Introduction to Recording and Editing Audio with Audacity

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POLSCI-1160: International Relations

Prof. Martha Johnson

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Feel free to ask questions at any point during the presentation!

Objectives

- Understand podcast anatomy
- Learn best practices for audio recording
- Learn about and explore Audacity as a podcast editing tool
- Learn how to:
  - Record audio
  - Clip audio
  - Add/move/delete tracks
  - Add sound effects and/or background music
  - Save and export projects

Slides and handouts available at: **https://bit.ly/fa24-johnson-polsci1160-audacity**

Podcast Anatomy

Podcasts

Podcasts typically begin with an **opening segment** of 10–30 seconds of music and audio wherein the creator identifies the **podcast title**, **host**, and **episode topic**—this creates a trademark/signature and indicates to the listener that the podcast is about to begin. **Be as creative as you want!**

Podcast Anatomy: Intro/Opening Segment

Intros/Opening segments are listeners' **first impressions** of a podcast. From the opening segment alone, listeners make assumptions about the podcast's **Audience, Genre, Style**, and overall **Structure.**

This means that within a short span of time, the podcast's opening segment must accomplish several goals like:

- Grabbing attention: several successful podcasts set the tone using **Media** (e.g., theme song music, sound effects, archival audio clips)
- Introducing yourself as the host of the podcast
- Identifying an audience: Acknowledging/naming people who might be interested
- Establishing listener expectations: Explaining the goal and theme of the podcast

Podcast Anatomy: The Body

Your podcast should have an **argument** or **perspective**, not just a recitation of facts. Try to keep your tone **persuasive** and **conversational**. Like any good piece of reporting, your podcast should be **organized** and rehearsed ahead of time.

Do your research and have your script written **before** you start recording; know how your show is laid out and how much time you have.

- Write out large numbers and/or complicated words/names out phonetically (twenty-two thousand and thirty-four vs. 22,034)
- Mark out spaces in the script for pauses, sound clips/effects, transitions between topics, etc.
- Since we're making academic podcasts, make sure to include references every once in a while — you can casually reference your evidence while you're speaking to show you've done your research

Podcast Anatomy: The Outro

Podcasts typically end with a **closing segment** of 10–30 seconds of music and audio acknowledging the creator names the **creator(s)**, **institutional affiliation**, and **audio/production credits,** and **acknowledgments** including people whose work or advice has significantly influenced or contributed to the episode.

An outro script for your class might sound something like “This podcast was made by [student name]...opening music created by [artist name], sound effects taken from [repository name]... with special thanks to [name] for their contribution.” It may also include outro music.

As in your opening segment, you can use music and sound effects to make your closing segment dynamic and interesting.

Example Podcasts

- "Did China's Central Bank Take Your Job?" *Planet Money*
- "Why ISIS Attacked Moscow" *Today, Explained*
- "How the Supermarket Helped America Win the Cold War" *Freakonomics Radio*
- "Behind the Explosive Investigation into Pegasus Spyware" *The FRONTLINE Dispatch*
- (DITI Student Podcast) Sage Shumate, Criminal Justice and Psychology, "Six By Nine: Safety or Suffering Podcast."

Best Practices for Podcasting

General Best Practices

- **Test your mic** and technology before you start.
  - Record some test audio and play it back before you begin.
- **Have a plan** for the conversation and transitions.
  - Give yourself a script. As you record, mark out spaces for transitions in the recording (topic-to-topic, parts of the episode).
- **Prepare phonetic pronunciations** for names or jargon and write out long numbers in full (e.g., "twelve thousand, four hundred and two" vs "12,402")
- Include **transcripts for accessibility** (use software like Otter AI).
- Use **open access media/music** (BBC Sound Effects, Incompetech, YouTube).

Environmental Considerations

- Ideally, find a room with good sound absorption to prevent the “echo effect”
  - **Yes:** carpet, cushions, bookshelves, clothes (bedrooms, closets)
  - **No:** larger spaces with hard, smooth surfaces (kitchens, bathrooms)
  - **Consider:** Does the room have an echo? Hard floors/countertops/stainless steel surfaces?
- Put some **distance** between yourself and the microphone (depending on your equipment).
  - Being too close can make the audio too loud or garble sound as you speak. If you are positioned too far away the audio will be too quiet or too muffled to salvage.
- Stay hydrated!
  - Keep a drink nearby (water, juice, etc.) to soothe your throat and keep it relaxed.

Editing Interviews

- Avoid including large chunks of interview content without breaking up the interview and explaining/framing what is happening
    - For example, you might break away from the interview as the podcast host and explain to listeners why that piece of the interview is important or what the key takeaways are
    - You could also complement the interview by using archival footage or other sound clips and then explaining the comparison
- Interviews should complement your podcast instead of taking over the entirety of the content
    - If an interview takes over the podcast, listeners are likely to lose focus and forget what the point of the podcast is
- By breaking interviews into pieces and contextualizing them, it helps to make the content more digestible

