

# MUSIC TECHNOLOGY I

Open to all students in grades 9 -12, this course is designed for those seeking knowledge and experience in Audio and Recording technology. Topics covered include: live sound recording and sound reinforcement; digital recording and midi sequencing; audio engineering and editing; effects processing and microphone technique; music business and commercial production. Connecting music and technology, students will use digital audio workstations and a variety of recording studio equipment. This is a one-semester class that meets twice per 4 day rotation.

Prerequisite: None; a working knowledge of computers is recommended. Previous musical experience is not necessary, but musicians, performers and songwriters will benefit greatly from this course.

## Course Overview

### Course Goals

Students will have the ability to understand and engage with music in a number of different ways, including the **creative**, **responsive** and **performative** artistic processes. They will have the ability to create, edit, and enhance music performances using both hardware and computer software. They will attain literacy in digital / audio recording.

### Artistic Processes

- Create
- Perform (Present/Produce)
- Respond
- Connect

### Anchor Standards

- Generate and conceptualize artistic ideas and work
- Organize and develop artistic ideas and work.
- Refine and complete artistic work.
- Develop and refine artistic work for presentation.
- Convey meaning through the presentation of artistic work
- Apply criteria to evaluate artistic work.
- Relate artistic ideas and works with societal, cultural and historical context to deepen understanding.

### Course Skill Objectives

Students will be able to:

- Create a musical project using midi sequencing
- Record and edit music using multi track digital audio workstation (DAW).
- Analyze acoustic properties.
- Engineer and design sound reinforcement.
- Troubleshoot and resolve signal flow audio connections.
- Design and create a commercial audio production
- Identify connections between music and music technology to related commercial industries and careers.

**Units of Study**

- I. Introduction to Live Sound 3-4 weeks
- II. Introduction to Step Sequencing and MIDI 4- 5 weeks
- III. Introduction to Audio Editing 6 weeks
- IV. Introduction to Audio Production 4-5 weeks

**Assessments**

## Live Sound

- Basic Sound Reinforcement System

## Step Sequencing

- Beginning Step Sequencing
- MIDI Song Sequencing

## Audio Editing

- Audio Loop Editing
- Dialogue Edit
- Radio Spot

## Audio Production

- Cover Song
- Sound to Video

# Introduction to Live Sound

*Setting up and operating a basic sound reinforcement system.*

## Skill Objectives

- Students will be able to setup and breakdown a sound reinforcement system.
- Students will be able to properly place a sound reinforcement system.
- Students will be able to connect various components of a sound system.
- Students will be able to route signals from source to intended destination.
- Students will be able to set appropriate signal levels throughout the system.
- Students will be able to test and troubleshoot the system.
- Students will be able to identify mic level vs. line level devices.

<p><b>Responding</b> <i>Understanding and evaluating how the arts convey meaning.</i></p>	<p><b>Performing (Present/Produce)</b> <i>Realizing artistic ideas and work through interpretation and presentation.</i></p>
<p><b><u>Enduring Understanding</u></b></p> <ul style="list-style-type: none"> <li>• The personal evaluation of musical works and performances is informed by analysis, interpretation, and established criteria based on the elements of music. (PROGRESSIVE BY GRADE LEVEL)</li> </ul> <p><b><u>Essential Question</u></b></p> <ul style="list-style-type: none"> <li>• How do we judge the quality of musical work(s) and performances?</li> </ul> <p><b>Process Components: Analyze, Interpret</b></p>	<p><b><u>Enduring Understanding</u></b></p> <ul style="list-style-type: none"> <li>• To express their musical ideas, musicians analyze, evaluate, and refine their performance over time through openness to new ideas, persistence, and the application of appropriate criteria.</li> <li>• Musicians judge performance based on criteria that vary across time, place and cultures.</li> </ul> <p><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>• How do musicians improve the quality of their performance?</li> <li>• When is a performance judged ready to present?</li> </ul> <p><b>Process Components: Analyze, Evaluate, Refine, Present</b></p>
<p><b><u>Instructional Strategies/Process</u></b></p> <ul style="list-style-type: none"> <li>• Students will identify and interpret the components of a sound system set up.</li> <li>• Students will analyze, inspect, and evaluate the performance of their sound systems setup and set up of others both aurally and visually.</li> </ul>	<p><b><u>Instructional Strategies/Process</u></b> <b>Project:</b> <i>Basic Sound System Reinforcement</i></p> <ul style="list-style-type: none"> <li>• Students will analyze, evaluate and refine their sound reinforcement system for successful enhancement of instrumental and vocal performances (microphone technique).</li> <li>• Students will present proper cable wrapping technique.</li> <li>• Students will demonstrate correct processor connection and usage.</li> </ul>

