <li>❖ <a href="#">How Headphones Changed the World</a></li> <li>© <a href="#">Virtual Barbershop</a></li> </ul>                          | Binaural Étude           |
| AMBIENT AND MUZAK                       |  |                                    |   |                          |
| Oct 29                                  | <ul style="list-style-type: none"> <li>Brian Eno, John Cage, Erik Satie</li> <li>Music for environments, furniture music</li> <li>music as decoration</li> <li>programming environments</li> </ul> | Extreme processing                 | <ul style="list-style-type: none"> <li>❖ <a href="#">Eno, "Ambient Music"</a></li> <li>❖ <a href="#">Elevator Going Down: History of Muzak</a></li> <li>© <a href="#">John Cage on Silence</a></li> <li>© <a href="#">Imaginary Landscapes</a></li> </ul>   |                          |

| (LAB)                      |  |   |   |   |
|----------------------------|--|---|---|---|
| Nov 5                      | Work on Ambient piece  |   |   |   |
| HEARING 0s AND 1s: DIGITAL |  |   |   |   |
| Nov 12                     | <ul style="list-style-type: none"> <li>• Pro Tools, editing</li> <li>• Sequencing and MIDI</li> <li>• resolution</li> <li>• The end of scarcity</li> <li>• rebirth of vinyl</li> </ul> | Creating glitches<br><br>EDM (copy & paste) | <ul style="list-style-type: none"> <li>❖ <a href="#">Music Players from Edison to the iPod</a></li> <li>❖ <a href="#">The Guardian: Napster</a></li> <li>❖ <a href="#">Mandel, "B is for Bit Depth"</a></li> <li>❖ <a href="#">Understanding MP3 Compression</a></li> </ul> | Ambient Recording Project   |
| THE CURRENT & THE FUTURE   |  |   |   |   |
| Nov 19                     | <ul style="list-style-type: none"> <li>• Streaming</li> <li>• Apps</li> <li>• Generative music</li> <li>• Game music</li> </ul>  |   | <ul style="list-style-type: none"> <li>❖ Eno, "Generative Music"</li> <li>❖ <a href="#">Eno on Music That Thinks for Itself</a></li> <li>❖ <a href="#">Station to Station: The Past, Present, and Future of Streaming Music</a></li> </ul>                                  |   |
| IN CLASS PROJECT           |  |   |   |   |
| Nov 26                     | Final listening test<br>Final project  |   |   | <ul style="list-style-type: none"> <li>• Final Listening Test</li> <li>• Chop &amp; Swap Final Project (Audio Component)</li> </ul> |
| (HAND-IN WEEK)             |  |   |   |   |
| Dec 3                      |  |   |   | Chop & Swap Final Project (Written Component)   |

## Recommended Listening

Beastie Boys. *Paul's Boutique*. (and see [www.paulsboutique.info](http://www.paulsboutique.info) for sample lists)

The Beatles. *Sgt. Pepper's Lonely Hearts Club Band*.

Eno, Brian. *Ambient 1: Music for Airports*.

King Crimson. *In the Court of the Crimson King*.

Led Zeppelin. *Led Zeppelin IV*. esp. "When The Levee Breaks"

Nine Inch Nails. *The Downward Spiral*.

Oldfield, Mike. *Tubular Bells*.

Pink Floyd. *Dark Side of the Moon*.

Queen. *A Night At the Opera*. esp "The Prophet's Song"

Spoke And Mirror. *The Music is the Message*.

Stetson, Colin. *New History Warfare, Vol. 2: Judges*

## Recommended Reading

Cage, John. *Silence*.

Hodgson, Jay. *Understanding Records: A Field Guide to Recording Practice*.

McLuhan, Marshall. *The Medium is the Massage: An Inventory of Effects*.

Nahmani, David. *Apple Pro Training Series: Logic Pro X: Professional Music Production*.

Warner, Daniel and Christopher Cox. *Audio Culture: Readings in Modern Music*.

## Policies

### Works Cited

Please cite all external sources you've used for your projects, whether those are recordings, videos, articles, or substantial ideas. It doesn't matter which style of citation you use (MLA, Chicago, APA, etc.) – please make sure to keep it consistent, and make everything as easy as possible to find.

### Late Work

Late assignments will have 5% deducted for every 24 hours they are late.

### Electronic Device Policy

The precise details will be agreed upon on the first day of class, and the class will adhere to the agreement unless amendments are made. For a general guideline, please refer to the Code of Professional Conduct.

### Attendance Policy

Your attendance in class – both the frequency of your attendance as well as the quality of your contributions – comprise your attendance mark, which counts for 20% of your final mark. Travel plans are not an acceptable reason for being absent. Emergencies will be dealt with on a case-by-case basis.

### Academic Integrity

In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. See the UWaterloo Academic Integrity Webpage (<https://uwaterloo.ca/academic-integrity/>) and the Arts Academic Integrity Office Webpage (<http://arts.uwaterloo.ca/current-undergraduates/academic-responsibility>) for more information.

### Grievance

A student who believes that a decision affecting some aspect of his/her university life has been

unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4 (<https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70>). When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.



## Discipline

A student is expected to know what constitutes academic integrity to avoid committing academic offenses and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the undergraduate associate dean. For information on categories of offenses and types of penalties, students should refer to Policy 71, Student Discipline (<http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>). For typical penalties check Guidelines for the Assessment of Penalties (<http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm>).

## Appeals

A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals (<http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>).

## Note for Students with Disabilities

The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.