

Directions for Technology Exercises

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A. General Information

These exercises are designed to accomplish three objectives: (1) provide students with rudimentary knowledge of technological tools (hardware and software); (2) complement and support the study of music theory (harmony, voice-leading, form, etc); and (3) encourage creative and engaged learning through the activities of improvisation and composition.

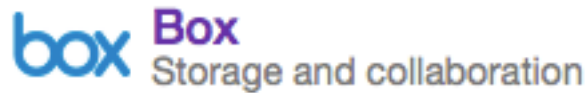
After completing these exercises, students will have a working knowledge of the following aspects of music technology: MIDI sequencing, audio recording, working with loops, computer-based music notation, exporting content in mp3 and pdf file formats, secure online transfer of data, and maintaining backups of data. Most students will choose to complete the exercises in Furman's music technology lab, which contains Macintosh computers. However, the assignments are designed to accommodate a variety of choices of hardware and software.

For each of the four terms in the core theory sequence, students will complete two exercises: a midterm assignment emphasizing improvisation, and a final project emphasizing composition. For each exercise, students will be provided an Instruction Sheet with specific guidelines for that particular exercise (key, tempo, chord progression, length, form, instrumentation, etc).

The Furman Advantage program has provided a teaching assistant, who will be available during posted office hours to provide assistance to students working in the lab.

Questions may also be directed to Dr. Daniel Koppelman, Director of Music Technology, at extension 2094 or via e-mail <daniel.koppelman@furman.edu>.

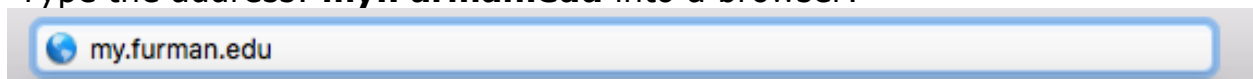
Important: The directions provided below are designed for students working in the music technology lab at Furman. It may be possible for some students to complete the exercises using different hardware and/or software. However, regardless of how or where the exercises are undertaken the end result (what is turned in) must meet these specifications:



All assignments will be turned in using Furman's "Box" (storage and collaboration) system. You will receive an electronic "invitation" to join your theory class's Box folder; after accepting the invitation, you will be able to deposit your assignments into the class Box folder. Be aware, however, that once you deposit your assignment, you will not have permission to view, edit, or delete your files.

To access your Box folder:

1. Type the address: **my.Furman.edu** into a browser:



2. Enter your network username and password, then click **Sign In**:

Sign In

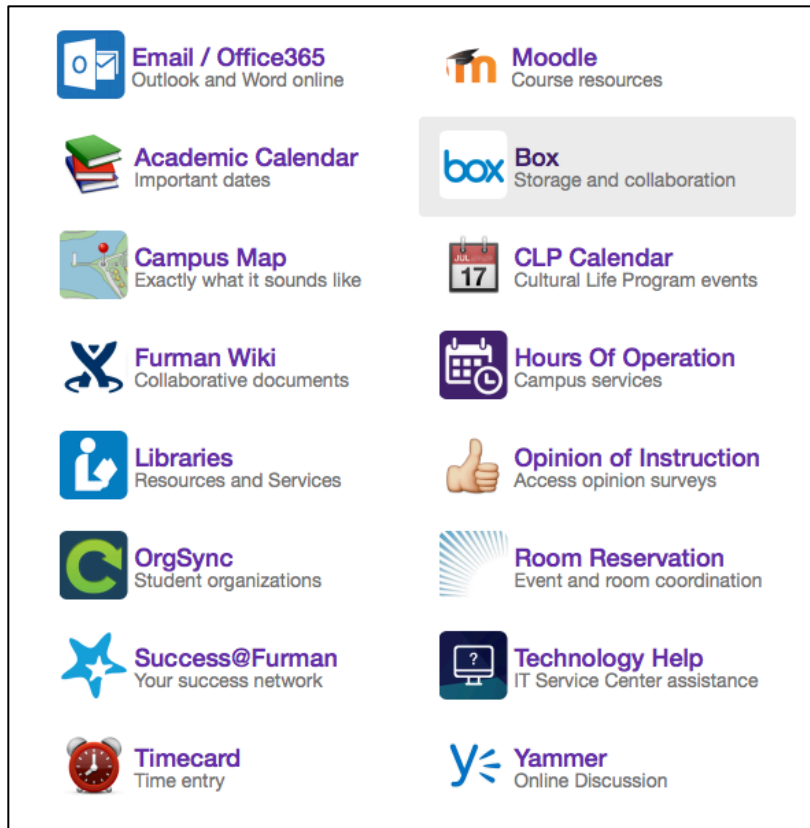


Enter your network username and password.

Username:

Password:

3. From the selection screen that appears, click on **Box**:



4. Log into Box with your Furman Net ID and Password



Furman Net ID

Password

> [Forgot your password?](#)

You should now see one or more Box folders:

	MUS-111-Koppelman	Created today by Dan Koppelman	0	...	☐
	Celestial Clicks	Updated Jul 21, 2016 by Omar Carmenates	16	Shared ...	☐
	MayX16fu_Medias	Updated May 26, 2016 by Michael Vick	69	...	☐
	Composition Seminar Performances (S2016)	Updated Apr 30, 2016 by Mark Kilstofte	8	Share ...	☐
	Independent Study Juries (S2016)	Updated Apr 28, 2016 by Stephanie Simon	39	...	☐
	Lindsey_Mary (S2016)	Updated Apr 28, 2016 by Mary Lindsey	10	Shared ...	☐
	Fall 2015	Updated Apr 25, 2016 by Omar Carmenates	73	Shared ...	☐
	Spring 2016	Updated Apr 24, 2016 by Omar Carmenates	92	Shared ...	☐

Your theory class folder will have the course number of your current class, and your instructor's name
(in the example above, **MUS-111-Koppelman**)

This is the folder into which you will deposit your Technology Assignments. See below for more details regarding the types of folders and/or files that you will deposit into your Box folder. [Tech note: you will not be allowed to drag a folder from your computer into your Box folder. Therefore, you will first create and name a folder from within Box; then you will drag files from your computer into this newly created Box folder.]