Recording Considerations for Interviews

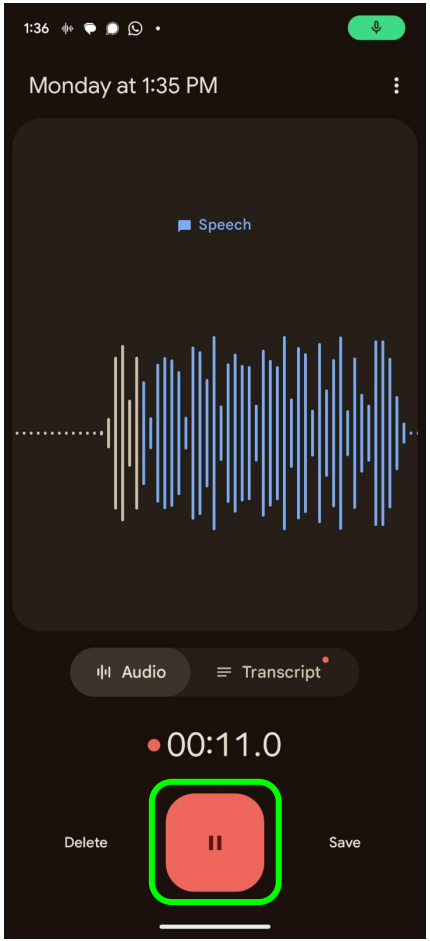
- **Remote Recording** (via Skype, Zoom).
  - If you record via Zoom, **save your recording to your computer** not the cloud.
- **Ease in to recording** with low-stakes conversation
  - Interviews are like playing catch. Start with questions that allow everyone to get comfortable. Be yourself!
- **Don't rush,** and know you can start over
  - You don't need to get everything in a single take, and you won't use all the audio that you record. So don't be afraid to pause frequently and remember you can start over (or cut something altogether!)

Recording From a Phone

- Smartphones have become a very common way to record interview audio. Even professional journalists now primarily use their smartphones.
- Depending on the phone you have, the app you use will be different—any app that can record audio will work. These free apps are a good starting place:
  - Recorder (Google LLC) for Pixel phones
  - Voice Memos (Apple) for iPhones
  - Samsung Voice Recorder (Samsung) for Galaxy

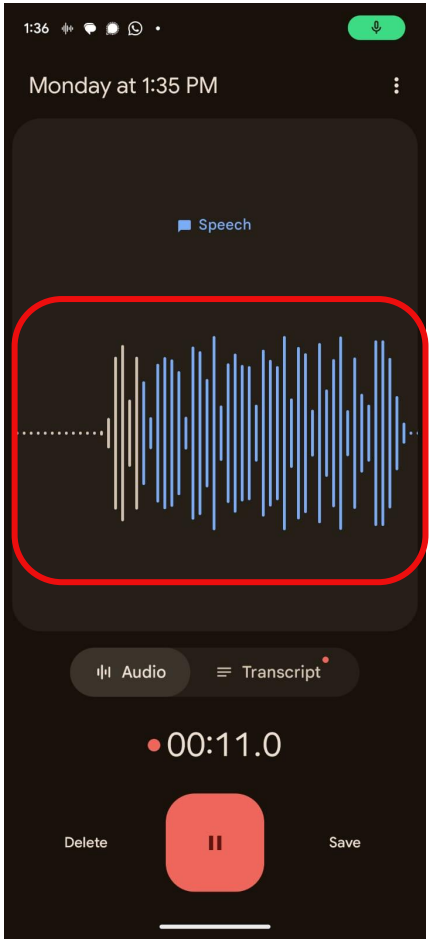
Using Audio Recording Apps

- These apps universally use a big, red button to start recording. This slide shows Google's Recorder app, but all of these buttons will be very similar regardless of the app you are using.
- If you want to take a short break in your recording you can hit **pause** (highlighted in green). This will stop the recording until you hit record again, but it won't end the recording as a whole.
    - To get to the pause button in Apple Voice Memos, swipe up on the recording while it's running.
- Finally, when you're done recording remember to hit **save** or **stop** (often represented by a square) depending on your app. This will end the recording altogether and let you send it to your computer.
- Be mindful of how your data and the recorded audio is stored on different recording apps.



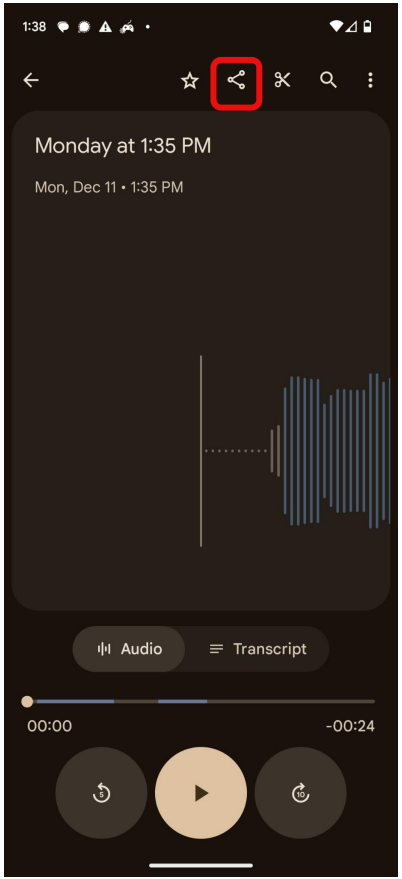
Monitoring Your Recording

- While you are recording, the app will show a **waveform** (highlighted in red), which shows the current audio input
  - **Make sure to check your waveform intermittently as you record** (especially at the beginning)
  - If **you aren't seeing any waveform or it is very small**, the phone is likely **not picking up your audio**
  - The peaks and troughs of the wave show when it is picking up more and less audio. This should generally match the louder and quieter parts of your interview recording, though don't worry if it doesn't seem to be completely precise.



