

Technology for Music Educators (MUS1331) Spring 2018 Syllabus

Dear Musicians,

No matter what music field in which you find yourself, you have a better chance accomplishing your purpose if you can confidently and effectively use technology ... daily. Today's musicians (performers, teachers, composers, etc.) simply cannot be neo-[luddites](#) or label themselves as "not tech people". This course will provide hands-on experiences with the aim to shed technological hinderances, build technological confidence, and provide a foundation for lifelong technological self-directed learning. My aim is that you leave this course excited about new technologies and never again describe yourself as "not a tech person" ...

... you will be more hireable and successful as a result.

Below is the syllabus for MUS1331, Technology for Music Educators. Please email me (B_Johansen) if you have any questions or would like to set up a time to meet to get assistance with an assignment or with prepping for an assessment. My office is 233 in the McCrary Music Building.

Sincerely,

Dr. Ben Johansen

Composition & Computer Music

[Prerequisites and course materials]

There are **no** course prerequisites and **no** technological skill prerequisites; AND I will not assume you have any technology skills or knowledge ... so there's the baseline. This course is for music majors only; instructor consent is required for non-music majors to register for this course. It is important (but also negotiable in rare cases) that students do know how to read music notation and play a musical keyboard. Additionally, there are no required course materials (textbooks, equipment, supplies, etc.) for you to purchase for this course: all resources, materials, and equipment for participating in class and completing assignments will be supplied for you.

[Course Objective]

As a requirement for music education and music composition majors, this course's objective is to **empower future music educators and composers with digital and media literacy.**

- Literacy is defined by the Oxford English Dictionary as "The quality, condition, or state of being literate; the ability to read and write."¹
- Digital literacy has been defined by a 2013 American Library Association (ALA) task force as "the ability to use information and communication technologies to find, understand, evaluate, create, and communicate digital information, an ability that requires both cognitive and technical skills."²
- Media Literacy is defined by the Center for Media Literacy (CML) as "[providing] a framework to access, analyze, evaluate, create and participate with messages in a variety of forms – from print to video to the Internet. Media literacy builds an understanding of the role of media in society as well as essential skills of inquiry and self-expression necessary for citizens of a democracy."³

The following quotes are from William I. Bauer's book, *A Conceptual Framework for Technology-Assisted Music Learning*.

"Like every other facet of life, music too has been greatly affected by technology. Technology is an integral part of the way much music in today's world is created, performed, preserved, and consumed, and it can be an authentic aspect of the expression of individual musicianship. Performing musicians use instruments, both digital and otherwise, that have been enhanced through technology. Popular musicians in particular have taken advantage of digital technologies to utilize unique sounds and effects in their concerts. Performances are recorded using sophisticated software and hardware that enable the captured sound to be easily mixed and edited. Composers and arrangers use sequencing and notation software to create printed notation and compositions. Some of these applications have experienced a remarkable transformation; as they grow more and more powerful, they also become easier to use—for example, professional-sounding recordings can now be created in basement music studios."⁴ - [LINK](#)

"Today, teachers in all disciplines are actively making technology an integral aspect of their students' learning."⁵ - [LINK](#)

"Being able to use technology effectively requires not only an understanding of technology itself, but also of effective pedagogical approaches for utilizing that technology in a particular content area."⁶ - [LINK](#)

"Technology can also help to facilitate the critique process, performance of compositions, and sharing of works with others."⁷ - [LINK](#)

¹ "literacy, n.". OED Online. March 2017. Oxford University Press, available at: <http://www.oed.com/view/Entry/109054?redirectedFrom=literacy> (accessed May 04, 2017).

² American Library Association (ALA) (2013), Digital Literacy, Libraries, and Public Policy, Report of the Office for Information Technology Policy's Digital Literacy Task Force, available at: http://www.districtdispatch.org/wp-content/uploads/2013/01/2012_OITP_digilitreport_1_22_13.pdf (accessed 4 May 2017).

³ Center for Media Literacy (CML), Media Literacy: A Definition and More, available at: <http://www.medialit.org/media-literacy-definition-and-more> (accessed 4 May 2017)

⁴ Bauer, William I. "A Conceptual Framework for Technology-Assisted Music Learning." In *Music Learning Today: Digital Pedagogy for Creating, Performing, and Responding to Music*. New York: Oxford University Press, 2014. Oxford Scholarship Online, 2014. doi: 10.1093/acprof:oso/9780199890590.003.0001. Chapter 1, pg. 6.

⁵ Bauer - Ch. 1, pg. 6

⁶ Bauer - Ch. 1, pg. 11

⁷ Bauer - Ch. 3, pg. 66

[Learning Objectives]

By the end of this course, you will be able to confidently, judiciously, and skillfully use technology hardware and software to:

- **Record** a variety of visual and aural content [onto digital media]
- **Edit** a variety of digital content
- **Create** a variety of digital content
- **Collaborate** with others on digital projects
- **Share** a variety of digital content
- **Teach** musical skills and concepts

[Course Format]

We will meet as a class for 75 minutes, twice a week. The first meeting of each week (Monday or Tuesday) will be a lecture/demonstration day. I will talk a great deal and you will be expected to take very detailed notes. You will be tested on the material during midterm and final exams.

The second meeting of each week (Wednesday or Thursday) will be a class lab. My aim is not to address the class as a whole on lab days in order to encourage 100% active learning.

We will meet in a variety of places around campus as listed on the schedule:

- [Crouch Music lab](#) or Seminar Rooms (3rd floor of Moody Library)
- Alinea ([Marrs McLean Science Building Room 330](#))
- MMSCI 101 (Marrs McLean Science Building Room 101)
- VizStudio ([Graduate Research Center - Poage Library](#))
- Roxy Grove Hall
- Sid Rich 100 (Sid Richardson Building - Paul L. Foster Success Center)

[Attendance]

The following is straight from the School of Music Undergraduate Handbook (I made the last sentence red):

School of Music policy requires that to earn credit in a course a student must be officially enrolled by the end of the second full week of the semester and attend at least 75% of all class meetings. Faculty members may establish additional attendance requirements as outlined in course syllabi. Any student who is not present for at least 75% of the scheduled class sessions for any course will automatically receive a grade of "F" in the course. **Any University-related activity necessitating an absence from class will count as an absence when determining whether a student has attended the required 75% of class meetings.**

We will meet 27 times total; so you must attend at least 21 classes to be eligible to pass the course. (If you miss 7 classes you fail the course). If you miss more than 20min of a class, you will receive a 1/2 absence.

