The University of Southern Mississippi School of Mass Communication & Journalism

COURSE NUMBER: MCJ 448 - Seminar
COURSE TITLE: Introduction to Audio Synthesis
TERM: Spring 2018
TIME / LOCATION:

COURSE DESCRIPTION

Introduction to Audio Synthesis is a course designed to explore the fundamental principles of audio synthesis and the core functions that construct a synthesizer. Students participating in MCJ 492 will receive practical experience with software based synthesizers as stand alone digital audio workstations and as plugins for use in recording environments. In conjunction with skill-based learning goals, students will be exposed to conceptual elements regarding synthesis in music, sampling, and remix culture.

INSTRUCTOR: Mike Maxwell, MFA

COURSE OBJECTIVES

By the completion of this course, students enrolled in MCJ 492, Introduction to Audio Synthesis, will be able to concretely describe and utilize the core building blocks of a synthesizer. Students will have collaborated on a joint sound effects library and develop loops and tracks from original sounds.

COURSE MATERIALS

Professional, Over-ear, Headphones
VCV Rack (Any OS)

COURSE READINGS

Required:

Crombie, David. *The Complete Synthesizer*. PDF. 1984.

Puckette, Miller. *The Theory and Technique of Electronic Music*. PDF. World Scientific Publishing Company, 2007.

Suggested:

Welsh, Fred. *Welsh's Synthesizer Cookbook: Synthesizer Programming, Sound Analysis, and Universal Patch Book*. Fred Welsh, 2006.

Vail, Mark. *The Synthesizer: A Comprehensive Guide to Understanding, Programming, Playing, and Recording the Ultimate Electronic Music Instrument*. Oxford University Press, 2014.

ASSIGNMENT WEIGHTS

Quiz / Exams: 10%
Assignments
      Generation: 10%
      Control: 10%
      Signal Routing & Processing: 15%
      Complex Design: 15%
Projects
      Sample Library: 15%
      Proposed Project: 25%

Total: 100%

ASSIGNMENT STANDARDS

Unless otherwise noted or discussed, all projects and assignments must be turned in as a physical (hard) copy (paper, CD, other standard physical medium). For visual and audio projects, that means they must be turned in on a CD or DVD. Written or miscellaneous media must be printed on paper and turned in. Digital (soft) copies are not accepted as a grade-able medium for any project unless discussed with professor or otherwise instructed.

VCV Rack sessions, screenshots, and documentation will be uploaded to our Canvas file storage.

ATTENDANCE / PROFESSIONALISM / PARTICIPATION

As adults, it is expected that you will take your education seriously. It is understood that emergencies can happen, but it is your responsibility to inform your instructor. Plan ahead, though you should not use an excused absence if you do not have too. Not only do you run the chance of needing it later, but you will miss content and learning opportunities that inevitably impact your overall performance in the class.

To discourage absences and foster the learning environment, each unexcused absence or two late-arrivals will result in a half-letter grade reduction (-5%). You are considered late when your name is called for roll call. An excused absence or late-arrival is one that is determined and granted at the sole discretion of the instructor.

The student is responsible for acquiring any missed notes or assignments from classmates (the instructor is not required to reteach material) and tests/assignments/quizzes must be completed prior to the absence unless other arrangements have been made. In the event that prior notice of absence could not be given, students are expected to make up any and all work missed due to excused absences within one week of the absence.

Professionalism is expected in the classroom, and is essential to promoting a quality learning environment for all. Violating any of the professionalism guidelines will have a negative impact on your grade. Depending on the seriousness of the issue, the impact can range from a warning, to a grade reduction, to a referral to the appropriate administrator (i.e., School Director, Dean of Students, etc.)

PROFESSIONALISM GUIDELINES

Again, do not miss class.

Be on time to class, return from breaks on time, and attend class for the entire duration.

Be prepared for class with proper supplies, books and materials including the assigned homework completed and prepared to turn in using the format specified by instructor.

Actively participate in class discussion, projects, critiques and/or activities.

Use language and actions appropriate for a professional setting, including professional and cultural sensitivity.

Turn your cell phone and personal computer off unless otherwise instructed by the faculty; Use technology appropriately during class (i.e., computer for class work and NOT other sites/social media, etc.)

Help other students and the instructor as needed.

Attend group meetings as assigned.

Avoid copyright infringement - plagiarism will NOT be tolerated.

Use school equipment, time, and resources in a professional manner to produce professional-level assignments/projects.

GRADING / PERCENTAGES

The grade percentages below are the equivalent percentages for grade marks issued on assignments and projects that are not pass/fail. Test scores are recorded as actual percentage.

Overall Course Grading Scale & Criteria

A: 90 - 100%
B: 80 - 89.99%
C: 70 - 79.99%
D: 60 - 69.99%
F: < 59.99%

A = Superior: This grade is a mark of distinction for students who have repeatedly and variously demonstrated talent, initiative, and self-reliance as well as their grasp of the substance and intent of the course and of its relevance to the discipline as a whole.

B = Excellent: This grade is awarded in recognition of a student's above average performance throughout the course and excellence in some aspects, whether of imagination, initiative in the setting and resolution of problems, or by habits of mind and of work.

C = Satisfactory: This is given for satisfactory completion of more than minimal course requirements. It is an earned grade and is not given merely for effort or for regular class attendance alone.

D = Unsatisfactory: Implies that effort has been irregular and deficient, or that work is generally not up to average standards, or that the student's work habits are deficient, or some combination of Some or all of these.