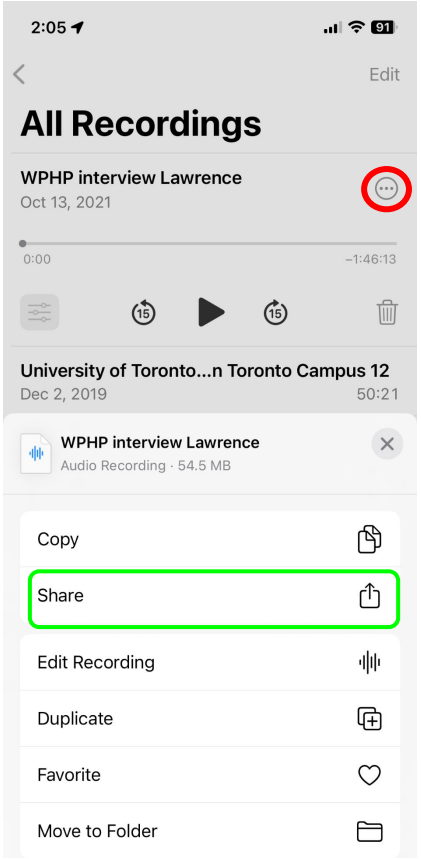
Getting the Audio From Your Android

- The easiest way to get the file from your phone to your computer will be to use the **share** function. Look for a symbol like the one highlighted on the right.
  - From the share menu, you will be able to send the file to yourself in various forms, such as email.
  - Sometimes the file size may exceed the limit for email, which is where Google Drive can work better
- As soon as you have files on your computer, you can move on to audio editing!



Getting Audio From Your iPhone

- To get audio out of Voice Memos, click the three dots (highlighted in red) and select “share” (highlighted in green).
- You’ll need to pick a method that works for you:
  - Airdrop and iCloud work.
  - If you download the app for Drive or Dropbox (or similar), you can send the file to those.
  - It will probably be too big a file to email to yourself.



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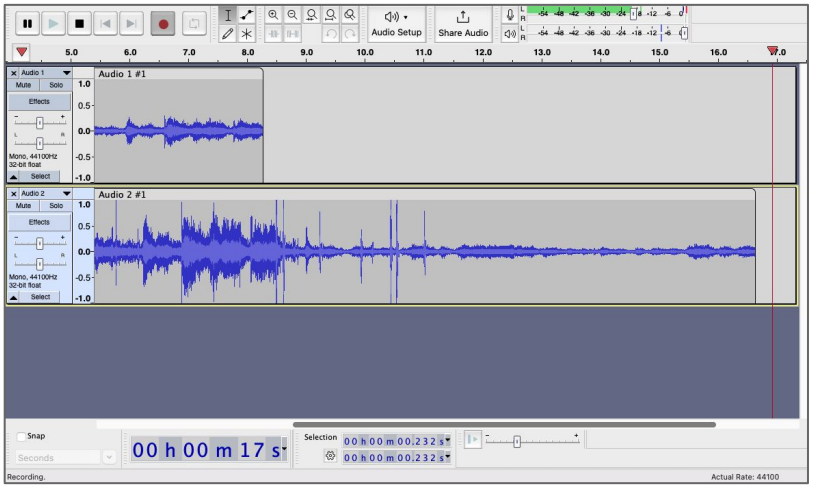
Making Podcasts: Audacity

What is Audacity?

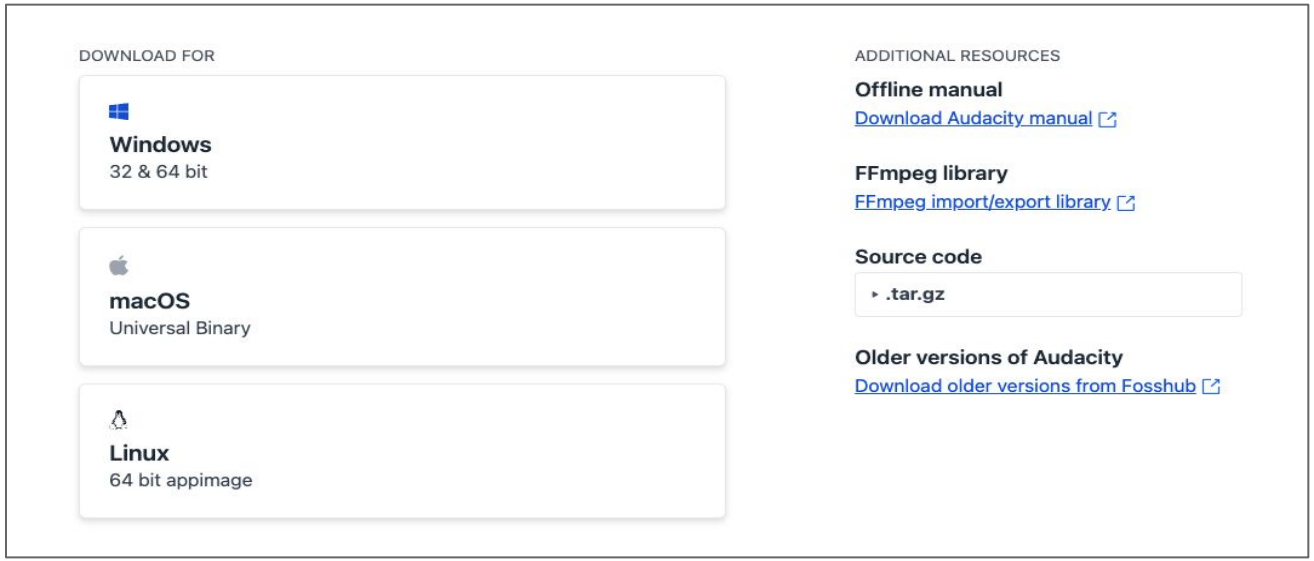
Audacity is a free, easy-to-use, **multi-track** audio editor and one of the more popular free audio editors used for creating podcasts.



(**Multi-track**: the ability to have different layers of audio in one clip.)