[Grading]

Engage with the material.
 Take risks with the technology.
 Search and be curious.

50% Projects
 20% Attendance
 15% Midterm Exam
 15% Final Exam

A = 90-100	B = 83-86	C+ = 77-79	C- = 70-72
B+ = 87-89	B- = 80-82	C = 73-76	F = 0-69

View your current grade and attendance in Canvas at any time.

[Academic Success]

We as faculty members have high academic expectations of you and believe every student who has been admitted to Baylor can be successful. I am a vigilant professor and will notice if you are struggling in my course. If your academic performance in this class is substandard, I will submit an Academic Progress Report to the Success Center during the sixth week of the semester. I will work to help you get the help you need to learn more fully, and I can assist you in finding the resources you need beyond my course. Familiarize yourself with the culture of success we have at Baylor by stopping by the Paul L. Foster Success Center in Sid Richardson or by going to: <http://www.baylor.edu/successcenter/>. Even if you don't need help, you can get involved by tutoring other students in the future or by telling a hall mate how and where to get help.

[Academic Integrity]

Plagiarism or any form of cheating involves a breach of student-teacher trust. This means that any work submitted under your name is expected to be your own, neither composed by anyone else as a whole or in part, nor handed over to another person for complete or partial revision. Be sure to document all ideas that are not your own. Instances of plagiarism or any other act of academic dishonesty will be reported to the Honor Council and may result in failure of the course. Not understanding plagiarism is not an excuse. As a Baylor student, I expect you to be intimately familiar with the Honor Code at: <http://www.baylor.edu/honorcode/>

[Students Needing Accommodations]

Any student who needs academic accommodations related to a documented disability should inform me immediately at the beginning of the semester. You are required to obtain appropriate documentation and information regarding accommodations from the Office of Access and Learning Accommodation (OALA). Contact Information: (254) 710-3605 - Paul L. Foster Success Center, 1st floor on the East Wing of Sid Richardson.

[Baylor University Title IX]

Sexual and Gender-Based Harassment and Interpersonal Violence Policy

Baylor University does not discriminate on the basis of sex or gender in any of its education or employment programs and activities, and it does not tolerate discrimination or harassment on the basis of sex or gender. This policy prohibits sexual and gender-based harassment, sexual assault, sexual exploitation, stalking, intimate partner violence, and retaliation (collectively referred to as prohibited conduct).

For more information on how to report or to learn more about our policy and process, please visit www.baylor.edu/titleix or call the Title IX Office at (254) 710-8454.

The Title IX office understands the sensitive nature of these situations and can provide information about available on- and off-campus resources, such as counseling and psychological services, medical treatment, academic support, university housing, and other forms of assistance that may be available. Staff members at the office can also explain your rights and procedural options if you contact the Title IX Office. You will not be required to share your experience. **If you or someone you know feels unsafe or may be in imminent danger, please call the Baylor Police Department (254-710-2222) or Waco Police Department (9-1-1) immediately.** For more information on the Title IX Office, the *Sexual and Gender-Based Harassment and Interpersonal Violence policy*, reporting, and resources available, please visit the website provided above.

[Military Student Advisory]

Veterans and active duty military personnel are welcomed and encouraged to communicate, in advance if possible, any special circumstances (e.g., upcoming deployment, drill requirements, disability accommodations). You are also encouraged to visit the VETS Program Office with any questions at (254) 710-7264.

[Schedule]

Section1	Section2	Location	Topic
M_01/08	T_01/09	Crouch Music Lab	How Computer Hardware Works
W_01/10	R_01/11	Alinea (MMSCI 330)	How Computer Hardware Works
M_01/15	T_01/16	NO CLASS	
W_01/17	R_01/18	CLASS ONLINE, see = Project#2 - How Networking (the Internet) Works	
M_01/22	T_01/23	Alinea (MMSCI 330)	How Computer Software Works How to Keep Current with Technology
W_01/24	R_01/25	Crouch Music Lab	Hour of Code
M_01/29	T_01/30	Crouch Music Lab	How Graphics Work
W_01/31	R_02/01	Crouch Music Lab	How MIDI Sequencing Works
M_02/05	T_02/06	Crouch Music Lab	How Notation Software Works
W_02/07	R_02/08	Crouch Music Lab	[work on notation project in class]
M_02/12	T_02/13	VizStudio (GRC)	[present 3min Google Slides Project]
W_02/14	R_02/15	CLASS ONLINE, see = Project#8 - Charms Office Assistant	
M_02/19	T_02/20	Crouch Music Lab - class not required - I will be there to help w/ Project#6	
W_02/21	R_02/22	Alinea (MMSCI 330)	How Copyright & Licensing Works
M_02/26	T_02/27	Alinea (MMSCI 330)	How Audio Recording Works
W_02/28	R_03/01	Roxy Grove Hall	[audio record] MIDTERM EXAM DUE Notation Project #6 due
M_03/05	T_03/06	NO CLASS	
W_03/07	R_03/08	NO CLASS	
M_03/12	T_03/13	Alinea (MMSCI 330)	How Audio Editing Works
W_03/14	R_03/15	Crouch Music Lab	[edit audio] Project #10 is due
M_03/19	T_03/20	Alinea (MMSCI 330)	How Videography Works
W_03/21	R_03/22	Roxy Grove Hall	[multicam video record]
M_03/26	T_03/27	Alinea (MMSCI 330)	How Video Editing Works
W_03/28	R_03/29	Crouch Music Lab	[edit multicam video]
M_04/02	T_04/03	NO CLASS	
W_04/04	R_04/05	MMSCI 101	[record, edit, and share audio/video recordings]
M_04/09	T_04/10	Alinea (MMSCI 330)	iPad experience
W_04/11	R_04/12	Alinea (MMSCI 330)	How Live Streaming Works
M_04/16	T_04/17	NO CLASS	
W_04/18	R_04/19	Alinea (MMSCI 330)	How Interviewing Works (Presentation Slides)
M_04/23 3:20-4pm		Sid Rich. 100	[interviews]
	T_04/24	Sid Rich. 100	[interviews]
W_04/25	R_04/26	Sid Rich. 100	[interviews]

FINAL EXAM (Cumulative)

Location = TBA

Section 1**Section 2****5/4 9-11am****5/3 9-11am**

Project #1 - due January 10/11

You and three of your colleagues from this class are locked in a warehouse containing every type of computer hardware and software, but no assembled computers. It is highly possible that the warehouse will never be unlocked and no one will ever find you. You must make contact with someone to rescue you and your only way of contact is via an active broadband [coaxial] cable line you can see hanging out of the wall. Note: there is a power outlet as well.

