Advanced Multi-Track II

Instructor: John Campos
Office: 2118 Dalton Center
Class location: WSS
Office hours: Mon. and Wed. 2-3p.m.
269-387-4720

Class requirements. Students must complete two projects, and may complete a third, with permission of the instructor.

Students who **miss three or more class meetings**, even with excused absences, **will not pass the class**. If absences are excused a grade of "incomplete" may be possible.

Required projects: 1) Live to two track. 2) No effects
Optional project: 3) Sound for picture or other with approval of the instructor.

Each required project is worth 33% of the total grade. An oral exam during the third or forth week of class on the console is also worth 33%.

All students are required to submit an entry into the annual Downbeat Magazine student music awards.

The live to two-track project must be completed during the first 5 weeks of the semester, and graded during midterm week.

20 hours of studio time maximum per project. Students who violate studio rules may be barred from using the studio or taking further classes.

You must pay a fee in order for your ID card to have swipe access to the lab and WSS. This fee also covers the mailbox key for WSS for advanced students. Payment of this fee must be taken care of before the second week of classes; this means that you must get a new ID card, if you do not have one. Please see Jenny Snyder and do this the first week of class.

Current fees are: $5 per semester. $10 per academic year (fall and spring). $10 summers. $55 for all of your time at WMU.

To assure compliance with the Americans with Disabilities Act, faculty at Western Michigan University need to know how a disability will impact student participation and work in courses. Any student registered with Disability Services for Students who would like to discuss accommodations for this class should contact the instructor of record in a timely manner. Students with documented disabilities who are not registered with DSS should call the office at (269) 387-2116 or visit wmich.edu/disabilityservices. Students cannot request academic accommodations without scheduling an appointment and meeting with a DSS staff member. If a student does not register with DSS, his or her academic accommodations cannot be executed.

Ideally, time remaining after each lecture will be used to listen to projects in progress, such that the class can offer critiques and suggestions.

2 Weeks

Explanation of course requirements in detail.
Learn Console.
Live to 2 track routing.

Project 1) Live to 2-track recording of a band with a drummer and vocals. This project must be completed during the first 4 weeks of the semester. Editing between takes is permissible.

Project 2) No effects. This projects allows no use whatsoever of any effects processing (EQ, compression, reverb or delay, etc.) by the engineer. All sounds must be obtained through: choice and manipulation of the sound source, placement of the source in an appropriate space, and microphone selection and placement. Level, mute and panning automation is permissible. Effects such as EQ and delay etc., can be used if they are applied at the original sound source.

Project 3) Sound for picture or other suitable project. Students will use the video clip of their choice and add in music, dialog and sound effects, and then mix synchronized to picture, all within Pro Tools. Students who already have significant experience doing this type of work may do a different project with the permission of the instructor.

Live to 2-Track Recording will be discussed and routing and patching will be demonstrated. **Students must use the analog console, but may use pro tools processing as long as it is done live.**

Learn Otari Series 54 in detail. Tutorials are available here:

https://www.youtube.com/watch?v=hiuYHRZmT2o&index=1&list=PL1s8mukthpgX2M-jKVGo6nFhufA67Jg3V

2 Weeks

Demonstration of microphone and pre-amp selection. Console signal flow.

Students will listen to a demo recording that utilized several microphones of various designs all running into the same type of pre-amplifier. Then, using blind listening (such that the student is not aware of which microphone they are hearing) will be done to compare and contrast the results.

Similarly, students will listen to a demo made with a single microphone in

combination with a variety of pre-amplifiers. Again students will compare and contrast the results to focus on the results generated by various preamplifiers.

1 Week

Baffling

Demonstration of various approaches to baffling.

1) No baffles
2) Baffles between players only.
3) Baffles behind players only.
4) Baffles between and behind players.
5) Boxing in a musician with baffles
6) Null point rejection on bidirectional vs baffling

Session planning and execution.

Your job is to provide an environment **conducive to creativity.** This goal should guide all of your decisions. Foremost, the client must have confidence in **you**. Session planning and execution coupled with your dedication to seeing that the client is well taken care of will go a long way in this regard.

1 week

Pre-session planning.

Speak with client. (For larger projects, meet with client, win them over by going the extra mile and attending a rehearsal or performance). Determine clients goals and budget. Ask client for recordings that they like the sound of so you can have an idea of what they want and you can work in that direction. (Sonic Youth and Linkin Park are both nominally rock bands, but their sounds are worlds apart.)

Suggest an appropriate approach. Be patient! Clients may know nothing about the process.

Diplomacy may be necessary to steer client away from pre-concieved notions that may be problematic. Educate client on advantages and limitations of each of the following.

Live to two track minimalist i.e. two microphones,
Live to multi-track close micing,
Live to multi-track plus solos and vocals,
Full-on over dubbing.