Downloading Audacity

https://www.audacityteam.org/download/



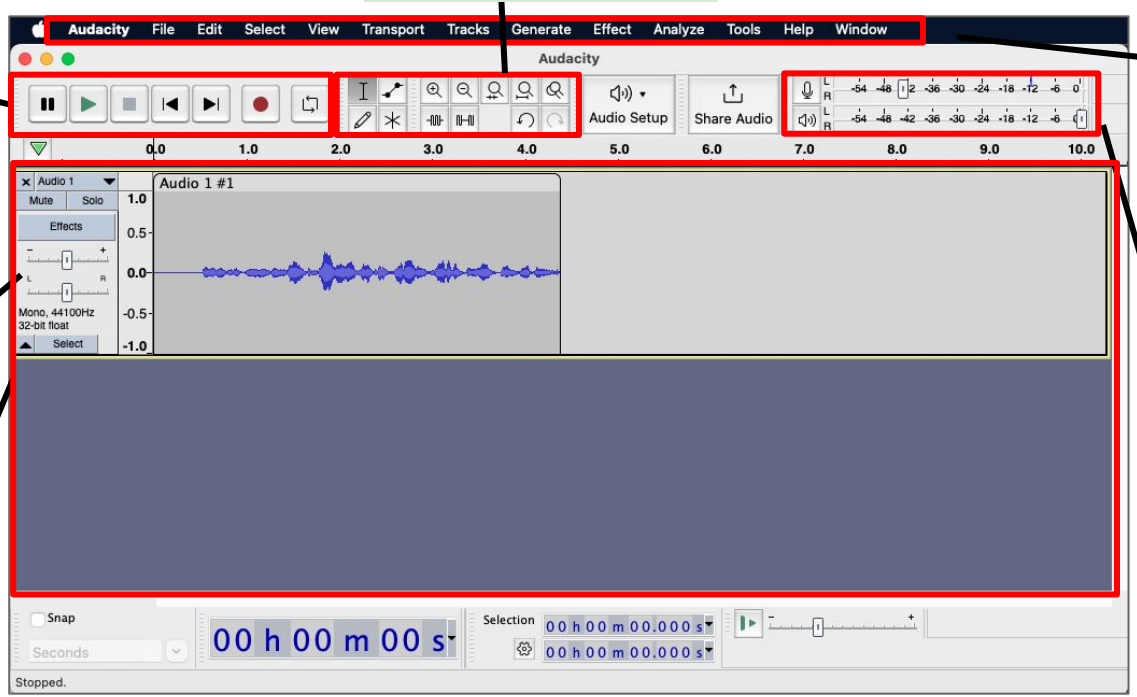
Anatomy of Audacity

Audio Editing

Main buttons (L-R): pause, play, stop, fast-forward/ backward, record

Microphone, volume, input, and output

Recordings (audio tracks) will display in this window here.



Editing, saving, effects, transporting or exporting the recording.

Output Volume Level Monitor: shows the loudness of each track in real-time

https://manual.audacityteam.org/

Key Terms

- **Track:** a single audio channel or stream.
  - **Multi-track**: an audio recording or chanel with more than one track or recording of sound.
- **Clipping**: splitting audio into separate sections—that is, making “clips”
- **Waveform:** the curve within a track showing the duration and volume of individual sounds
- **Mixing**: the process of audio production, or mixing tracks of recordings, music, and other desired media.
- **MP3 File:** the most generally used audio file format. Others include .wav and .mp4.

Feel free to ask questions at any point during the presentation!

Basics: Audacity & Recording Audio

Getting Started: Tips for Recording Audio

- Know where your microphone is located and keep it clear of papers/other objects
- Use headphones when recording and editing
  - After you finish editing, listen to the file without headphones to see where the audio is too loud/quiet when played in a space.
- Take ambient noise into consideration
  - A/C units, refrigerators, traffic, pets, roommates, loud clothing, etc.
- **Save frequently.** Audacity does not autosave.

Recording Audio cont.

- Record test audio and adjust mic volume if necessary
- Record a few seconds of silence at the start and end of each track
- Begin way in advance, and do several takes
  - Editing often takes much longer than the recording itself!
- Speak slowly, clearly, and conversationally
  - If you use too many “filler words” (um, like, so) you can always edit them out later. Stop recording and start again at the top of the sentence to avoid jarring sound cuts in post-production

Recording

Make sure your **microphone** is working by checking to see that it's selected in the microphone section of the screen. Each computer will have different microphones, so check your sound settings for your model.

To **record**, click the button with the **red circle.**

Hit the **pause** button to pause a recording.

Hit the **stop** button to stop recording.

Use **Re-play** to verify that the recording is the quality/ volume that you want.

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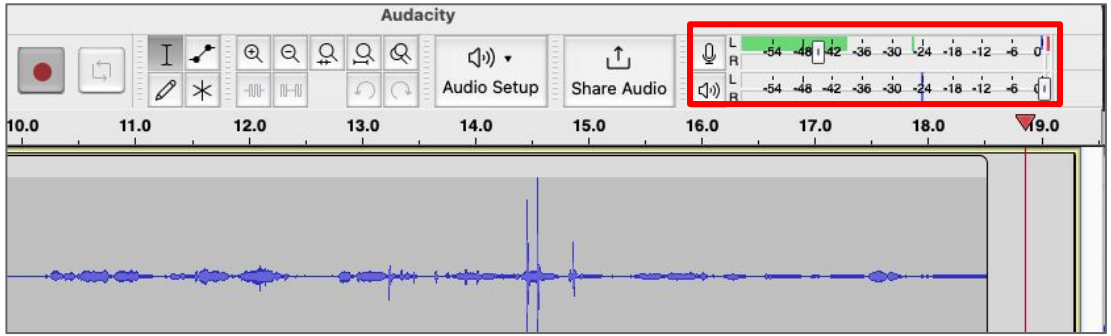
Checking volume

Keep an eye on the **monitor** when recording and playing back your audio—try to keep it in the **green** (literally).