Throughout the directions, when you are asked to create a file or folder containing "yourlastname," replace this with your last name (for example, **yourlastname_midterm** would become **Lindsey_midterm** if your name was Mary Lindsey. If there are multiple students in your class with the same last name, ask your instructor how to title your files and folders.

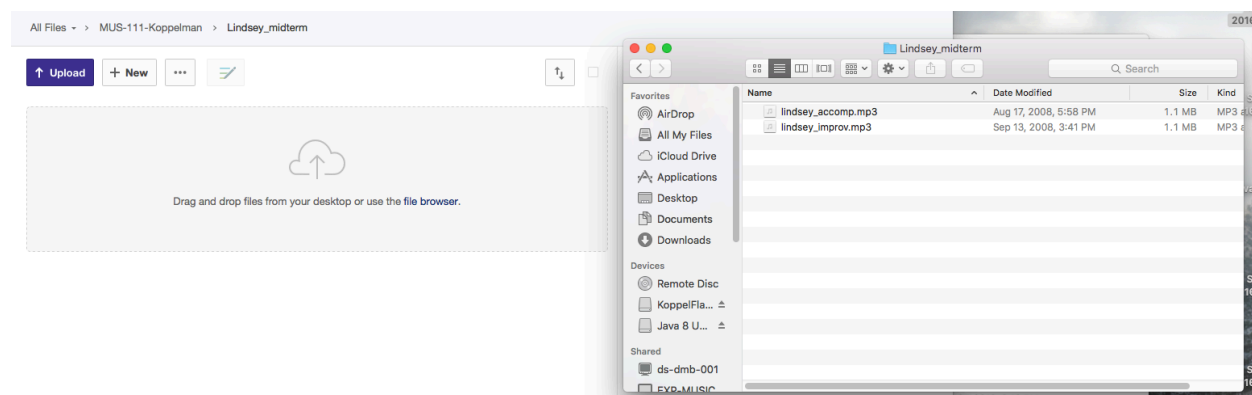
When finished working, please make sure to sign out of Box, sign out of myFurman, and close your browser. This is vital to ensure the privacy of your work!

B. Basic Directions in Outline Form

This section is for students who believe they can complete the assignments with little or no step-by-step instructions. See section **C** below for step-by-step instructions.

Midterm Assignment

1. Using a given structure (as directed on a separate "Midterm Assignment Instructions" sheet), enter an accompaniment into GarageBand (GB) using the MIDI keyboard. Save this GB file. Create an mp3 file of this accompaniment. Name the mp3 file **yourlastname_accomp** (the computer may display the file as **yourlastname_accomp.mp3**).
2. Practice improvising over this accompaniment: while listening to the accompaniment, perform an improvisation on a MIDI keyboard or with your live instrument/voice.
3. Make a recording in GarageBand of your best improvisation. Your recording will be a combination of your prerecorded accompaniment plus your live improvisation on either a MIDI keyboard or your instrument/voice).
4. Save your improvisation recording as an mp3 file. Name the file **yourlastname_improv**
5. Upload your files to Box. Inside your theory class Box folder, create a folder called **yourlastname_midterm** (see section **C** below for step-by-step instructions if needed).
Drag your two files (**yourlastname_accomp** and **yourlastname_improv**) from your computer into the **yourlastname_midterm** folder on Box.



Final Project

1. Following the guidelines (as directed on a separate "Final Project Instructions" sheet), compose a short piece.
2. Create a computer-notated version of your composition. Print a hard copy. Using pencil, add harmonic analysis (key and Roman numerals) and embellishing tones (MUS-112 final project only). Create and save another copy of your notation as a pdf file; name it **yourlastname_composition**.

3. Create and save an audio recording of your composition as an mp3 file; name it **yourlastname_audio**.
4. Write one page of analytical commentary about your composition. Print a hard copy. Save a copy of your analysis as a Microsoft Word file; name it **yourlastname_analysis**.
5. Upload your files to Box. Inside your theory class Box folder, create a folder called **yourlastname_final** (see section **C** below for step-by-step instructions if needed).
Drag your three files (**yourlastname_composition**, **yourlastname_audio**, and **yourlastname_analysis**) from your computer into the **yourlastname_final** folder on Box.
6. Turn in the hard copies of your composition and analysis to your instructor.

C. Step-by-Step Instructions

Midterm Assignment step-by-step

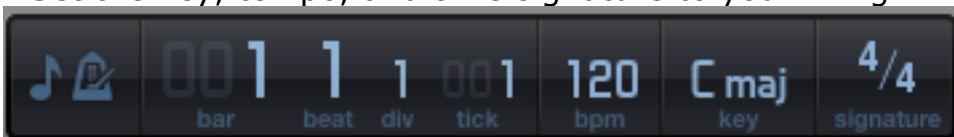
Before starting, create a new folder, inside the **Music Students** folder on your computer, where you will store all your files for this exercise. This location will be referred to as your Assignment Folder.

A note on naming files and folders. It is suggested that you adopt a logical system for naming your files and folders. For example, if your last name was Furman, your Personal folder might be named **Furman**, and you would then create sub-folders for each assignment or project. Your Midterm Assignment folder might be named **Furman_midterm**; and your Final Project folder might be named **Furman_final**. Then you could name your midterm files Furman_accomp.mp3, or Furman_improv.mp3, etc. Having a logical system of names can really come in handy if you misplace a file or folder (which is easy to do in a shared lab with 100 or so users). Having your name be part of the filename is the best way to make sure you can find your file if it becomes misplaced.

