

Music 4xxx/9735a – Pro Tools Recording for Classical and Acoustic Pop Music
Joint Undergrad (3rd- & 4th-year students) and Grad Course

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Term 1, TBA; MB242 and Mac Lab

This course provides an introduction to Pro Tools, as well as fundamental principles of digitally recording and editing acoustic music in ambient spaces, that covers every step of the process. We will focus on stereo microphone techniques to help both classical and pop musicians understand the processes involved in crafting acoustic records. Many musicians spend thousands of hours preparing for the stage but relatively little time (if any) learning how to turn those performances into recorded sound. A public performance, replicated in front of microphones, rarely produces a satisfactory outcome on a distribution medium such as the compact disc or streaming service, for the methods engineers and producers use to shape what listeners hear through loudspeakers have an enormous impact on the way people react to recordings. By providing information on the art of committing performances to disc, the course will enable musicians to turn sound into raw tracking data that can be digitally edited into cohesive listening experiences. ***In other words, this is a practical course, not a musicological one.***

The course deals with both theory and practice – the nature of soundwaves and their behaviour in rooms, microphone types and the techniques of recording in stereo, tracking through Pro Tools, “in-the-box” editing and mixing with software plugins, and the preparation of finished tracks for delivery in compressed and uncompressed files.

After considering the theory behind sound recording and analyzing representative commercial recordings, most of the term will be spent gaining hands-on experience in actual recording – tracking, editing, mixing, delivery – and the critical listening skills required for these activities. The practical sessions (held during regular class time) will involve groups of students in recording and post-production situations during which the participants will be the performers, producers, and editors (soloists or small ensembles in the classical field and singer-songwriters in the pop field).

Classes will be held in Studio 242 in the Music Building (which has the acoustics we need for learning to record in ambient spaces), as well as TC 200, the Mac Lab in Talbot College (theoretical sections and audio editing).

Our digital audio workstation will be Pro Tools. As the industry standard DAW, Pro Tools is an ideal platform for recording and editing acoustic music. Pro Tools and the plugins we need for editing are installed on the workstations in the Mac Lab. However, everyone should purchase or subscribe to Pro Tools for working at home (educational pricing for subscriptions is just under CDN\$150 for 12 months), own a pair of *closed-back* headphones for working in the Mac Lab, and have a USB drive with at least 8 GB of storage space (no files may be stored on the lab’s computers). The course is exclusively Mac based, and lectures and course materials are optimized for the OS X environment. PC users will be expected to work in the Mac Lab and submit assignments through the OS X platform (no exceptions).

TEXT

Robert Toft, *Recording Classical Music* (the book will be published by Focal Press, but before then it is available as a course pack in the Bookstore) – all the information in the book is directly applicable to recording singer-songwriters in the pop field

REQUIREMENTS

- regular attendance at both lectures and practical sessions
- students will be assigned to groups that will be responsible for tracking during class
- to ensure that everyone keeps up with the theoretical principles, there will be regular quizzes
- a written description of the recording project to be undertaken (details of music, mic locations, tracking procedures, etc.)
- completed recording (submission of the Pro Tools folder, plus exported 16/44.1 wav and mp3 files)

GRADING

3 quizzes – 30%

Written plan for the final project – 20%

Final project (completed recording) – 50%

LEARNING OUTCOMES

Participants will gain an understanding of and practical experience in:

The Nature of Sound and Its Electrical/Digital Representation

- complex soundwaves
- the reflection of soundwaves in enclosed spaces and the nature of reverberation
- the differences between analog and digital audio
- bits, bit depth, pulse code modulation, sampling, quantization, encoding, dither, resolution
- AD and DA converters

Production

- common microphone types: condenser (pressure and pressure-gradient), dynamic, ribbon
- frequency response of microphones, directional patterns of capsules, distance factor
- proximity effect and issues relating to phase
- stereo playback and stereo microphone techniques
- coincident pairs (X-Y, Blumlein, M/S), near-coincident arrays (ORTF, NOS, DIN, OSS), spaced microphones (A-B, Faulkner, Decca tree)
- tracking – principles of critical listening, setting levels, room ambience

Post-Production

- digital filters (high pass, low pass, band pass, parametric) and EQ
- control of dynamic range – compressors, limiters, dynamic EQ, de-essers
- artificial reverberation – digital reflection simulation, convolution
- commercial plugins

Delivery

- file types – containers & codecs, uncompressed (wav, aiff), lossless compression (flac, alac), lossy compression (mp3, aac)
- file size
- loudness and meters (measurement standards, terminology of metering, true-peak meters, target levels, loudness practices)
- commercial plugins

Common Recording Strategies

- stereo micing of solo instruments, small ensembles, singer-songwriters
- advantages and disadvantages of various techniques

Digital Editing and the Preparation of a Master Copy

- digital audio workstation – features of Pro Tools and its keyboard shortcuts
- compilation of the final version from various takes
- mixing, metering, and the production of a master copy (use of EQ, dynamic range control, reverberation)
- preparation of the master for delivery on CD and for streaming services