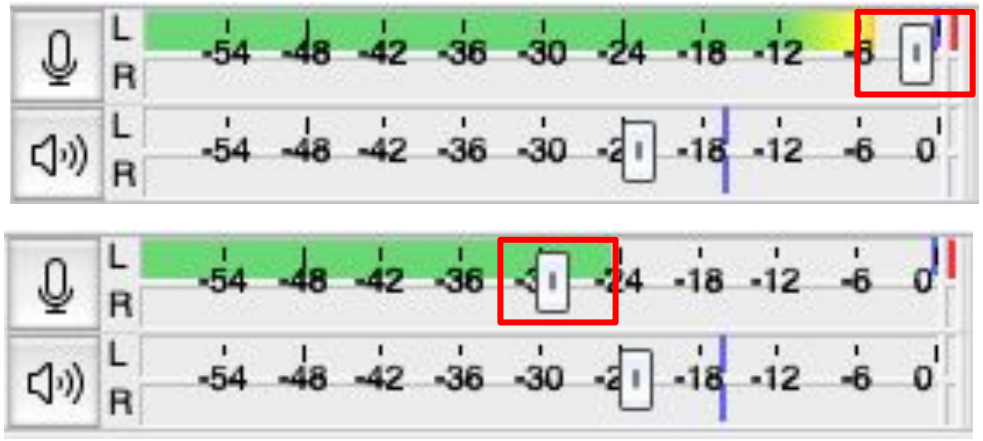
If your volume is too loud, the monitor levels will turn yellow and red. Tracks that are too loud will have a blown-out effect when played back.

If one of your tracks is louder or softer than the others, you can adjust the volume on each track.

Tip: to hear one track without the others, you can **mute** the other tracks or click **"solo"**

Adjusting Mic Volume

If the recording volume is too loud, you can use the slider in the recording meter to adjust the recording level



Move the slider to the right for a higher (louder) recording level and to the left for a lower quieter) recording level

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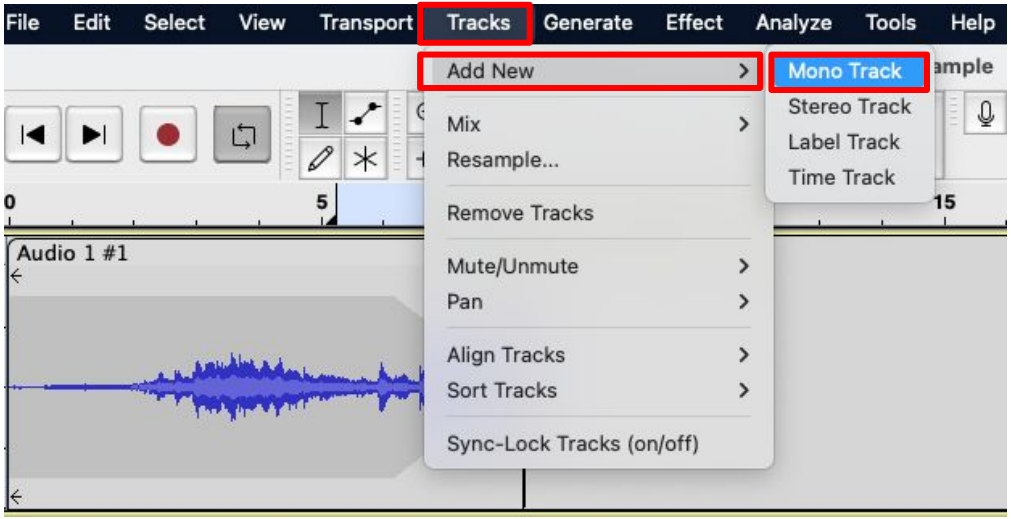
Adding Tracks

To create additional tracks in Audacity for a **new recording**, hit the record button and it will start a new track. Another option is:



Navigate to the **Tracks** menu option and select **Add New**. This will open a list of options. Select the **Mono Track** option.

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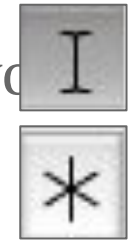
Basics: Audacity & Editing Audio