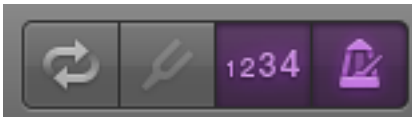
1. Using the MIDI Keyboard, enter your accompaniment into GarageBand (GB).
 - Launch GB by clicking its icon in the dock:



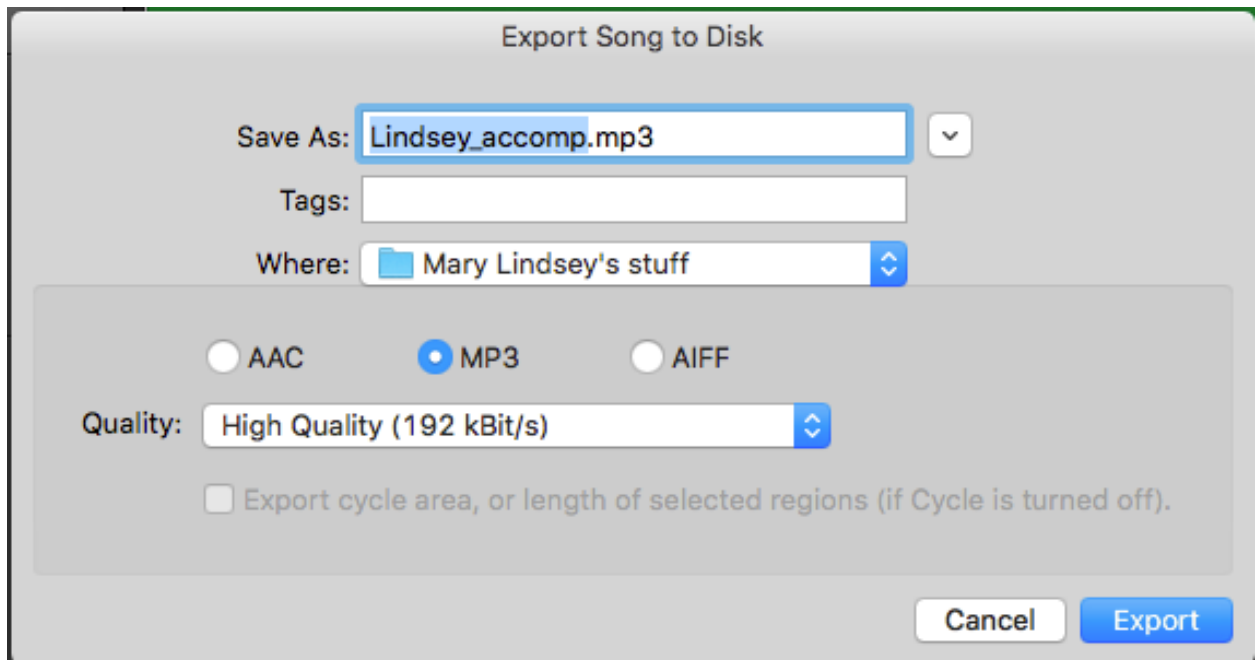
- If someone else's project opens, go to the **File** menu and select **New...**
- Click on **Empty Project**, then click **Choose**.
- Click on **Software Instrument**, then click **Create**.
- When the empty project opens, close the Musical Typing window if necessary, then go to the **File** menu and select **Save**; give your project a name, and save it to your Assignment Folder.
- Play a few notes on your MIDI keyboard to test connections (you should hear a piano sound).
- From the list of instruments on the left-hand side of the screen, change the instrument if you wish. Confirm the sound by playing on your MIDI keyboard.
- Set the key, tempo, and time signature to your liking:



- Consult your Instruction Sheet for the specific accompaniment to be recorded.
- From the **Record** menu, set **Count In** to **1 Bar**.
- Make sure both the Count In and Metronome are on (click the "1234" button and the Metronome icon).



- Click the Red record button, wait one measure (you should hear the Count In), then record your accompaniment; make sure you record the correct number of measures, as specified in your Midterm Assignment Instruction Sheet. Click the Stop button when finished recording. Delete any excess measures from the end of your track(s). Save your project. Rewind to the beginning of the project and listen to your recording. If satisfied with recording, go on to next step; if not, repeat recording until satisfied.
- OPTIONAL: From the **View** menu, select **Show Apple Loops**. Select a drum or percussion loop, and drag the loop into your project. Extend the loop to match the length of your accompaniment. Listen. **Save**.
- Create an mp3 file of your saved accompaniment. From the **Share** menu, select **Export Song to Disk...**, name your file **yourlastname_accomp**, and make sure you are saving it to your Assignment Folder. Select **MP3** for the filetype, and select **High Quality** from the **Quality** pop-up menu. Then click **Export**.



- Go to your Assignment Folder, and make sure your **yourlastname_accomp** file is there. Double-click the file to hear it in iTunes, or simply select it and press the space bar to listen to it.

2. Practice improvising over the accompaniment.

This can be done:

- at the computer, listening to your accompaniment in iTunes while improvising along (on the MIDI keyboard, or using your instrument or voice),

OR

- in a practice room, listening to your mp3 file (in iTunes or another music program) while improvising along (on a piano, or using your instrument or voice).

Be sure to consult your Midterm Assignment Instruction Sheet for guidelines concerning your improvisation (how many repetitions of your accompaniment, note choice, stylistic suggestions, etc.)

3. Make a recording of your best improvisation. Your recording will be a combination of your prerecorded accompaniment plus your live improvisation.

This can be done either:

- Using the X5 MIDI keyboard to record your keyboard playing into GB,

OR

- Using your instrument or voice, by checking out the AudioTechnica

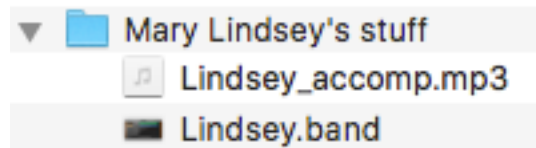
USB mic from the music library to record audio into GB.



Feel free to ask the Tech TA for assistance with using the USB mic.