**Assessments:**

- Basic Sound Reinforcement System
- Terminology assessment
- Cable wrapping skill assessment

**Introduction to Step Sequencing and MIDI**

*Creating rhythmically organized, loop based song sequences, using music production software.*

Skill Objectives

- Students will be able to operate loop based sequencing software.
- Students will be able to create measure/beat based patterns and assemble into song form

<p><b>Responding</b> <i>Understanding and evaluating how the arts convey meaning.</i></p>	<p><b>Performing (Present/Produce)</b> <i>Realizing artistic ideas and work through interpretation and presentation.</i></p>	<p><b>Creating</b> <i>Conceiving and developing new artistic ideas and work.</i></p>
<p><b><u>Enduring Understanding</u></b></p> <ul style="list-style-type: none"> <li>• The personal evaluation of musical works and performances is informed by analysis, interpretation, and established criteria based on the elements of music.</li> </ul> <p><b><u>Essential Question</u></b></p> <ul style="list-style-type: none"> <li>• How do we judge the quality of musical work(s) and performances?</li> </ul> <p><b>Process Components: Analyze, Evaluate</b></p>	<p><b><u>Enduring Understanding</u></b></p> <ul style="list-style-type: none"> <li>• To express their musical ideas, musicians analyze, evaluate, and refine their performance over time through openness to new ideas, persistence, and the application of appropriate criteria.</li> <li>• Musicians judge performance based on criteria that vary across time, place and cultures.</li> </ul> <p><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>• How do musicians improve the quality of their performance?</li> <li>• When is a performance judged ready to present?</li> </ul>	<p><b><u>Enduring Understanding</u></b></p> <ul style="list-style-type: none"> <li>• Musicians’ creative choices are influenced by their expertise, context, and expressive intent.</li> <li>• Musicians evaluate, and refine their work through openness to new ideas, persistence, and the application of appropriate criteria.</li> </ul> <p><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>• How do musicians make creative decisions?</li> <li>• How do musicians improve the quality of their creative work?</li> </ul>

	<b>Process Components: Analyze, Rehearse, Evaluate, Refine, Present</b>	<b>Process Components: Plan and Make, Evaluate and Refine</b>
<p><b>Instructional Strategies/Process</b>  <b>Projects:</b> <i>Beginning Step Sequencing, Song Sequencing</i></p> <ul style="list-style-type: none"> <li>• Students will analyze and understand how beats and measures are organized in piano roll and step sequencer format.</li> <li>• Students will analyze and evaluate their own projects for appropriate rhythmic alignment and accuracy, quantizing.</li> <li>• Students will analyze and evaluate peer projects for appropriate rhythmic alignment and accuracy.</li> </ul>	<p><b>Instructional Strategies/Process</b>  <b>Projects:</b> <i>Beginning Step Sequencing, Song Sequencing</i>  Using MIDI</p> <ul style="list-style-type: none"> <li>• Students will rehearse, refine, play and record, in real time, midi instrument tracks using the electronic keyboard.</li> <li>• Students will analyze and evaluate their recordings and quantize rhythmic inaccuracies.</li> <li>• Students will upload projects and present to the class.</li> </ul>	<p><b>Instructional Strategies/Process</b>  <b>Projects:</b> <i>Beginning Step Sequencing, Song Sequencing</i>  Using MIDI</p> <ul style="list-style-type: none"> <li>• Students will work alone or in pairs to create a short piece in verse/chorus form with a minimum of 2 tracks (drums and bass) using a step sequencer, and appropriate use of grid structure and rhythmic patterns.</li> <li>• Students will evaluate and refine their compositions to meet project requirements.</li> <li>• Students will create in step time and in real time, various instrumental music tracks.</li> </ul>

**Assessments:**

- Beginning Step Sequencing
  - *Beginning Step Sequencing Drum Packet*
- Song Sequencing
- Generic Project checklist

# Introduction to Audio Editing

## Skill Objectives

- Students will be able to operate music production software.
- Students will be able to connect and set levels for various components of a digital audio workstation.
- Students will be able to record/import audio into music production software.
- Students will be able to edit audio within the digital domain.
- Students will be able to mix multiple tracks to one stereo master.