Toolbar: Selection and Multitool

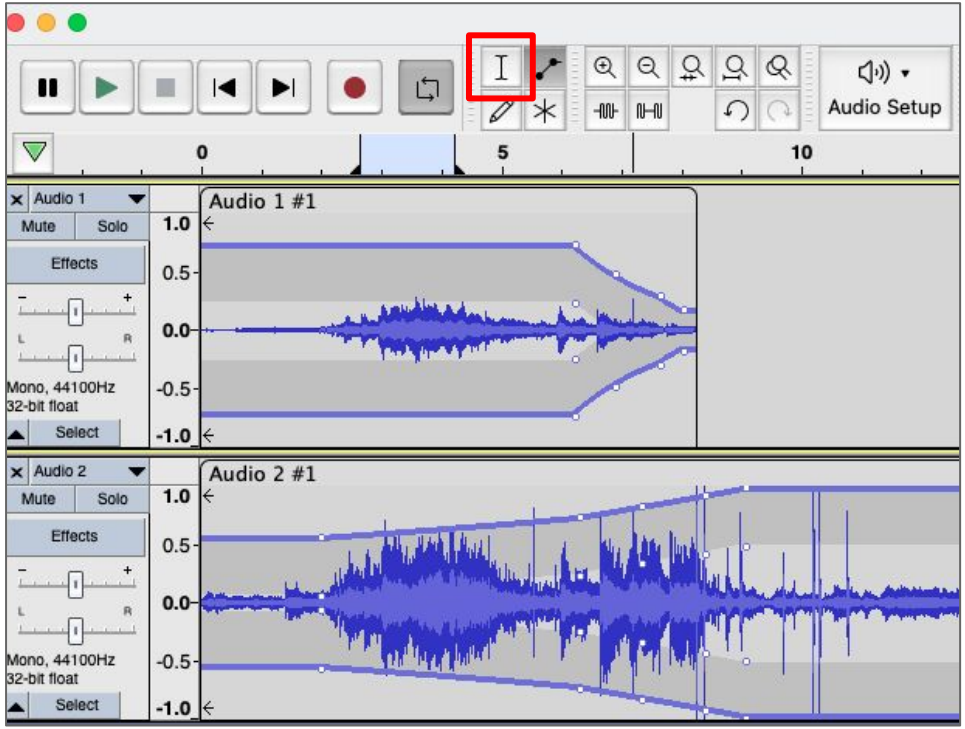


- The **selection tool** will be selected automatically when yo open Audacity.
- The **multitool** allows you to use all the functions of the other tools without switching to them.
  - The selection tool function is the default.
  - Hover over the waveform borders to use the envelope tool function.
  - Use your t
  - Zoom in a

Feel free to ask questions at any point during the presentation!

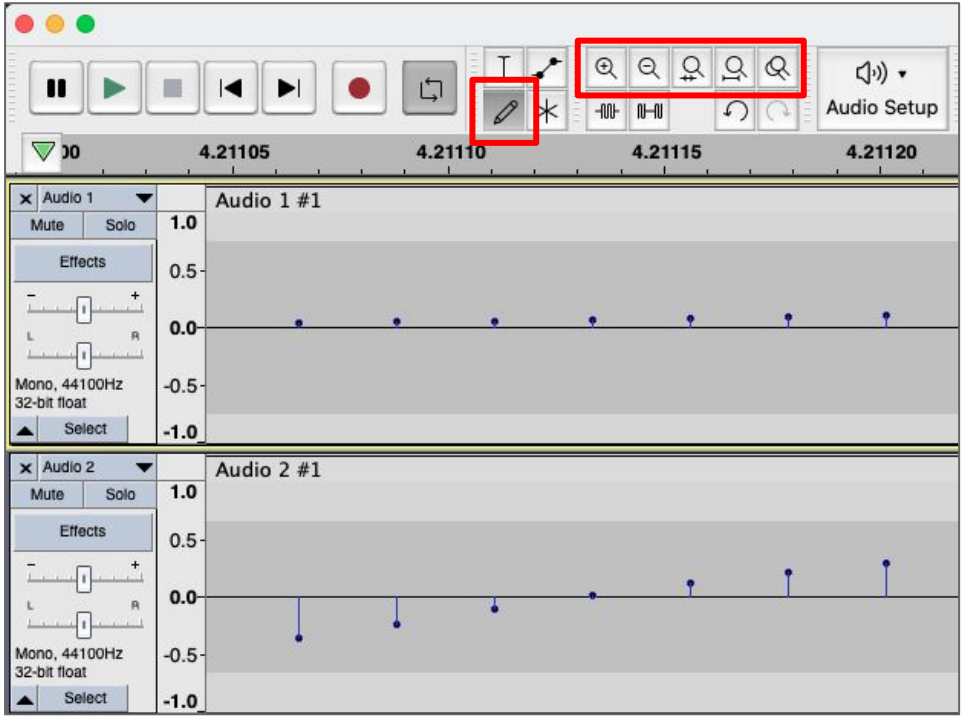
Toolbar: Envelope

- The **envelope tool** allows you to smooth changes in volume by using control points at the top and bottom of the waveform.
    - Clicking on the blue border will create control points, which you can then move around to adjust the waveform envelope.



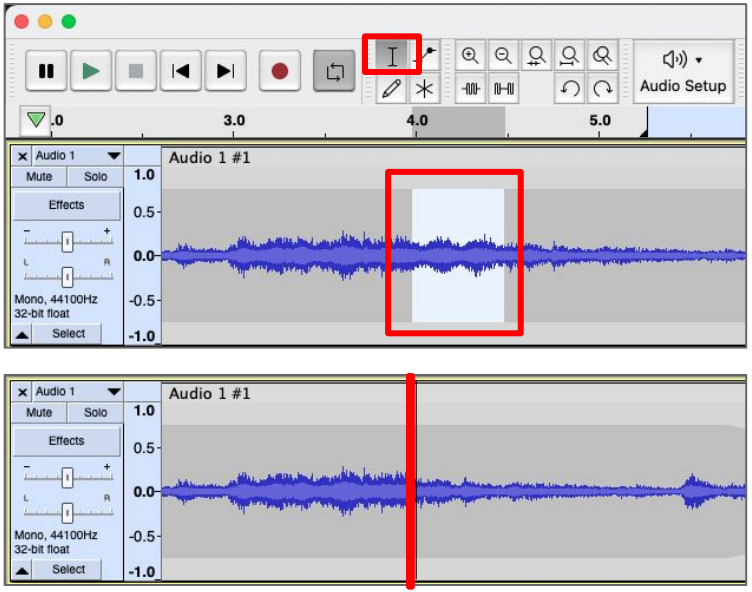
Toolbar: Zoom and Draw

- The **zoom tools** let you zoom in and out of the waveform in order to make adjustments.
- The **draw tool** allows you to manually redraw the waveform to change the volume or correct background noise.
    - You can only use the draw tool if you've zoomed into the waveform.