To record using the MIDI keyboard:

- Open the accompaniment project which you saved in Step 1. Your filename will end in **.band**:

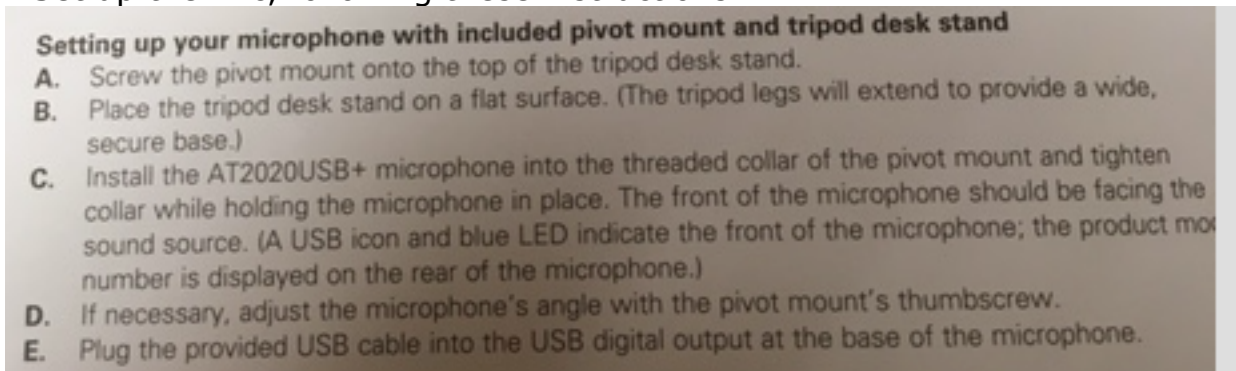


- Add a new track on which to record your improvisation:
 - select **New Track...** from the **Track** menu,
 - click the picture of the keyboard under "Software Instrument,"
 - then click **Create**.
 - Feel free to choose a new instrument sound from the **Library** at the left of the screen.
- Make sure your newly added track is selected in the Tracks column of your project, then rewind back to the start of your accompaniment, make sure **Count In** is turned on, make sure Cycle Region is turned off (ask the TechTA for assistance with this if necessary), then hit the Record button and improvise while listening to the accompaniment. Consult your Instruction Sheet for guidelines concerning your recording (how many repetitions, stylistic suggestions, etc.)
- When finished recording, click the Stop button. Rewind to the beginning and listen to your improvisation. You should hear a combination of your prerecorded accompaniment plus your live improvisation. If not satisfied, go to the **Edit** menu, choose **Undo Recording** and try it again. Delete any extra measures from the end of your track(s).

- When satisfied, **Save** your project.

To record using the USB microphone:

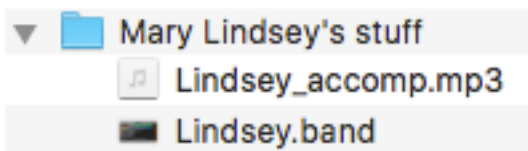
- Check out the AudioTechnica USB microphone box from the library checkout desk
- Set up the mic, following these instructions:



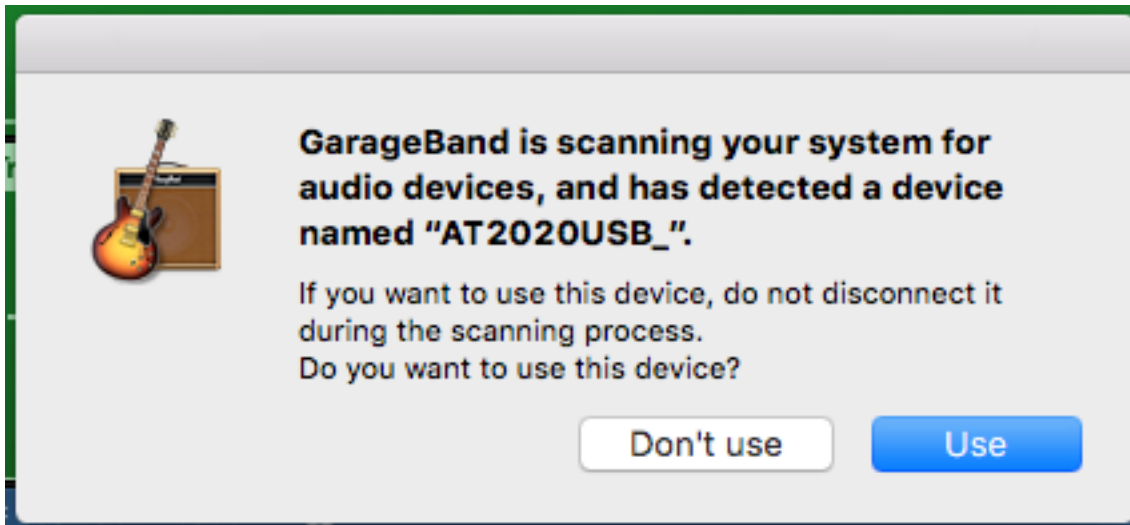
- Plug the mic into the USB port on the back of the computer; also plug a pair of headphones into the back of the computer:



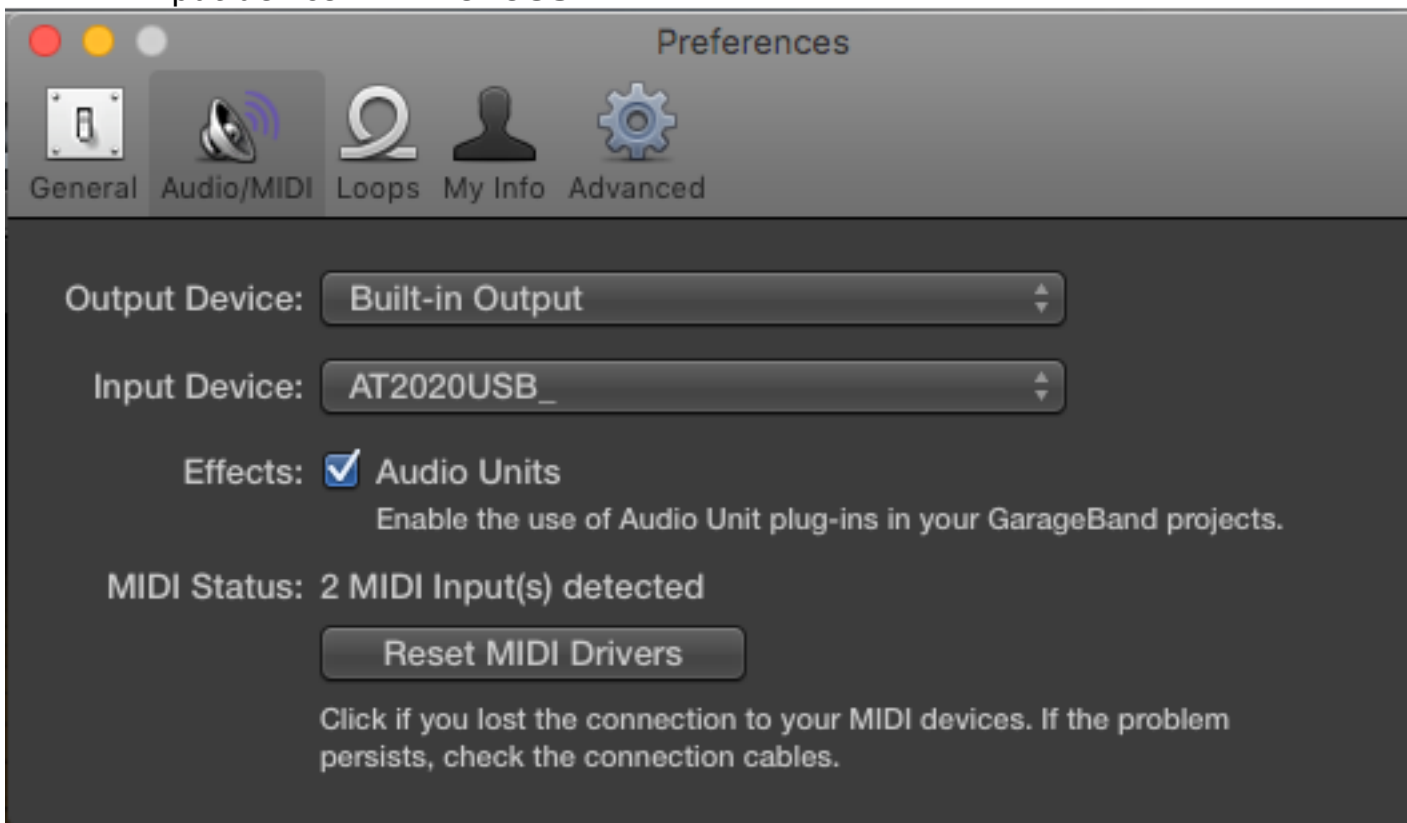
- Open the accompaniment project which you saved in Step 1. Your filename will end in **.band**:



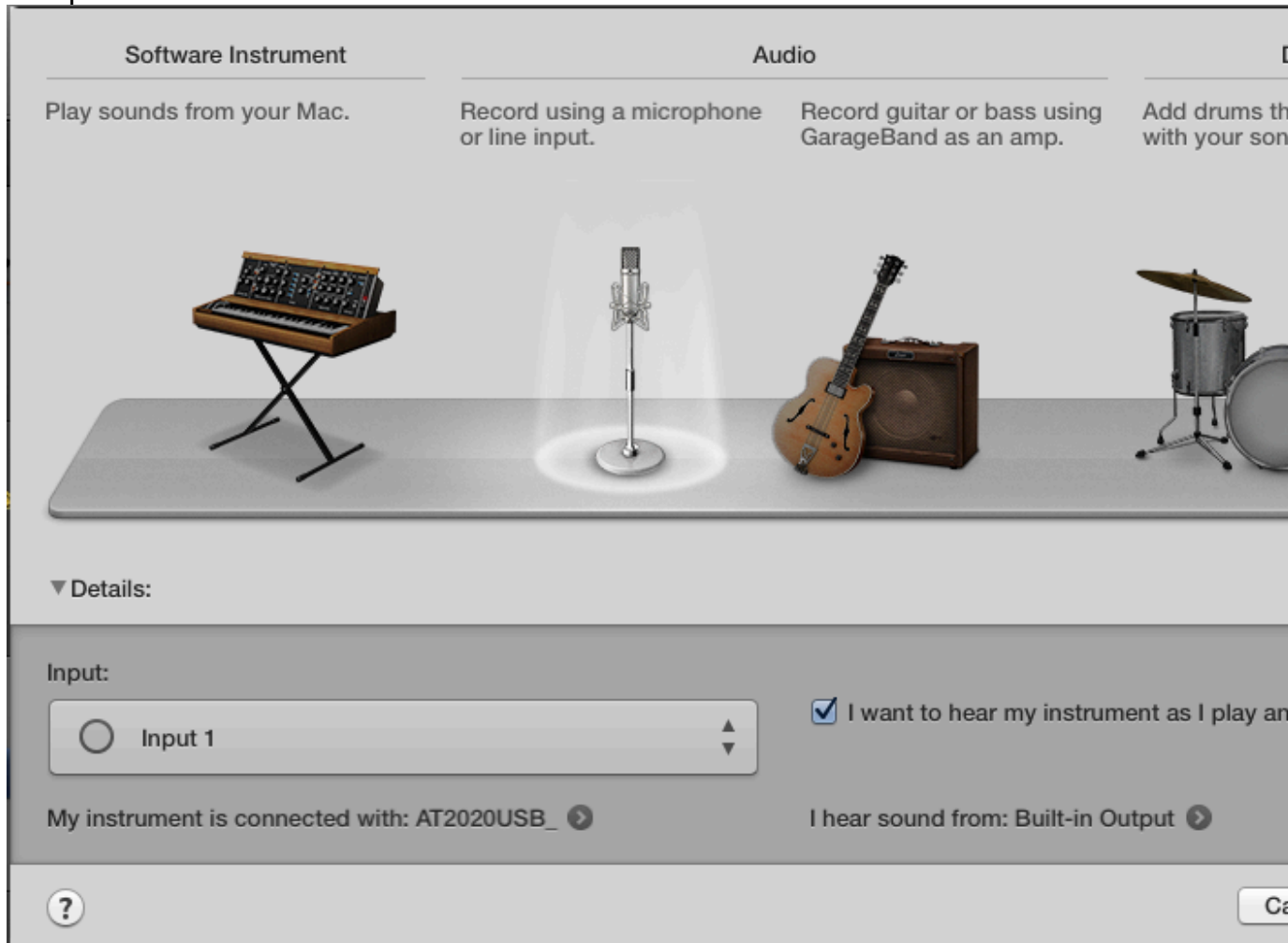
If the box pictured below pops up, click **"Use."**