<b>Responding</b> <i>Understanding and evaluating how the arts convey meaning.</i>	<b>Performing (Present/Produce)</b> <i>Realizing artistic ideas and work through interpretation and presentation.</i>	<b>Creating</b> <i>Conceiving and developing new artistic ideas and work.</i>
<p><b><u>Enduring Understanding</u></b></p> <ul style="list-style-type: none"> <li>• The personal evaluation of musical works and performances is informed by analysis, interpretation, and established criteria based on the elements of music.</li> </ul> <p><b><u>Essential Question</u></b></p> <ul style="list-style-type: none"> <li>• How do we judge the quality of musical work(s) and performances?</li> </ul> <p><b>Process Components: Analyze, Evaluate, Refine</b></p>	<p><b><u>Enduring Understanding</u></b></p> <ul style="list-style-type: none"> <li>• To express their musical ideas, musicians analyze, evaluate, and refine their performance over time through openness to new ideas, persistence, and the application of appropriate criteria.</li> <li>• Musicians judge performance based on criteria that vary across time, place and cultures.</li> </ul> <p><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>• How do musicians improve the quality of their performance?</li> <li>• When is a performance judged ready to present?</li> </ul> <p><b>Process Components: Analyze, Rehearse, Evaluate, Refine, Present</b></p>	<p><b><u>Enduring Understanding</u></b></p> <ul style="list-style-type: none"> <li>• Musicians’ creative choices are influenced by their expertise, context, and expressive intent.</li> <li>• Musicians evaluate, and refine their work through openness to new ideas, persistence, and the application of appropriate criteria.</li> </ul> <p><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>• How do musicians make creative decisions?</li> <li>• How do musicians improve the quality of their creative work?</li> </ul> <p><b>Process Components: Plan and Make, Evaluate and Refine</b></p>
<p><b>Instructional Strategies/Process</b>  <b>Projects:</b> <i>Dialogue Edit, Radio Spot, Audio Loop Editing</i></p> <ul style="list-style-type: none"> <li>• Students will listen to, analyze, evaluate and refine their work based on defined project parameters</li> </ul>	<p><b>Instructional Strategies/Process</b>  <b>Project:</b> <i>Dialogue Edit</i>            Students will work alone or in pairs to:</p> <ul style="list-style-type: none"> <li>• record (analyze, rehearse, evaluate, refine and present) a given script</li> </ul>	<p><b>Instructional Strategies/Process</b>  <b>Project:</b> <i>Radio Spot</i>            Students will work alone or in pairs to:</p> <ul style="list-style-type: none"> <li>• create a commercial</li> <li>• Record an existing radio spot adhering to a specific time length</li> </ul>

<ul style="list-style-type: none"> <li>• Students will listen to, analyze, and evaluate the work of their peers based on defined project parameters.</li> </ul>	<ul style="list-style-type: none"> <li>• edit the audio using various tools available in a digital audio workstation</li> <li>• re-arrange and refine the original script to change the meaning.</li> </ul>	<ul style="list-style-type: none"> <li>• Add sound effects</li> <li>• Add underscore</li> <li>• Evaluate and refine their work as necessary</li> <li>• Culminate project with a final mix down to a stereo audio master.</li> </ul> <p><b>Project:</b> <i>Audio Loop Editing</i>  Students will work alone or in pairs to create a loop based composition</p> <ul style="list-style-type: none"> <li>• Select prerecord loops</li> <li>• Manipulate the loops to create an original 64+ measure composition that <ul style="list-style-type: none"> <li>○ matches master tempo</li> <li>○ changes pitch</li> <li>○ changes tempo</li> </ul> </li> </ul>
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**Assessments:**