Explain, as precisely as possible, how you would build a computer and contact someone to get rescued. Divide the project up among your group members as evenly as possible so each of you can thoroughly research a different aspect of your solution. You will have 10 minutes at the beginning of next class meeting to finalize your solution together before you formally present it to the class using whatever means you deem most effective.

Project #2 - due January 22/23 (by beginning of class)

Do the following:

1. Watch the following in this order:
 - a. [The Internet: HTTP & HTML](#) (7min)
 - b. [The Internet: Wires, Cables & Wifi](#) (7min)
 - c. [The Internet: IP Addresses & DNS](#) (7min)
 - d. [The Internet: Packets, Routing, & Reliability](#) (7min)
 - e. *Optional* = re-watch [The Internet: HTTP & HTML](#) (7min)

Project #3 - due January 24/25 (by end of class)

Hour of Code

- 1. Processing** (27min)
 - Go through all of [2. Shapes](#), [3. Color](#), and [4. Interact](#) (skip 1. Hello)
- 2. HTML/CSS** (20min)
 - [Create a General Assembly account](#)
 - Go through [Project 1: Build a Personal Website](#)
- 3. Javascript** (20min)
 - [Create a Codecademy account](#)
 - Go through [Learn JavaScript](#)

Alternatives if any of the above are not working

- [KhanAcademy Computer Prog.](#) , [TryRuby.org](#) , [freeCodeCamp.org](#) , [Kadenze](#)

Project #4 - due January 29/30 (by end of class)

Hour of Graphics (2D and 3D)

[Download this photo at the beginning of class](#)

■ 2D Raster

- Adobe Photoshop:
 - Open Photoshop
 - Download the [sample files and go through this tutorial](#)
- Pixlr Editor
 - In Chrome, open [pixlr.com/editor](#) = click anywhere on the page, click "Leave", click "Allow" when given the popup in top left, and finally click "Reload"
 - Try going through some of the same edits in Pixlr Editor that you did in Photoshop

■ 2D Vector

- Adobe Illustrator
 - Open Illustrator
 - [Go through this tutorial](#)
- Gravit
 - Try creating some of the same graphics in [Gravit](#) that you did in Illustrator
 - [This video](#) will help you with curving the triangle point

■ 3D (mix of vector and raster ... mostly vector, but textures are raster for example)

- Sketchup (desktop version)
 - Open the desktop version of Sketchup
 - Follow along with [this tutorial](#)
- Sketchup (browser version)
 - Try creating similar 3D graphics using the [online version of Sketchup](#)

* Bonus = Canva

- [Create a Canva account](#) (and login)
- Go through [this tutorial](#) to get a feel for what Canva can do

Project #5 - due January 31 / February 1 (by end of class)

Go to benjohansen.com/midi

Show me what you have sequenced in GarageBand by end of class.

Project #6 - due February 28 / March 01 (beginning of class)

This project will produce **4 total pages** (no more, no less ... you must make the scores beautifully fit using page resizing, etc.)

Page 1:

- Enter a Bach choral into Finale
 - Must come from [this document](#) which has no text (lyrics) and requires layers
 - Use two staves (a grand staff or choir reduction) ... do not use 4 staves

Page 2:

- Enter a **different** Bach choral into Dorico than you entered into Finale
 - Must come from [this document](#) which has no text (lyrics) and requires [voices](#)
 - Use two staves (a grand staff or choir reduction) ... do not use 4 staves

Page 3:

- Enter 4 measures of full orchestra into Finale from any orchestral score made up of at least 10 instruments - you must include all elements of the score (expressions, rehearsal numbers, etc.)
 - to change the size of all the elements of your document, use the % tool

Page 4:

- Enter a **different** set of 4 measures of full orchestra into Dorico than you entered into Finale from any orchestral score made up of at least 10 instruments
 - to change the size of all the elements of your document, watch [this video](#)

How to turn in:

- Label each page within the software with the pieces' titles and your name
- Print out the 4 pages to hand in to me
- Send me an email (b_johansen) containing the Finale and Dorico files (4 total files) compressed into a single zip file

Finale = [Quickstart Videos](#) and [Online Help](#)

- [Finale25 Keyboard Shortcut Sheet](#)
- [Speedy Entry](#)

Dorico = [How To Videos](#) and [Online Help](#)

- Keyboard Shortcuts = Help menu > Key Commands
- [lyrics](#)

Project #7 - due February 12/13 (beginning of class)

Presentation - find details here = <http://benjohansen.com/presenting>

Project #8

Familiarize yourself with what [Charms Office Assistant](#) has to offer you as a band, orchestra, or choir director. There is nothing to turn in for this ... but it will be included in your midterm exam.

Project #9 - due February 21/22 (beginning of class)

After completing the following, type up one question you still have about copyright or licensing (include your name on the paper). You will hand this to me at the beginning of class.

1. Read all = [Copyright Basics](#) provided by The Copyright Society of the USA
2. Study = Cornell chart "[Copyright Term and the Public Domain](#)" – especially:
 - Works Registered or First Published in the U.S.
 - Sound Recordings Published in the United States
3. Read the following definitions from On the Terms page of the CSUSA site:
 - License = <http://www.csusa.org/?page=Definitions#license>
 - Master Use License = www.csusa.org/?page=Definitions#masteruselicense
 - Synchronization License = www.csusa.org/?page=Definitions#synchronizationlicense
4. Watch = [intro video for Creative Commons Licenses](#)
5. Study = different license types at the [bottom of this page](#)

Midterm Exam Details - due February 26/27 (beginning of class) ... 15% of your grade!