- Set up GB to use the mic
 - From the **GarageBand** menu, choose **Preferences...**, then click **Audio/MIDI**
 - In the Preferences window that opens, choose the following settings:
 - Output device: **Built-in Output**
 - Input device: **AT2020USB**

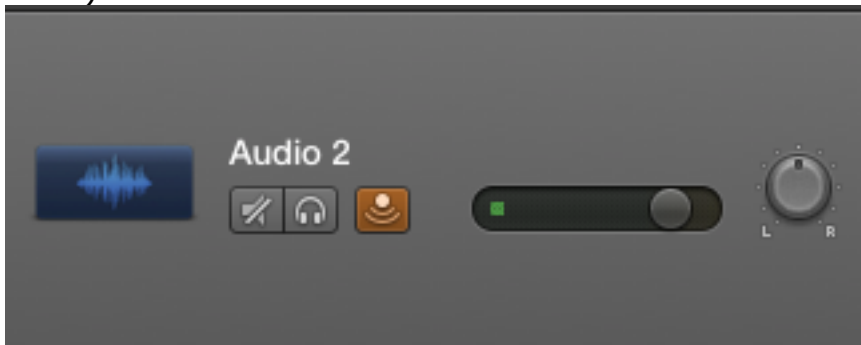


- Close the Preferences window by clicking the red button in the upper left-hand corner of the window.
- Add a new track on which to record your improvisation:
 - select **New Track...** from the **Track** menu, then click the picture of the microphone under "Audio":



- Using the pull-down menu below the word "Details," set the Input to **"Input 1"**
- click the box next to **I want to hear my instrument as I play and record**
- make sure you see **"My instrument is connected with AT2020USB"** and **"I hear sound from Built-in Output"** as in the picture above, then click **Create**
- You will see a new, blank Audio track.
 - play or sing directly into the microphone, and adjust the input level

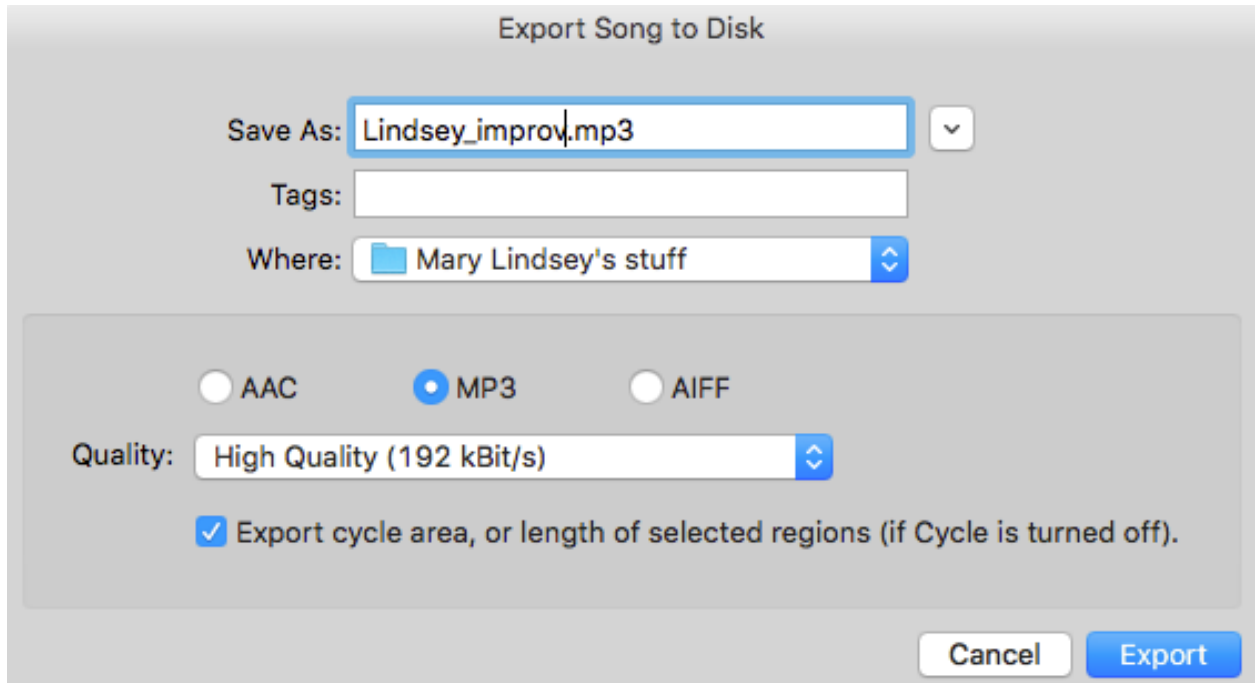
slider if necessary (the input level slider is just to the left of the L/R knob):



- Now hit the Record button and improvise while listening to the accompaniment. Consult your Instruction Sheet for guidelines concerning your recording (how many repetitions, note choice, stylistic suggestions, etc.)
- When finished recording, click the Stop button. Rewind to the beginning and listen to your improvisation. You should hear a combination of your prerecorded accompaniment plus your live improvisation. If not satisfied, go to the **Edit** menu, choose **Undo Recording** and try it again.
- When satisfied, **Save** your project.

Pack up the microphone box, making sure to put the USB cable, tripod, and pivot mount into the zippered pouch, and include the mic and instructions too. Return the box to the library checkout desk.