Compile a detailed list of gear that will be on the sessions. Extent of drum kit, i.e, how many toms and such. How many bass and guitar cabinets, do they have direct outs? How many singers, horns, keys, you get the idea.

Stress that all gear should be in top-notch condition. Borrow or rent if necessary. Instruments should be freshly set-up for best intonation.

Determine if client has strong feelings or concerns regarding how they will be set-up for recording, i.e., same room or isolation booths, will they to prefer sit or stand, will they be reading charts, will they require a click track.

Make sure that client understands that they will not just walk in and record. Explain that a careful set-up takes time and that they needn't arrive all warmed up and ready to perform when a large set-up is involved. An overdub session is another matter, however.

Do not ask, but determine if the band has a leader. This may be obvious. However, it may not be clear and in fact it presents a potential minefield for the engineer. Tread carefully! You are entering the land of band politics and resentments. Identifying a leader is helpful in streamlining the decision making process. Having to ask everybody the same questions wastes a lot of time. (i.e., it's nice to ask Charlie and Ronnie but Mick and Keith make all the decisions)

1 Week

Set-ups.

Put yourself in the client's shoes. Would you be comfortable with the set-up? Is it an environment suited to doing your best work?

You should already have determined the client's preference for the set-up. As in, all in one room, sitting/standing, etc. The following apply to any set-up.

Sight lines. Unless it is impossible, everybody should be able to see everybody else without straining. Musicians and baffles need to be carefully placed not only for great sound but so that they can make eye contact effortlessly. Various rooms can be employed with thoughtful use of doorways for sight lines.

Lighting. Do whatever you can to provide an appealing atmosphere with lighting. Be creative with the combinations you can use, i.e., ceiling lights, table lamps, stand lights. Try indirect lighting when appropriate.

Music Stands. These can be used for more than music. They work well as mobile tables for light weight items. Any music stand used on a session should have a carpet scrap set on it to dampen resonance and to minimize reflections.

Cable Runs. Cables under foot are a distraction. Do whatever you can to keep cable runs neat and out of the way.

The all-important first 30 minutes of any session. Get it right now, set the right tone, put the client at ease. If you fail to do so you will have a difficult time in

both undoing the damage to your client's frame of mind and regaining their confidence in you.

2 Weeks

Cue/Monitor Mixes and Communication

Headphone Mixes

Producing and maintaining high quality headphone (cue) mixes is the single most important task on a session. It should go without saying that musicians must hear well in order to play well. This is no mean feat.

Headphones. Closed back designs offer less bleed than open back models. This may prove critical, especially when using a click track. Be certain that the click is not being picked up by the microphones. Solo the mics while no one is playing to be sure. Drummers in particular may do better with closed back designs as this design will minimize click bleed and also allow for lower over all mix level.

Multiple Mixes. Provide as many individual mixes as is practical. If a drummer is on the session it is wise to provide them with their own mix. Their situation is unique in that they are surrounded by very loud sound sources. They will require a very different mix than a guitarist on the same session. If have the capability to provide a second mix, find a compromise between the needs of the other musicians that will serve them all. Individual mixes for each musician is optimal, but may not be feasible.

Put yourself in their shoes - think like a player on the session.
When putting the cue mixes together, listen as if you were going to be performing. Is the overall level comfortable? Are all the instruments clearly audible? Is the panning helpful? You must provide mixes that inspire the players to do their best. Approach the mixes as if you were doing a final mix, but much, much faster.

Rough mixes before the session. Have cue mixes up even before the musicians put on the headphones. If you have the time, it is always good to make an educated guess as to level and panning set and ready to go. This ensures that a bassist, for example, will plug in and put on their headphones and find that they can already hear themselves. Obviously, you will need to make adjustments once everyone is playing, but you can avoid the unnecessary, "Hey man, I can't hear myself in the headphones".

Encourage musician input. Be sure that the musician know that you can and will make any adjustments that they desire. Many players have little to no studio experience and they may not be aware that you can optimize the mix for them. Others may never have had an engineer who took cue mixes seriously. Make sure they are happy with the mixes before you start tracking and then check back now and again to see if they would like adjustments. Musicians asking for adjustments is a good sign. This means they actually believe that you

will address their concerns.

Revamp your mixes as situations change. You may be justifiably proud of your cue mixes for a basic tracking session. However, as soon as you move on to overdubs, you must completely re-work the mix or mixes for the new situation. You may have been recording with drums and the bassist in the same room. Once the drums are approved, the bassist may want to do a few punches. However, now that the drums are not in the room, the bassist will need more drums in their mix to hear them well. So change the mix to optimize it to the circumstance. On a long session, you may make many adjustments. This is the last place to be lazy. Just do it.

