Department of Music
MP-101: Introduction to the Recording Studio and MIDI

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2 class hours; 2 laboratory hours; 3 credits; no prerequisites
An exploration of the basic techniques and theories
of multi-track recording and MIDI technology.
Students apply principles by working with professional
studio equipment in the Recording Studio Lab

An introductory level class in the Music Production curriculum.

Course Objectives

Course objectives	**Learning outcomes**
1. Students will demonstrate understanding of fundamental properties of sound.	Students will: a. identify the property of frequency and articulate its effect on our perception of pitch and timbre; b. identify the properties of intensity and amplitude, and the correlated effects on our perception of loudness
2. Students will demonstrate basic knowledge of audio signal flow, connectors, and gain structure.	Students will: a. identify different types of common audio connectors using proper terminology b. differentiate between balanced and unbalanced connections and demonstrate understanding of the benefits and drawbacks of each c. distinguish different types of signal levels and identify when adjustment is needed d. demonstrate understanding of basic concepts of connectivity when working with audio equipment
3. In praxis, students will demonstrate ability to work in a DAW environment.	Students will a. make voice recordings using proper microphone technique and gain structure b. manipulate audio and MIDI data in a DAW environment c. use virtual instruments in the creation of original music d. use digital signal processing tastefully and with proper technique e. demonstrate understanding of virtual connectivity and signal flow f. demonstrate effective file management and organization
4. Demonstrate understanding of fundamental concepts regarding the use of intellectual property.	Students will a. recognize what constitutes ownership of intellectual property b. evaluate licensing requirements for the use of intellectual property not belonging to themselves
5. Students will demonstrate understanding of fundamental digital audio concepts	Students will a. identify the properties of sampling frequency and bit depth, and how these effect digital audio data b. identify PCM versus compressed audio file formats c. deliver assignments using the proper file format, sample rate, and bit depth

Attendance:
Attendance of this class is not optional. Lateness is not tolerated: coming to class more than 20 minutes late will be considered an absence. According to QCC guidelines, missing more than 15% of a class results in a failing grade, regardless of how well the student is actually doing.

Creativity and initiative are rewarded and encouraged. Simply fulfilling the minimum requirements of an assignment will result in a C grade.

REQUIRED:
You will need a pair of headphones **with a 1/4" -> 1/8" adapter** at EVERY SESSION of the class. An adapter can be purchased at any Radio Shack store - be sure that it is Stereo-to-Stereo.

YOU MUST BRING YOUR OWN HEADPHONES AND ADAPTER TO EVERY CLASS!

DUE EVERY MONDAY - WEEKLY ASSIGNMENT:

Watch an episode of "Pensado's Place." Write a short synopsis on the interview or "Into the Lair" segment. Be sure to cite the episode watched in your synopsis.

OR

Read an article (not a "gear review") in TapeOp and write a short synopsis of the article. Be sure to include the date of the magazine, the author and title in your heading.

OR

Read an article or watch a tutorial on SonicScoop.com. Cite the article.

These should be handed in via email no later than 5 pm every Monday. Late assignments are not accepted.

Additional Considerations:

- **Cheating will result in an automatic F for the course**
- **Cell Phone use is not permitted in class. Use of a cell phone during an exam or quiz results in an automatic grade of zero for that exam/quiz.**
- **Leaving the room during an exam/quiz is not permitted and will result in a zero for the exam/quiz.**
- **Eating and drinking are not allowed at any time in the classroom.**

Curricular objectives addressed by this course:

- In praxis, students will demonstrate progressive development and competency in the technical skills requisite for artistic self-expression
- Students will demonstrate a progressive understanding of the various elements and basic interrelated processes of creation, interpretation, and execution within their discipline
- Students will integrate theoretical knowledge and performance skills in the creation and performance of collaborative and individual projects.
- Employing creative abstraction, metaphor and imagination, students will create art that clearly articulates their evolving artistic vision, and satisfies their drive toward expression.