4. Save your improvisation recording as an mp3 file as follows:
 - From the **Share** menu, select **Export Song to Disk...**, name your file **yourlastname_improv**, and make sure you are saving it to your Assignment Folder. Select **MP3** for the filetype, select **High Quality** from the **Quality** pop-up menu, and check the box next to "**Export cycle area...**" Then click **Export**.

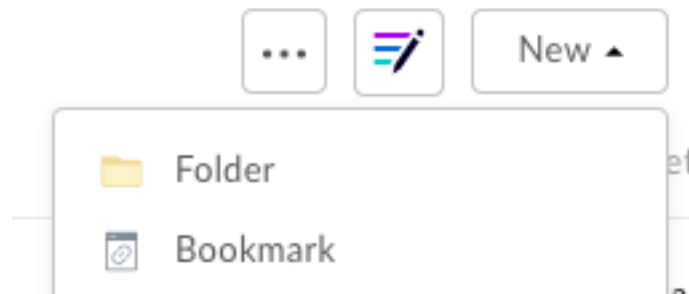


- Go to your Assignment Folder, and make sure your **yourlastname_improv** file is there. Double-click the file to hear it in iTunes, or simply select it and press the space bar to listen to it. Your recording will be a combination of your prerecorded accompaniment plus your live improvisation.

- Be sure to save backup copies of your GB project and your two mp3 files to a safe location (a flash drive or other external storage location).

5. Upload your files to Box.

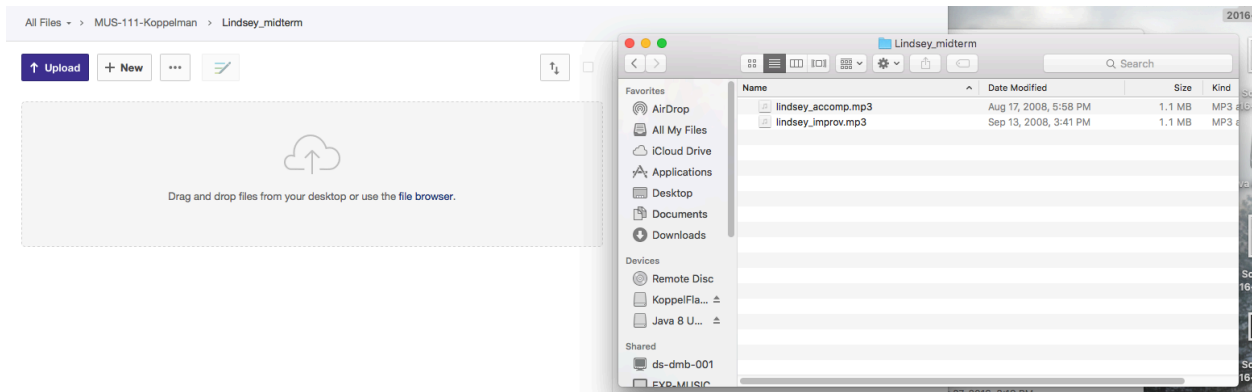
- Sign in to Box, following the directions above in section **A**.
- Click on the Box folder with your theory class and instructor's name.
 - Midterm projects will go to your Aural instructor (MUS-111B or 112B)
 - Final projects will go to your Written instructor (MUS-111A or 112A)
- Create a **yourlastname_midterm** folder within your theory class folder:
 - Click on **New**, then click **Folder** from the pop-up menu:



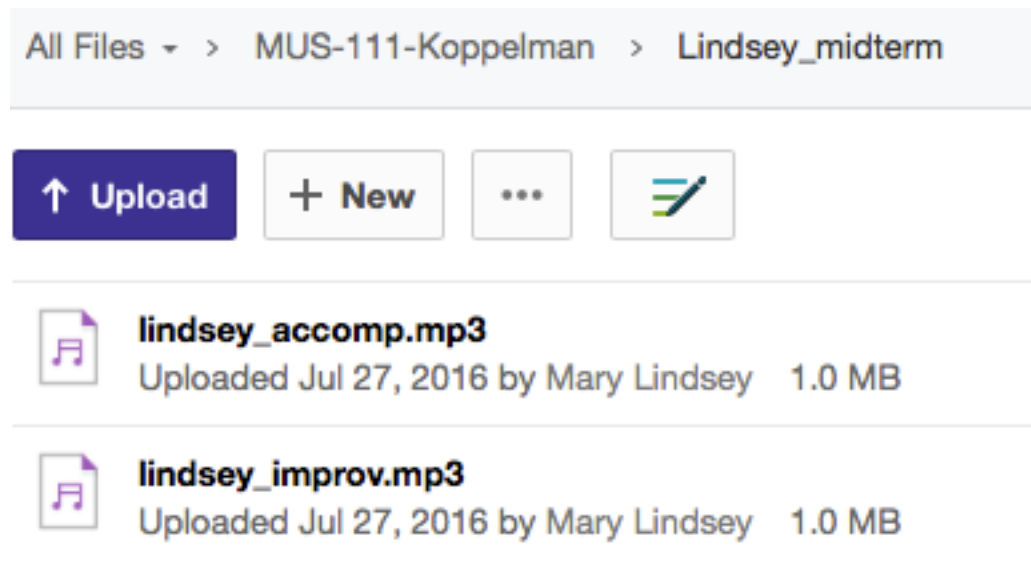
Name your folder **yourlastname_midterm**, then click **Create**.

A screenshot of a 'Create a New Folder' dialog box. The dialog has a title bar with a close button (X) in the top right corner. The main title is 'Create a New Folder'. Below the title, the label 'Folder Name' is followed by a text input field containing the text 'Lindsey_midterm'. At the bottom right of the dialog, there are two buttons: 'Cancel' and 'Create'.

- Open your Assignment Folder on your computer desktop, and arrange it so that you can see your newly created Box folder and your Assignment Folder at the same time:



- Drag your two mp3 files (**yourlastname_accomp** and **yourlastname.improv**) into your Box folder:



- Congratulations! You have finished the Midterm Assignment.

Final Project step-by-step

Before starting, create a new folder, inside the **Music Students** folder on your computer, where you will store all your files for this exercise. This

location will be referred to as your Project Folder.