Removing Parts of Tracks

Once you have recorded audio in Audacity, you can easily edit it. Here is how to remove sections using the **selection tool**:



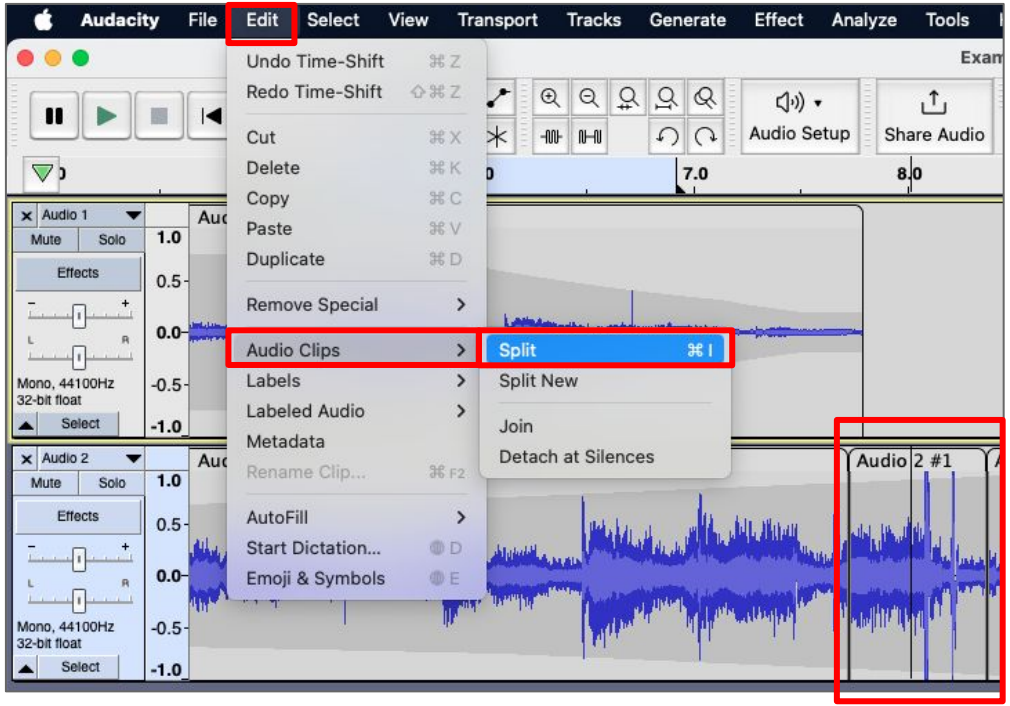
Click and drag with your cursor to select the portion your wish to remove.

Then, hit backspace or delete on your keyboard.

Tip: you can zoom in and out with the **zoom tools** to better see what you're trying to delete.

Splitting Tracks

To split a track in Audacity, follow these steps to make shorter clips:



With the **selection tool**, place your cursor over the section where you want to split your track.

Navigate to the **Edit** menu, click under **Clip Boundaries** and select **Split**.

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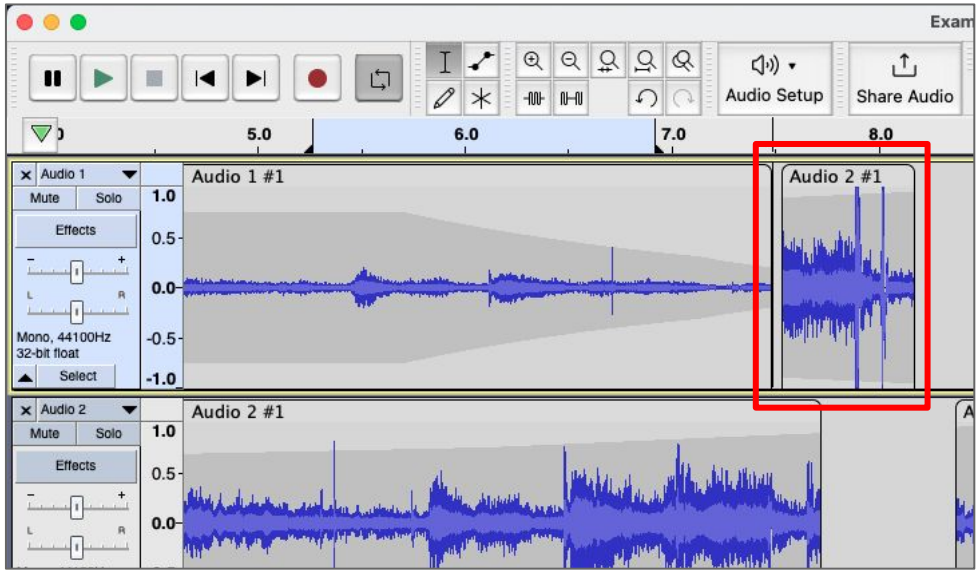
Moving Tracks

To move entire tracks or audio around in Audacity, you can click and drag them by hovering your mouse over the top of the clip.



Once you have selected the clip, click whatever clip or track you want to move and drag it into position.