General Education objectives addressed by this course:

- communicate effectively through reading, writing, listening and speaking
- use information management and technology skills effectively for academic research and lifelong learning
- integrate knowledge and skills in their program of study
- work collaboratively in diverse groups directed at accomplishing learning objectives

Grading:

Written Assignments:	10%
Quiz grades	10%
Midterm	20%
Final Exam	20%
Assigned Lab Projects:	20%
Final Project:	20%

Academic Integrity Policy

Academic honesty is taken extremely seriously and is expected of all students. All assignments must be the original work of the student. All questions or concerns regarding ethical conduct should be brought to the course instructor. "It is the official policy of the College that all acts or attempted acts that are violations of academic integrity be reported to the Office of Student Affairs. At the faculty member's discretion and with the concurrence of the student or students involved, some cases, though reported to the OSA may be resolved within the confines of the course and department. The instructor has the authority to adjust the offender's grades as deemed appropriate, including assigning an F to the assignment or exercise or, in more serious cases, an F to the student for the entire course."

- From the *QCC Academic Integrity Policy* 2/14/2005.

MP-101
Course Outline

Week 1: The Biz
- What is the music industry?
- Jobs in the music industry
- Legalese – copyrights, publishing, points, royalties
- Organizations you should know – RIAA, ASCAP, NARAS, AES
- A brief history of the world (of recording)
- Things you will need in this class

Week 2: Acoustics in twenty words or less
- What is sound?
- The speed of sound
- Components of sound: frequency and amplitude
- Hertz and dB
- Pitch and timbre: frequency in the real world, range of human hearing
- Hearing basics – turning sound waves into brain waves
- Hearing health – how loud for how long?
- Parts of instrument sound: attack decay sustain release
- Your room as a musical instrument – wavelength, resonance, and reflections

Week 3: Making all the right connections
- Types of connectors – XLR, quarter-inch (TS, TRS) RCA; male vs. female
- Signal flow 101 – Output -> Input - basic plumbing, playing follow the electrons
- Line level, mic level, instrument level, consumer level
- A very basic signal chain - mic->preamp->power amp->speakers
- Balanced vs. Unbalanced
- A bit about phase about phase and polarity
- Mono vs. stereo
- What is a channel? A track?
- What is analog? Digital?
- Multi-track recording – different flavors of digital and analog
- Components of a basic digital audio recording chain
- Care and feeding of audio cables

Week 4: Quiz 1

Week 4: Getting it from the source: microphone basics
- Introducing transducers
- Dynamic mic principals
- Condenser mic principals
- Pickup patterns

- Frequency response
- Off-axis coloration
- Noise, distortion and the need for gain staging

Week 5: MIDI and you
- What is MIDI?
- Anatomy of a MIDI message
- Controllers, synthesizers, and sound modules
- Basic MIDI signal chain, IN, OUT and THRU
- General MIDI
- MIDI in the box – sequencers, samplers, and software synths
- Reason Basics
- Rewire and ProTools

Week 6: Mixer Signal Flow
- Two main sections: master and channels
- Learn one channel strip – know them all
- Trim pot – a preamplifier by any other name…
- Aux Sends
- Pre/Post fader
- EQ in brief
- Panning knob
- Mute or On/Off button
- Solo
- Getting the sound on the bus
- channel inserts explained
- Inline vs. sidechain

Week 7: Quiz II

Week 7: Digital Audio Basics
- Giga, Mega and kilo
- Bits and bytes and words – Oh my!
- Several definitions of sampling and samples
- Converting voltage to numbers - sampling rate and bit depth
- Who was Nyquist and why you should care
- Knowing what time it is – the role of the word clock and the PLL
- Alphabet soup – digital audio protocols: ADAT, SPDIF, AES/EBU, TDIF
- DSP – mixing becomes math
- More decibels! Digital “0” vs. Analog “0”
- Digital audio file formats: uncompressed vs. compressed
- A (brief!) explanation of digital audio compression

Week 8: More about Pro Tools and Review for Mid-Term

- Review of side chain
- How to create groups
- How to create sub-groups
- Use of the Master Fader
- Review

Week 9: **MID-SEMESTER EXAM**

Week 10: Time based effects

- Time based acoustic phenomena in the real world
- Delay and its uses
- Chorus, flanging, phasing
- Reverb

Week 11: Equalization

- Corner frequency and bandwidth
- Graphic vs. parametric
- Shelving EQ's
- Just what is a Q anyway?

Week 12: Dynamics processors

- What are dynamics and why are we processing them?
- What do these knobs do? Threshold, ratio, attack and release explained
- Gates and expanders
- Compressors
- Multiband compressors
- Limiters

Week 13: Quiz III

Week 13: Wrap up and Work on Final Projects
Week 14: Work on Final Projects

Week 15: FINAL EXAM!!!!!!!!!