1. Following steps 1 and 2 on the Final Project Instruction sheet, compose a short piece. You may wish to jot this down in pencil on paper.

2. Create a computer-notated version of your composition.

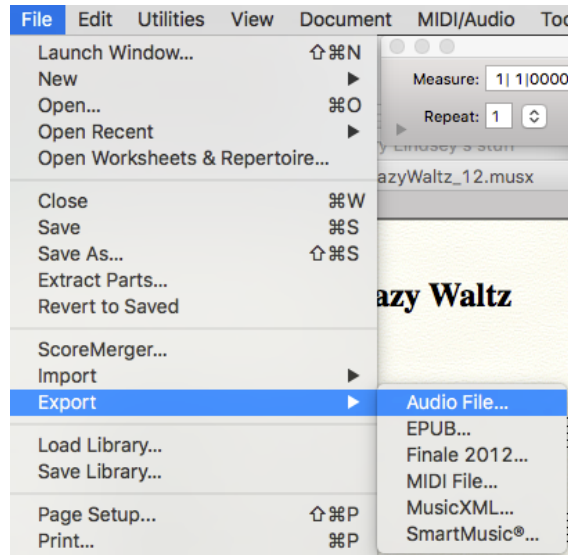
Using Finale, create a file which follows the guidelines in your Instruction Sheet (score layout, number of staves, etc). Be sure to include measure numbers. Please delete any extraneous empty measures. Print a hard copy. Using pencil, add harmonic analysis (key and Roman numerals) and embellishing tones (MUS-112 final project only). Save one copy of your notation file to disk; save another copy as a pdf file, as follows:

- From within Finale, with your score as the front-most window, choose **Print...** from the **File** menu; when the pop-up menu appears, choose "Score only;" then press **OK**. From the **Print** pop-up window, click the **PDF** button in the lower left-hand corner; then choose **Save as PDF...** from the pull-down menu. Name your file **yourlastname_composition**, and save it to your Project Folder.

- To double-check your work, find your newly created pdf file, then double-click to open and view it using Preview. Make sure it looks correct.

3. Create an mp3 file of your composition. This process consists of two steps: (1) use Finale to save an AIFF file of your composition; (2) use GarageBand to convert the AIFF file into an mp3 file.

- Open the Finale file of your composition.
- From the **File** menu, choose **Export**, then select **Audio File...** from the pop-up menu:



Choose **AIFF File** from the Format: pop-up menu, name your file **yourlastname_aiff**, and **Save** it into your Project Folder. Your newly created AIFF file should appear in your Project Folder (it should have .aiff at the end of its name).

- Open your Project Folder
- Launch GarageBand by clicking its icon in the dock; from the **File** menu, select **New...** Click on **Empty Project**, then click **Choose**. Click on the picture of the microphone under the **Audio** heading, then click **Create**. A new, blank GB project with one audio track will open.

- Move the GarageBand window so you can see your Project Folder window. Drag your AIFF file onto the GarageBand window, "dropping" it in the blank space just to the right of the track name. GarageBand will place the imported data beginning at measure 1 of the track. (If for some reason your data starts later in the track, simply drag it to the left, so that it starts at measure 1.)

- Export this one-track GB project as an mp3 file:
From the **Share** menu, select **Export Song to Disk...**, name your file **yourlastname_audio**, and make sure you are saving it to your Project Folder. Select **MP3** for the filetype, select **High Quality** from the **Quality** pop-up menu, and check the box next to "**Export cycle area...**" Then click **Export**.

- Go to your Project Folder, and make sure your **yourlastname_audio** file is there. Double-click the file to hear it in iTunes, or simply select it and press the space bar to listen to it.

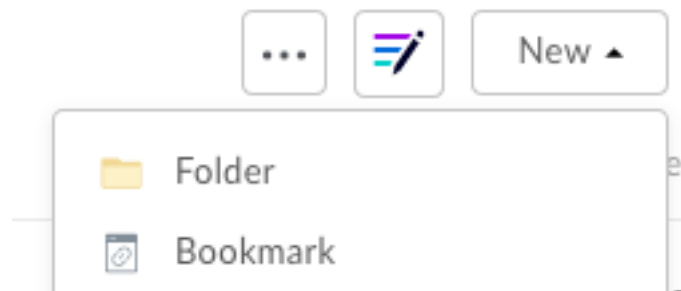
4. Write one page of analytical commentary about your composition.

Following the guidelines in your Final Project Instruction Sheet, write one page of analytical commentary about your composition. Be sure to refer to specific measure/beat locations in your composition. Print a hard copy. Save your commentary, as a Microsoft Word file, to your Project Folder; name this file **yourlastname_analysis**.

- Be sure to save backup copies of your Finale project, your pdf copy, your mp3 file, and your analysis to a safe location (a flash drive or other external storage location).

5. Upload your files to Box.

- Sign in to Box, following the directions above in section **A**.
- Click on the Box folder with your theory class and instructor's name.
Midterm projects will go to your Aural instructor (MUS-111B or 112B)
Final projects will go to your Written instructor (MUS-111A or 112A)
- Create a **yourlastname_final** folder within your theory class folder:
Click on **New**, then click **Folder** from the pop-up menu



Name your folder **yourlastname_final**, then click **Create**.

- Open your Project Folder on your computer desktop, and arrange it so that you can see your newly created Box folder and your Project Folder at the same time:

- Drag your three final project files (**yourlastname_composition**, **yourlastname_audio**, and **yourlastname_analysis**) into your Box folder:

All Files ▾ > MUS-111-Koppelman > Lindsey_final

 Upload  New  

 **lindsey_composition.pdf**
Uploaded today by Dan Koppelman 31.7 KB

 **lindsey_analysis.doc**
Uploaded today by Dan Koppelman 28.5 KB

 **Lindsey_audio.mp3**
Uploaded today by Dan Koppelman 380.5 KB

6. Turn in the hard copies of your composition and analysis to your instructor.

- Congratulations! You have finished the Final Project.