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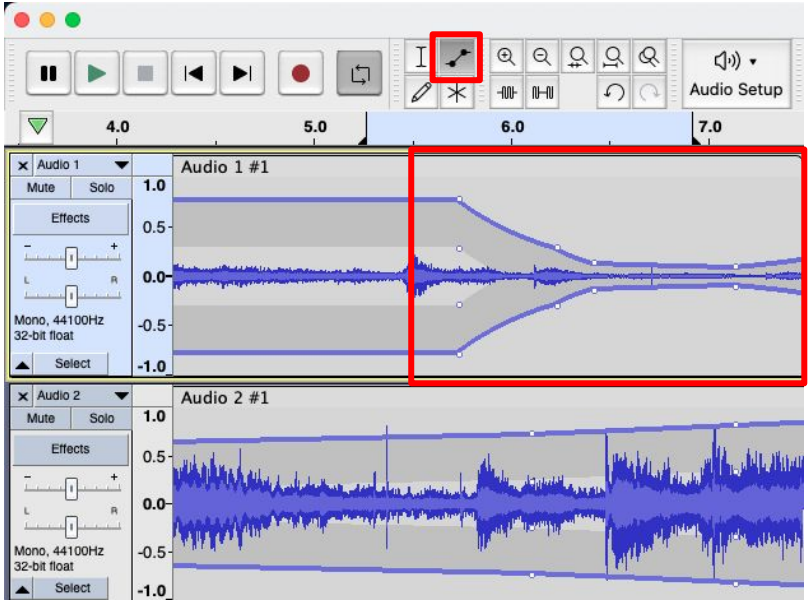
Fading In/Out

To fade music in and out on Audacity, use the **envelope tool**. Two yellow bars will show up on each track.



Click to add **control points** (little white dots) on the track you want to fade in.

Drag and move the nodes to up and down and side to side to change the volume and how gradual the volume fade is.

Add and adjust nodes at the end of the track to fade the music back in.

Your Turn!

- **Record** yourself giving a brief intro (“hello, you’re listening to my podcast”)
- Visit incompetech Music and download a music clip and add it to your audacity file — be creative! (try to edit it in the background of your introduction)

- **Record** and **interview** someone in the class (“how was your day today?”) and include their interview in your audacity clip

Saving, Exporting, and Sharing

Saving

Audacity does not auto-save! Save your recording, early and often!

Try and save after each major edit/input of a recording, just to be safe.

Save in multiple places. Always have backup.

File > Save Project > Save Project As> "Name of your podcast"

And once your project is saved...

File > Save Project > Save Project > [saves the updates to your file]

Feel free to ask questions at any point during the presentation!

About File Formats

- **Lossless Audio File Formats:** better than or equal to CD-quality
  - **WAV:** uncompressed file, meaning huge file size. The best for editing raw audio files in Audacity.
  - **AIFF**: Apple's alternative to WAV. Uncompressed, not widely used
- ***MP3/MP4:** compressed audio file, ensures small file size. Best for exporting and distributing from Audacity.
- **Ogg Vorbis**: Open-source alternative to MP3. Used in Spotify streaming

**Note: The DITI typically recommends you save files as mp3 (sometimes mp4, if you use a PC).*

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Exporting and Sharing

Finished with your recording?

Make sure you **export your project as an MP3** before you send or share it! This will ensure that other people are able to listen to it; anyone who does not have Audacity downloaded will not be able to open your project file otherwise.

File > Export > Export as MP3

Select “best quality”

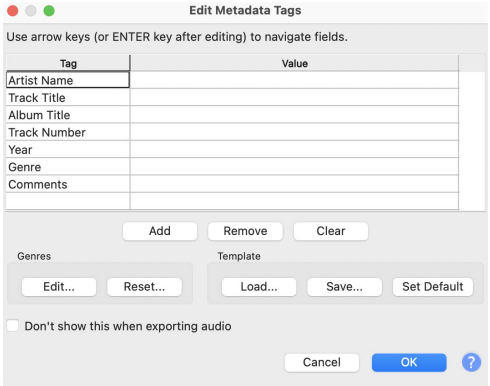
Feel free to ask questions at any point during the presentation!

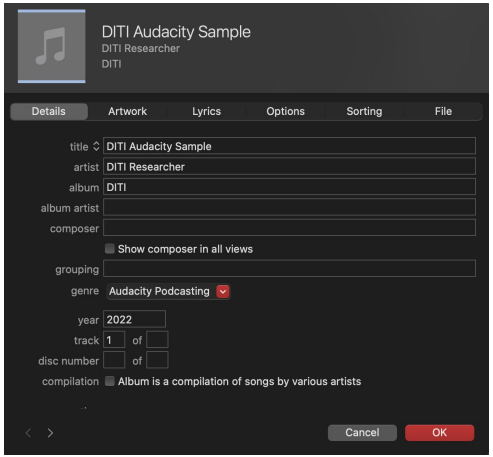
Exporting Metadata Tagging

When you export your file, Audacity will prompt you to add metadata tags to identify it.

On a Mac you can add artwork by importing your file to an Apple Music library, Control-clicking on it and choosing “Get info.”

On a PC, you can edit the MP3 metadata by clicking through to File Properties.





For Further Exploration

- DITI Handout on Audacity
- DITI Handout on Copyright and Fair Use
- DITI Handout on Accessibility
- DITI Handout on Data Ethics
- DITI Meet the Method: Audacity
- Northeastern Library Recording Studios
- Northeastern Library Digital Media Toolkit

Thank you!

Developed by: Dipa Desai, Claire Lavarreda, Emily Sullivan, Sara Morrell, Avery Blankenship

We love feedback! Please fill our 2-minute survey: **bit.ly/diti-feedback**
Office Hours sign-up: **https://bit.ly/diti-meeting**
Contact us at: **nulab.info@gmail.com**
Slides and handouts available at**:**
https://bit.ly/fa24-johnson-polsci1160-audacity