Create an outline of the most important topics we have covered so far this semester (not including copyright/licensing). Create it in such a way that it will be a helpful resource for you in years to come. Include details you would easily forget. I will consult these as I create the final exam ... and I will pass these back out to you to use as you take the final exam! Here are most of the topics we have covered: How computer hardware/software works, how the internet works, how coding works, how to keep up with current technology, how graphics work, how MIDI and notation software works, how to best use presentation software, and Charms Office Assistant.

Project #10 - due 3/14 or 3/15 (beginning of class)

Record audio in the library's Media Lab recording booths:

- Reserve a time = <https://libcal.baylor.edu/booking/medialab>
- record at least 1min of yourself playing your instrument (singing if you are a vocalist)
- record yourself reading a poem of your choice
- record a sound effect (bring something) = <https://www.instagram.com/oddiostudio/>
- Save your files to your own folder in Box as .AIFF or .WAV
 - Send me a link to the the Box folder (make it available to people in your company)
 - do NOT add me as a collaborator

Project #11 - due by end of class (3/14 or 3/15)

“THE ONLY THING YOU CAN DO WRONG IS HOLD YOURSELF BACK FROM EXPERIMENTING.”⁸

1. [Download 19 tracks of Skalandunas's 'Sun Drenched'](#)
2. Open GarageBand
 - a. Start an "Empty Project"
 - b. Save (somewhere you can find it) ... and save often; GarageBand saves everything, including imported audio, in one convenient folder (called a package)
 - c. Unzip the tracks you downloaded and drag them all into GarageBand
 - d. Turn off GarageBand's metronome
3. Work your way through "[Mixing Your Music](#)" (here is [Skalandunas's version](#) for comparison)
 - The first thing you should always do = turn down the volume of every track to create more headroom (that way, when they are summed the main out will not clip)
 - [Use Automation](#) (press "a" to toggle on/off) which is a vital and VERY powerful in mixing
 - Pan (especially mono tracks) - consider the dialogue between drums and psaltery ... try panning the drums left of center and the psaltery right of center
○ = mono track (recorded with 1 mic) ○○ = stereo track (recorded with 2 mics)
 - EQ
 - Add compression (due to the ability to choose a threshold and compression ratio, compression functions very differently than normalizing)
 - Add reverb as a plugin where needed (Space Designer presets are amazing!)

★ **Incorporate all 3 of the recordings you made for Project #10 into 'Sun Drenched'**
4. Show me your mix before class is over

Tip = Make Percussion2 (wind chimes) louder by normalizing the audio file in Audacity

⁸ "Mixing Your Music" <https://www.landr.com/en/how-to-mix>

Project #12 - due by the end of class (3/28 or 2/29)

1. Download [this multicam footage](#):
 - Audio = two files:
 - stereo track (pair of room mics)
 - mono track (close mic on the instrument)
 - Video = three AVCHD files: two side cameras and a safety in the balcony
2. Combine the two audio files into one stereo file using Audacity
 - It will sound even better if you remove the noise from the stereo room mic track
3. Choose Adobe Premiere **OR** DaVinci Resolve to multicam edit the video
 - Use "Multicam Video Editing" notes at the end of the syllabus
4. Upload the a 720P completed video to Box
5. Email me a Box shared link to the video (do not add me as a collaborator)

Tips:

Premiere:

- [How to use two tools to start editing \(selection tool and razor tool\)](#)

Resolve:

- Like Premiere, you can use the razor tool to cut a clip
- [Color grading tutorial](#)

Project #13

Record video

Project #14

Link to video/audio recorded April 5 =

<https://baylor.box.com/s/c0ph6oliqmjhajwkv959s2z9tmki0iny>

Link to video/audio recorded April 4 = <https://baylor.box.com/s/ntcoxeiohd5zglycuvjswxdwk0qlbye6>

Project #15

Interview

Final Exam

Live sound reinforcement in Meadows

SETUP:

On stage (all using balanced XLR cables)

(2) speakers

(2) dynamic microphones

(1) phone or computer (unbalanced headphone output) + y-cable + 2 direct boxes

Back of the hall:

(1) Analog mixer

(1) phone or computer (unbalanced headphone output) + y-cable (1/8" to two 1/4")

PERFORMANCE:

1. Performer #1 = talk in mic 1
2. Technician #1 = play track from phone or computer from back of the hall
3. Performer #2 = talk in mic 2
4. Performer #3 = play track from phone or computer on stage

Multitrack audio recording in Jones Hall / Crouch's Music Lab

SETUP:

(3) close condenser mics (one per performer)

(1) stereo pair of mics to capture all performers and room reverb

(1) computer (Audacity) + audio interface

RECORDING:

- record each of the 5 mics separately using Audacity
 - make sure to select the PreSonus interface as the audio input
 - use 44.1k/24bit (under "Quality" in Preferences) ... because that is what GarageBand uses
 - set the number of tracks to record to 5
- Export as 5 separate audio tracks:
 - File > Export > Export Multiple ...
 - Format: Other Uncompressed files
 - AIFF or WAV at 24-bit
 - Upload to Box or save to a USB drive (something everyone in your group can access)

***** each student must mix the 5 tracks ... nevertheless, you can get help from others in the class *****

MIXING in Crouch's Music Lab:

- Use GarageBand
- Crop the recording to just the important portion
- Use panning and volume levels on each track to create a good stereo mix
- Save as .MP3 (Share > Export Song to Disk ...)
- Email me the .MP3 [B_Johansen@baylor.edu]

Software Suggestions

Note: This is not a purchasing list = everything will be provided for you for MUS1331 assignments. This is a list of everything we cover in the class.