Avoid unnecessary cluttering of mixes. Dense mixes may make over-dubbing more difficult than necessary. A singer for example, may find it more difficult to sing comfortably when there are many elements in the mix. Does she really need the horns and the auxiliary percussion? Some sounds, like a heavily chorused guitar, make finding a pitch center difficult. If tracks are not helping the singer then pull them out of the mix. What a musician needs, fundamentally, is a good reference for pitch and tempo. Again, think like a musician. What would you need in the mix to do your best work? However, don't over do it when pulling elements out. A guitarist for example, will want to hear a piano part that is laid down such that they can make appropriate decisions regarding voicings while comping. As always, ask the talent what they need and encourage them to ask for whatever adjustments in the mix that they may want.

Monitor Mixes and Communication

Everything that makes for good practice in creating cue mixes is true for monitor mixes as well. However, there will be times when you need to bring up a track to a level that is inappropriate for making musical decisions but is necessary to ensure that there are no technical problems such as hums, buzzes or rattles. Any reasonable producer or band member will understand this. For the true neophyte, explain it to them. Technical house keeping is entirely your responsibility. Be thorough, but be quick. Occasionally, a client will want playback at levels that you will not want to subject you ears to. In this case, introduce them to the control room level nob and get out of the room.

In circumstances where the listening environment is truly poor (remote recordings are often this way) it may be best to use headphones to monitor. Make sure you use headphones that you are very familiar with and have extras available for others who may need to listen as well.

Communication on the session, between you and the musicians, is of course critical. Facilitating easy and constant communication is no simple matter. It will take planning. It is completely unintuitive to be in one room and speak to people in another, often without sight-lines. You will have to work to put people

at ease under these circumstances. A communication or "comm" microphone should be placed in the room. It may be necessary to place one in each room on a multi-room set up. An omni directional mic is often best but not absolutely necessary. This mic should be on at all times when the musicians are not playing. The idea is that you need to be able to hear the musicians at all times. Even during playback. Make sure the musicians are aware that you will always be listening. This facilitates both a good flow for the session and avoids the problems that could arise if musicians say something intended for the band only, and everybody on the session hears it.

The communication mic(s) should be up at sufficient level such that you can hear the musicians clearly even when they wonder across the room to get something while talking. Heavy handed compression is helpful here, such that sudden loud sounds are not problematic. Send the communication mic to the headphones as well so that everyone can hear each other without taking their headphones off. You'll know you are doing a good job with the communications when the musicians are speaking in a normal voice instead of raising them as they naturally would to people who are not near by.

Make sure you have the comm mic(s) up while listening to playbacks of takes. This is critical. Often a musician will know only one minute into a six minute song that they aren't happy with the take and they want to do another pass. You will want to hear them as soon as they say "Forget it, lets do another". It is extremely wasteful of time, irritating for them (and therefore it negatively impacts their creative frame of mind), and embarrassing for you, for them to have to wait until you stop playback for them to be able to talk to you. Hearing them during playback can also greatly speed the process of identifying places to fix while listening back to takes. A musician who is happy with a take over all, but wants to punch a few spots, might as well alert you to those spots in a single playback. If they know you can hear them they can simply say "There's a spot" as they go by and you can make a note of it, greatly expediting the process and improving session flow.

1 Week

Re-amping for amp sound or as reverb chamber.

Students will take a pre-recorded clean guitar track and re-amp it in the studio. Students will then use the same set-up to use the space as a reverb chamber.

1 Week

Sync

Brief historical view. Film sprockets provided a mechanical method for synchronizing machines. The advent of video tape required a new method of synchronizing machines. Society of Motion Picture and Television Engineers, SMPTE, developed SMPTE Time Code. A method by which a continuos time

stamp (hours, minutes, seconds and frames) can be recorded along with the audio or video. In some video applications VITC (Vertical Interval Time Code) is used.

Slating for wild sync.
Analog concerns, print level, edge track, guard band (track), no copying SMPTE without re-shaping.

1 Week

Preparing for duplication, replication and mastering.

Preparing for Replication. Never let them master.
Talk to plant, engineer staff, not receptionist. Get specifications.
Provide 16 bit, 44.1 only.
Contact info on all materials and correspondence.
Keep safety copy.

Preparing for Mastering. Ask mastering engineer how much headroom they would like you to leave. Same contact but let them know you can provide whatever file format they would prefer MOST. Alternate mixes they may want. Keep safeies. Bring a safety with you and leave one at home. Don't keep master and safety in the same place. Attend session. Let them do their job.
Spacing between tunes for reference only. Fades for reference only.

File types and data compression.

1 Week

Mastering Engineer guest lecture/demonstration - Ian Gorman

1 Week

Soldering Demo - Bryan Heany

1 **Week**

History of sounds - drums treatments by decade