- Audio Loop Editing
- Dialogue Edit
- Radio Spot

# Introduction to Audio Production

## Skill Objectives

- Students will record a “cover” of a popular song using a digital audio workstation.
- Students will integrate live instruments, vocals, and midi tracks in one project.
- Students will operate music production software.
- Students will record and edit midi tracks.
- Students will automate various parameters of midi/audio tracks
- Students will mix and export to stereo master

<b>Responding</b> <i>Understanding and evaluating how the arts convey meaning.</i>	<b>Performing (Present/Produce)</b> <i>Realizing artistic ideas and work through interpretation and presentation.</i>	<b>Creating</b> <i>Conceiving and developing new artistic ideas and work.</i>
<p><b><u>Enduring Understanding</u></b></p> <ul style="list-style-type: none"> <li>• The personal evaluation of musical works and performances is informed by analysis, interpretation, and established criteria based on the elements of music.</li> </ul> <p><b><u>Essential Question</u></b></p> <ul style="list-style-type: none"> <li>• How do we judge the quality of musical work(s) and performances?</li> </ul> <p><b>Process Components: Analyze, Evaluate, Refine</b></p>	<p><b><u>Enduring Understanding</u></b></p> <ul style="list-style-type: none"> <li>• To express their musical ideas, musicians analyze, evaluate, and refine their performance over time through openness to new ideas, persistence, and the application of appropriate criteria.</li> <li>• Musicians judge performance based on criteria that vary across time, place and cultures.</li> </ul> <p><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>• How do musicians improve the quality of their performance?</li> <li>• When is a performance judged ready to present?</li> </ul> <p><b>Process Components: Analyze, Rehearse, Evaluate, Refine, Present</b></p>	<p><b><u>Enduring Understanding</u></b></p> <ul style="list-style-type: none"> <li>• Musicians’ creative choices are influenced by their expertise, context, and expressive intent.</li> <li>• Musicians evaluate, and refine their work through openness to new ideas, persistence, and the application of appropriate criteria.</li> </ul> <p><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>• How do musicians make creative decisions?</li> <li>• How do musicians improve the quality of their creative work?</li> </ul> <p><b>Process Components: Plan and Make, Evaluate and Refine</b></p>



<p><b>Instructional Strategies/Process</b>  <b>Projects:</b> <i>Cover Song, Sound to Video</i></p> <ul style="list-style-type: none"> <li>• Students will listen to, analyze, evaluate and refine their work based on defined project parameters</li> <li>• Students will listen to, analyze, and evaluate the work of their peers based on defined project parameters</li> </ul>	<p><b>Instructional Strategies/Process</b>  <b>Project:</b> <i>Cover Song</i></p> <p>Students will work in groups to:</p> <ul style="list-style-type: none"> <li>• Record and produce a “cover” of an existing popular recording</li> <li>• Analyze song structure for rhythmic, harmonic, melodic and textural components</li> <li>• Create basic rhythm tracks using midi</li> <li>• Rehearse, evaluate and refine their audio performance prior to recording</li> <li>• Record audio tracks</li> <li>• Refine recording through editing, processing and automation.</li> <li>• Present final stereo mix</li> </ul> <p><i>The objective is to reproduce the original as closely as possible including the vocals, given student/class musical proficiency. The project culminates with a final mix down to a stereo audio master.</i></p>	<p><b>Instructional Strategies/Process</b>  <b>Project:</b> <i>Sound to Video</i></p> <p>Students will work alone or in pairs to replace and create an entire audio track, including sound effects, dialogue, and music for an existing television commercial and sync it with the video in a digital audio workstation, evaluating and refining their work as necessary.</p> <ul style="list-style-type: none"> <li>• Import existing commercial</li> <li>• Remove audio</li> <li>• Create and record replacement dialogue</li> <li>• Create and record underscore</li> <li>• Create and record sound effects</li> <li>• Perform and record “foley” sound effects</li> <li>• Mix and export to stereo/video format</li> <li>• Present to class</li> </ul>
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**Assessments:**

- Cover Song
- Sound to Video