Audio:

- Open Source Mac/Win/Linux = [Audacity](#)
- \$ = [GarageBand](#)
- Professional Mac only = [Logic Pro](#)
- Professional Mac/Win = [Pro Tools](#), [Ableton Live](#), [Reaper](#) (cheapest), [Izotope RX](#) (audio repair)
- Free Lossless Decoder for Mac = [XLD](#)
- Free easy Granular Synthesis Mac/Win = [Soundgrain](#)

Video:

- Open Source Mac/Win/Linux = [Resolve](#)
- Professional Mac/Win = Adobe Premiere
- Tips
 - [TED Talk Editing Tool-kit](#)
 - [Classic Rules of Video Editing](#)
 - [Encoding Settings for Youtube](#)
 - [Encoding Settings for Vimeo](#)

AV Streaming:

- Open Source Mac/Win/Linux = [OBS Studio](#)

Music Notation:

- Free Online = [noteflight.com](#), [flat.io](#)
- Open Source Mac/Win/Linux = [musescore.org](#),
- Professional Mac/Win = [Dorico](#), [Finale](#)

Chord Chart Accompaniment:

- [iRealPro](#)

Tools for Sound, Graphics, and Interactivity:

- Mac/Win = [Max](#)
- Open Source Mac/Win/Linux = [Pure Data](#)

FTP Clients:

- Open Source Mac/Win = [Cyberduck](#)
- Open Source Mac/Win/Linux = [FileZilla](#)
- \$ (what Baylor uses) = [Fetch](#)

Image:

- [Image File Formats Primer](#)

Vector Graphics:

- Free Online = [Gravit](#)
- Free easy Graphic Design Tool = [Canva](#)
 - [Canva Tutorial](#)
- Open Source Mac/Win/Linux = [Krita](#)
- Professional Mac/Win = Adobe Illustrator
- Free/Paid Diagramming = [Gliffy](#)
- Free royalty-free vectors = [Vecteezy](#), [Icons](#)

Bitmap Photography:

- Free Online = [Pixlr](#)
- Open Source Mac/Win/Linux = [Gimp](#)
- Professional Mac/Win = Adobe Photoshop
- Free royalty-free images = [Pexels](#)

Presentation:

- Free Online = [Google Slides](#)
- Free Keep Computer Awake = [Caffeine \(Mac\)](#)

Note keeping:

- Free (and paid versions) = [Evernote](#)

Computer Programming:

- Open Source Text Editor Mac/Win/Linux = [Atom](#) or [Visual Studio Code](#) (easier on Win)
- Learn JavaScript = [JavaScript.com](#), [JavaScript.info](#), [CodeAcademy](#)
- Learn Processing = [hello.Processing.org](#)
- Learn HTML, CSS, JS = [dash.generalassemb.ly](#)

Band/Choir/Orch Program Management:

- Paid Online = [Charms Office Assistant](#)

Password Managers: [Wirecutter Article](#)

[Setting up a Secure Home Network](#)

iPad apps covered in class

Check out = <https://www.apple.com/education/>

Record

- AVR PRO
- GarageBand
- Voice Record
- RODE Rec LE

Perform from a Score

- forScore (use "Cue" app for ensemble) - Pair with AirTurn Bluetooth pedal
- PiaScore

Metronomes/Tuners

- Tempo
- TE Tuner
- Beat Keeper, TuneWave, Pitch Please!
- Tempi (get tempo of ensemble)
- Meowtronomie
- Pro Metronome

Creativity

- Brainsparker
- Oblique Strategies

Notation

- Notion
- TapNote
- Music Scanner

Libraries

- Henle Library
- NoteStar

Marching Band

- 3D Viewer
- Drillbook Next

Sight Reading

- T-M-A-S-G
- Dancing Line
- On the line

Ear Training

- Ear Trainer
- Aural Wiz
- Better Ears
- Ear Worthy

Rhythm

- Rhythm Swing
- Rhythm Lab
- Rhythm Notation

Theory

- MTP (Music Theory Pro)
- Tenuto
- Music Theory

Learn about ensembles

- Orchestra
- Tutti Player
- Biophilia
- Clapping Music

Transcribe

- ASD Lite
- Chord Detector

Note ID

- Note Rush
- Treble Game
- Music Tutor
- Flashnote
- NinGenius
- Dragon Scales
- TuneTrain

Fingering Charts

- Fingerings
- Strings

Misc. Fun Music Learning

- Music Lab
- PianoMaestro
- Amadeus

Other useful apps for educators:

- [Various magazines], Choral Director Mag HD
- Whiteboard
- SproutBeat (music worksheets)
- Remind (secure community to send messages to parents and students)
- StageWrite

Audio and MIDI Routing (from app to app within the iPad and external devices)

- Audiobus 3
- Midiflow

Control

- MIRA: control Max (Cycling'74)
- TouchOSC
- Lemur
- Wingman: control SoundDevices MixPre

Create

- Loopy HD
- Model 15, Filtatron, Animoog, ODYSSEi
- GlitchBreaks, Thor
- Bloom HD, ORO VisualMusic, Musyc, Reactable, Caustic

MUS 1331: Copyright & Licensing Resources

Compiled by Clayton Crenshaw, Music Liaison Librarian; revised February 2018

[Slides from Clayton Crenshaw's Presentation](#)

Baylor Resources

[Baylor Copyright Guide](#)

[Baylor Copyright Pages for Students](#)

[Baylor Intellectual Property Policy](#)

Copyright Education

[Copyright Terms & Definitions](#) (Copyright Society of the USA)

[Copyright Basics](#) (Copyright Society of the USA)

[Copyright Tutorial for Musicians](#) by Jodie Griffin

[Copyright Crash Course](#) (UT-Austin)

[Copyright Term and the Public Domain in the United States](#) (Cornell University)

[Untangling the Bundle: Grand Rights vs. Small Rights](#) by Steven Lankenau

[BMI: Types of Copyright](#) [and Licensing]

[National Association for Music Education: Copyright](#)

- includes FAQs, links to articles and outside resources

[NAfME: Copyright Guidelines for SchoolTube](#)

[CCLI: Church Copyright License Manual](#)

Fair Use

[Guidelines for Educational Uses of Music](#)

[Codes of Best Practices – Center for Media and Social Impact](#)

[Code of Best Practices in Fair Use for Online Video](#)

[Fair Use Guidelines for Educational Multimedia](#)

[Cornell Fair Use Checklist](#)

[Columbia Fair Use Checklist](#)

[Tales from the Public Domain: BOUND BY LAW?](#) (Center for the Study of the Public Domain)

[“Letting Us Rip: Our New Right to Fair Use of DVDs”](#) by Jason Mittell

Drummond, Tim. “Understanding Copyright and Fair Use in the Music Classroom.” *Music Educators Journal* 102, no. 2 (December 2015): 48–53. <https://doi.org/10.1177/0027432115611233>

U.S. Copyright Office

[U.S. Copyright Office: Search Records](#)

[U.S. Copyright Office: Circulars and Brochures](#)

[U.S. Copyright Office: FAQs](#)

[U.S. Copyright Office: Registration Portal](#)

MUS 1331: Copyright & Licensing Resources (continued)

Compiled by Clayton Crenshaw, Music Liaison Librarian; revised February 2018

Forms

[Harry Fox Agency: Request for Mechanical License](#) (for requests not available through Songfile)
[Music Publishers Association Copyright Resource Center](#)

Creative Commons

[Creative Commons: About the Licenses](#)
[Creative Commons License Generator](#)
[Creative Commons Search](#)

Music Licensing - General

Passman, Donald S., and Randy Glass. *All You Need to Know about the Music Business*. Ninth edition. New York: Simon & Schuster, 2015. ([ML3790 .P35 2015](#))

Performance Licensing

[ASCAP: License Agreements and Reporting Forms](#)
[ASCAP: Join ASCAP](#)
[ASCAP: Licensing Help](#)
[ASCAP: How to Make Money with Your Music on YouTube](#)
[BMI: Licensing FAQ](#)
[BMI: Resources for Creators](#)
[SESAC: FAQ page](#)
[SESAC: Obtain a SESAC License](#)
[CCLI: Church Copyright License](#)
[CCLI: Streaming License](#) (bottom of page)
[Christian Copyright Solutions](#)

Mechanical Licensing (sound recordings)

[Harry Fox Agency](#)
[Songfile FAQs](#)
[CCLI: Rehearsal License](#) (bottom of page)

Synchronization and Master Use Licensing (audiovisual works)

[ASCAP: How to Acquire Music for Films](#)
[Easy Song Licensing: Master License](#)
[Easy Song Licensing: Synchronization License](#)
[Harry Fox Agency: Do I Need a License to Use Music in My YouTube Video?](#)

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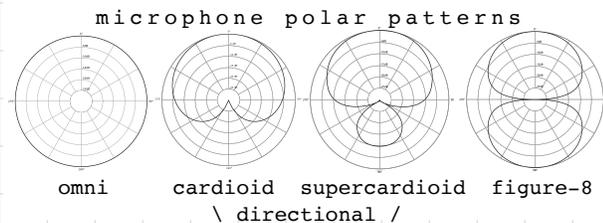
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Sound Reinforcement: a creative task! there is no right way!

- resource = Shure publication "Audio Systems Guide for Music Educators"
- when powering up = turn amplifiers (powered speakers) on LAST and off FIRST
- describing sound waves = frequency, wavelength, amplitude, envelope (ADSR), harmonic content

Parts of the system (in order from performer's mouth or instrument ==> audience)

1. mic
2. channel strip (top to bottom = signal path)
 - A. preamp = boosts mic level to line level
 - B. EQ = shapes tone
 - C. auxiliary sends = additional outputs
→ (to stage monitors for example)
 - D. fader = adjust channel line level volume
 - E. pan
3. main output



4. amplifier = boosts signal from line level to very high levels designed for passive speakers ONLY
 - active (powered) speakers have amplifiers built into them
 - some mixers have amplifiers built in (called power mixers) and are sold along with passive speakers
5. loudspeakers (active or passive "main" speakers)

Effects processors:

- compressors/limiters = boost quiet sounds and attenuate loud sounds (keep distortion from occurring further down signal chain)
- special effects processors = add ambience (reverb), flange, delay, distortion, etc.

FOLD

- feedback = mic too close to PA speaker, mic too far from source being amplified, and/or too many mics
 - directional mics help minimize feedback by isolating sounds being picked up
 - rooms with less hard surfaces have fewer feedback issues ... no or full audience is very different too
- mic placement (requires experimentation and adjustment)
 - get the microphone as close to the source as possible (allows for max sound level before feedback)
- use a spectral analyzer = identify feedback frequencies and fine tune EQ

Setup system and run sound check (proper gain structure):

1. turn off amplifiers (main speakers and stage monitors)
2. set channel faders and main outs to Unity (0dB) and preamp gain knob to lowest setting
3. with headphones, set proper gain structure for each channel:
 1. press PFL/SOLO button on the channel
 2. engage HPF if source has no low end (always engage for vocals)
 3. slowly bring up preamp gain knob as performer sounds into the mic to find "Goldilocks" setting = between noise floor and distortion (clipping) ... usually with the loudest sound peaking on the VU meter around Unity (0dB) or 2/3 of full scale
 - too low requires a boost further down the signal chain (which raises the noise floor)
 - too high allows for periodic distortion (clipping) ... going into the "red"
4. after all channels have been setup individually, have everyone perform together
 - with volume knob of amplifiers (main speakers and stage monitors) turned all the way down, slowly turn up volume knobs on amplifiers until you reach the desired volume in the space

Additional concepts to research and work on: mic 3-to-1 rule, using EQ to shape tone and prevent feedback, wireless mics, DI boxes, in-ear monitors, power management, using digital mixing boards,

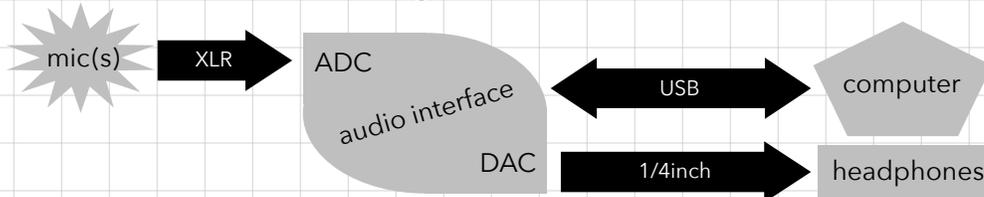
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Sound Recording: a creative task! there is no right way!



Mic Placement (requires experimentation and adjustment)

- mono (single) mic individual instruments:
 - instruments need a certain distance from mic to create character and timbre
- stereo (two) mic ensemble or solo performance = **experiment with different stereo mic techniques!**
 - closer for less of the room's natural reverberation sound
 - further away for more of the room's natural reverberation sound
 - the further your mic is away from your source, the more preamp gain you need, and thus you end up raising your noise floor
 - classical music stereo mic placement = 4-20 feet away and 7-10 feet above performers' floor level

Audio Interface

- sample rate = number of times per second that the signal voltage is measured
 - use 44.1kHz or 96kHz for recording audio alone
 - use 48kHz for recording audio to sync with video
- bit depth = use 24 bit = this is the resolution at which the amplitude of the signal voltage is measured

FOLD

Gain Structure = finding the Goldilocks setting (utilizing the full resolution you have)

- slowly bring up preamp gain knob as performer sounds into the mic to find "Goldilocks" setting = between noise floor and distortion (clipping) ... usually with the loudest sound peaking on the VU meter around Unity (0dB) or 2/3 of full scale
 - too low requires a boost further down the signal chain (which raises the noise floor)
 - too high allows for periodic distortion (clipping ... going into the "red")
 - give yourself enough headroom so unanticipated loud dynamics do not clip

Computer

- lossless audio files (WAV, AIFF, CAF) = highest quality
 - use through entire recording/editing process (note different maximum size for each ... and make sure your DAW is setup to record unlimited time)
- lossy audio files (MP3, AAC, OGG) = these discard data in order to compress and save space
 - save as lossy ONLY when you are completely done with all editing and are ready to stream online (in which case use CBR) or to save space on a device (in which case VBR is better)
- bit rate = amount of data (bits) required to represent one second of audio
 - bit rate = bits per sample (bit depth) × samples per second (sample rate) × number of channels
 - bit rate of CD quality ==> 1411.2kbps = 44,100 × 16 × 2 (4min song would be 40MB)
- tips:

<ul style="list-style-type: none"> • turn off all notifications and wifi • close any unnecessary programs • disable auto updates • use caffeine app 	<ul style="list-style-type: none"> • use a dedicated audio recorder like a Zoom or Sound Devices • format media cards in the device • use a backup recorder
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Audio Editing:

Record at a quality as close to what you want for a final mix as possible (spend time getting mic placement, room acoustics, preamp gains, etc. perfect!). Don't ever say you'll wait to make something better at a later stage. You can only do so much with bad raw material. Use reference quality (flat frequency response) earphones and monitor speakers in your editing.

MULTITRACK RECORD → MIX → MASTER → DISTRIBUTE

MIX (VERTICAL): put all the tracks of a single song together

1. Amplitude
 - Volume and panning automation (also envelopes such as fade in, fade out)
 - Dynamics Processing: [Compressor](#)/Limiter, Expander (ex. noise gate), Normalize
2. Frequency
 - Equalization (high pass, low pass, low shelf, high shelf, peak filter, notch filter)
3. Time = combine the original audio signal with delayed and modified copies of itself
 - Delay, Flange, Chorus
 - Reverb (convolution = make audio *sound* like it is in a specific hall or going through hardware)

MASTER (HORIZONTAL): fine tune each completed song to fit best with all other songs in an album

1. Slight adjustments to EQ, compression, limiting, stereo image, and reverb
2. Spacing and fades are added to the beginning and ending of each song
3. Make each song able to sound well played on any device

FOLD

Computer

- lossless audio files (WAV, AIFF, FLAC, CAF) = highest quality
 - use through entire recording/editing process (note different maximum size for each ... and make sure your DAW is setup to record unlimited time)
- lossy audio files (MP3, AAC, OGG) = these discard data in order to compress and save space
 - save as lossy **ONLY** when you are completely done with all editing and are ready to stream online (in which case use CBR) or to save space on a device (in which case VBR is better)
- bit rate = amount of data (bits) required to represent one second of audio (higher bit rate = better quality)

Destructive vs. Non-destructive editing:

1. Destructive = changing the actual audio file
 - Most processes performed in an "audio file editor" (normalizing the audio file, for example)
 - Time stretch & pitch shift (but DAWs invisibly create new files so original audio files is not changed)
2. Non-destructive = just changing how the software reads the original audio file
 - Edits done to "regions" in the main timeline of the DAW (Cut, copy/paste)
 - Run audio through DSP (plugins)

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Video Recording Concerts: a creative task! **there is no right way!**

General tips:

- clap your hands on film to help sync audio and multiple cameras
- get performers' permission and you may need a synchronization license
- use a tripod (holding the camera with your hand is too shaky)
- use only optical zoom (don't use digital zoom)
 - camera with 20x optical zoom minimum

Camera settings:

- 24 frames per second (this gives the "film" look)
- MP4 and MOV are easy to work with (but AVCHD can produce higher quality video)
- uncompressed (AIFF, WAV) 48kHz sample rate for audio
- learn to use custom white balance if just shooting with one camera
- use same preset (such as "tungsten") on all cameras if doing a multi-camera shoot
- develop understanding of: shutter speed vs. frame rate, ISO ("gain"), and aperture (f-stop)
 - exposuretool.com

Editing software Suggestions:

- Adobe Premiere (\$\$)
- DaVinci Resolve (free - BlackMagicDesign)
- after editing, use MPEG-4 as your video container (see what YouTube, etc. suggest)
 - audio = AAC & video = H.264

FOLD

Multi-camera shooting:

- never stop recording on any of the cameras so aligning camera footage is easy
- don't shoot like spraying a garden hose = zoom/pan only between shots
- don't put all your eggs in one basket; here is a 3 camera setup:
 - Cam1** = "Safety" = fixed, wide angle camera that gets everything (autofocus turned off)
 - Cam2** = manned camera hunting for medium & close up shots of performer(s)
 - Cam3** = { manned camera hunting for medium & close up shots of performer(s) **AND**
b-roll footage = timeless reaction shots (of the audience, for example)

Composition:

- use rule of thirds (turn on grid)
 - use lead space = space in front of where subject is facing
- avoid placing your frame edge on one of the body's joints
- avoid too much headroom (or person looks to be sinking)
- avoid too little headroom (or focus will be on the person's chin and neck)

Shot types (hold for 5-10 seconds)

- extreme long shot (XLS) = establishing shot - context for shots to follow
- long shot (LS) = person from head to feet
- medium shot (MS) = person from about waist up
- closeup shot (CU) = person's neck and head
- extreme closeup shot (XCU) = one detail of a person
- cut in = closeup shot of an object (such as the face of a watch or a cell phone)

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Multicam Video Editing:

- FYI = GarageBand only functions in 44.1kHz sample rate; audio for video is usually recorded at 48kHz

DaVinci Resolve (free, BlackMagicDesign): tutorial = <https://youtu.be/S2yxFcm-te8?t=43s>

1. choose the Media tab at bottom, then Import media
2. Select all media, right click, select "New Multicam Clip Using Selected Clips..."
 - choose "Sound" as the Angle Sync
3. right click the new multicam clip, select "New Timeline Using Selected Clips..."
4. choose the Edit tab at bottom (and make sure playhead is at the beginning)
5. change the left viewer (monitor) panel from Source  to Multicam 
6. choose  hold Option (Mac) or Alt (PC) and click the audio "angle" (now has green box)
7. choose  hold Option (Mac) or Alt (PC) and click the first video angle (now has blue box)
8. to "direct" = press play and choose camera with the mouse or number keys
9. adjust *when* a camera change occurs by using the Trim Edit Mode tool = 

Better performance while editing = Playback > Proxy Mode > Half (or Quarter) Resolution

To expand multicam clip to edit cameras/audio individually (to color grade or adjust sync):

- right click on multicam clip in timeline, select "Open in Timeline"
- to exit expanded view: double click timeline name in bottom left (e.g. Timeline < Multicam)

When you are done: Deliver tab at bottom (use MPEG-4 as container, H.264 as compression)

FOLD

Premiere Pro (\$\$ from Adobe): tutorial = <https://youtu.be/tj75m4WYHm4?t=40s>

1. choose the Assembly Tab at top, then Import media into your Project folder (video & audio)
2. in Project Folder: select all media, right click, select "Create Multi-Camera Source Sequence"
 - choose "audio" as the Synchronize Point ... "If you use audio-only clips with video or A/V clips, the audio-only clips are placed in the topmost tracks, and are unmuted. Other audio (from any linked clips) is muted and placed in lower tracks." - [Adobe Premiere manual](#)
3. right click the new multi-camera sequence, choose "New Sequence From Clip", click Edit Tab
4. click the + in the bottom right of the Program Monitor (top right panel) and add 
5. click  to "direct" = press play and choose camera with the mouse or number keys
6. adjust *when* a camera change occurs by using the rolling edit tool = 

Better editing performance = choose 1/2, 1/4, etc. in dropdown bottom right Program Monitor

If Premiere is unable to align all the cameras using audio, you can add markers to each video before creating multi-camera source sequence by:

1. Double click on a camera file in your Project Folder to open in it the Source Monitor
2. Add a marker at the same point in each video (use video or audio for reference  )
3. Follow steps above but choose "Clip Marker" as the Synchronize Point

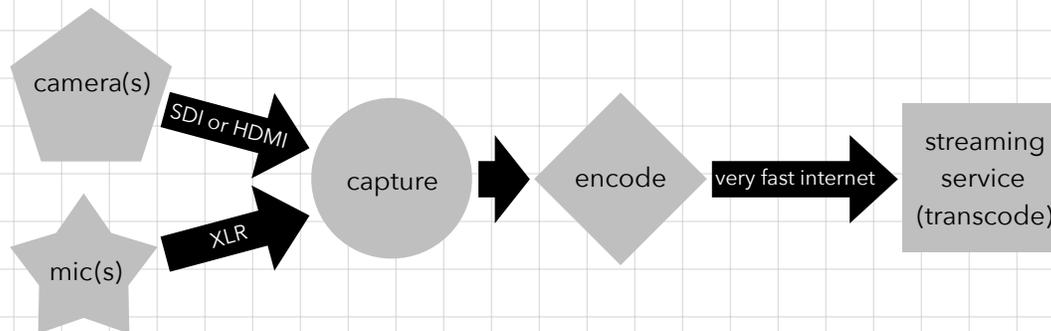
To expand multicam sequence to edit cameras/audio individually (to color grade or adjust sync):

- hold down Command (Mac) or Ctrl (PC) double click on the multi-camera clip on the timeline
- To exit expanded view = click on previous timeline tab (notice expanded version is just a tab)

When you are done: File > Export > Media ... (Format: H.264 ... use MPEG-4 as container)

CUT

Live Streaming Video (+Audio)



- Get a license to broadcast!
- Get performers' permission to stream their performance!
- Use professional lighting = the more light the better the video

Suggested hardware/software:

- Blackmagicdesign capture/encode/switch/broadcast hardware & software
- Open Broadcaster Software (OBS) for encoding, switching, and broadcasting

Live streaming components:

3. camera
 - output = SDI is best (very long cable runs), HDMI is good (short cable runs only)
 - zoom = high optical zoom (do not use digital zoom)
 - 4k will allow for cropping the picture without zooming/moving the camera
4. external mics = most camera mics are junk ... use external mics!
5. capture = plug video (SDI or HDMI) and audio (XLR) into hardware that plugs into your computer if you are using a software encoder
 - some hardware capture cards also encode video
6. encode = convert raw, uncompressed video into a streamable compressed format
 - use recommended encoding settings, bitrates, and resolutions of the streaming service [Youtube, Facebook, etc.]
 - software encoders require **a lot** of computer processing power
7. video switcher = switch from multiple camera angles in real-time
8. broadcast = send to streaming service using an internet connection with 2 times as much upload speed as the highest bitrate you want to stream
9. streaming services transcode video into many different resolutions and bit rates so your audience can view it on any device (desktop, tablet, and mobile)

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Website Creation:

- Wix

FOLD

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