COURSE SCHEDULE

Week 1 - January 16 / 18: Introduction and syllabus overview. / Lab 1 - VCV Rack introduction.
Week 2 - January 23 / 25: Audio Synthesis Generation Lecture. / Lab 2 - **Assignment 1 due.**
Week 3 - January 30 / February 1: Control Voltage Lecture 1. / Lab 3.
Week 4 - February 6 / 8: Control Voltage Lecture 2. / Lab 4 - **Assignment 2 due.**
Week 5 - February 13 / 15: No meeting. Mardi Gras Holiday. / Processing Basics Lecture 1 and Lab 5.
Week 6 - February 20 / 22: Processing Basics Lecture 2 / Lab 6 - **Assignment 3 due.**
Week 7 - February 27 / March 1: Third party Plug-in Installation Lecture / Lab 7.
Week 8 - March 6 / 8: **Midterm quiz.** / Lab 8 - **Assignment 4 due.**
Week 9 - March 13 / 15: No meetings. Spring Break.
Week 10 - March 20 / 22: Lecture. / Lab 9.
Week 11 - March 27 / 29: Lecture. / Lab 10 - Project 1 check in.
Week 12 - April 3 / 5: Lecture. / Lab 11.
Week 13 - April 10 / 12: Lecture. / Lab 12 - **Project 1 due.**
Week 14 - April 17 / 19: Lecture. / Lab 13.
Week 15 - April 24 / 26: Lecture. / Lab 14.
Week 16 - May 1 / 3: Lab 15. / Lab 16.
Final Exam Time: Thursday, May 10 at 4:15pm - 6:45pm - Project 2 due.

The instructor reserves the right to apply changes to the syllabus and schedule as needed

IMPORTANT DATES

Course Dates - January 16 to May 4
Final Exam Dates - May 7 to May 10
Last day to add / drop without penalty - January 23
Last day to receive a 100% refund - January 23
Last day to drop courses without instructor's permission - January 23
Approve dropped courses will receive a "W" - January 24 to April 5
Last day to make a drop request - April 5

COURSE WORK

Generation: 10%

After learning about the primary characteristics of sound and the different forms of audio synthesis, you will **design five unique periodic sound waves**. These can be anything, though at least one should be additive and one should be subtractive. Experiment with how we can shape sound with pitch and timbre.

Control: 10%

Utilizing the five sounds from your submission for A1 - Generation, you will apply modulation via control voltage. **Create five patterns** with low frequency oscillators, envelope generators, or sequencers and utilize them to modulate the pitch, timbre, or amplitude of your sound.

Signal Routing & Processing: 15%

Utilizing the five sounds from your submission for A1 - Generation, you will further manipulate the sounds by routing them through signal processors like waveshapers, distortion, reverb, delay, filters, etc. You will develop **five different signal routes** with various processors.

Complex Design: 15%

Starting from scratch, you will design a patch expanding on our use of the Fundamental modules by integrating plug-ins from Autodafe, JW, NYSTHI, Vult or other developers. You will create a patch that can be performed for, or generates differents sounds for **approximately two minutes.**

Sample Library: 15%

As a class, we will develop a sample pack to release online as a professional product. Each student will be tasked with **designing twenty samples** to contribute to this product. Upon completion, we will mark the completed pack as Creative Commons: Attribution (cc by) and distribute the entire group's work to the class.

Proposed Project (Final): 25%

This final project will be determined by a single page proposal that you will discuss with and get approved by the instructor.

DISABILITY ACCOMMODATIONS

If a student has a disability that qualifies under the Americans with Disabilities Act (ADA) and requires accommodations, he/she should contact the Office for Disability Accommodations (ODA) for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, psychiatric, physical disabilities, or chronic health disorders. Students can contact ODA if they are not certain whether a medical condition/disability qualifies.

Address:
The University of Southern Mississippi
Office for Disability Accommodations
118 College Drive # 8586
Hattiesburg, MS 39406-0001

Voice Telephone: 601.266.5024 or 228.214.3232
Fax: 601.266.6035

Individuals with hearing impairments can contact ODA using the Mississippi Relay Service at 1.800.582.2233 (TTY) or emailing ODA at oda@usm.edu.

Note that faculty members must accommodate students with disabilities and must adhere to the excused absence policy of the University. Faculty members are required to excuse absences in which a student misses class in his or her capacity as an official representative of the University. In such cases, students must be given a reasonable opportunity to make up work. See Faculty Handbook 4.5.4. Documentation in these two cases will come from ODA or from the official body for which the student serves as a representative.

MENTAL WELL-BEING STATEMENT

Southern Miss recognizes that students sometimes experience challenges that make learning difficult. If you find that life stressors such as anxiety, depression, relationship problems, difficulty concentrating, alcohol/drug problems, or other stressful experiences are interfering with your academic or personal success, consider contacting Student Counseling Services on campus at 601.266.4829. More information is also available at www.usm.edu/student-counseling- services. All students are eligible for free, confidential individual or group counseling services.

In the event of emergency, please call 911 or contact the counselor on call at 601.606.HELP (4357).

CONFIDENTIALITY & MANDATORY REPORTING

As an instructor, one of my responsibilities is to help create and maintain a safe learning environment on our campus. I also have a mandatory reporting responsibility related to my role as a faculty member. I am required to share information regarding sexual misconduct or information about a crime that may have occurred on USM's campus with certain University officials responsible for the investigation and remediation of sexual misconduct. The information will remain private and will only be shared with those officials necessary to resolve the matter. If you would like to speak in confidence, resources available to students include Confidential Advisors with the Shafer Center for Crisis Intervention, the Counseling Center, Student Health Services, and Clergy. More information on these resources and University Policies is available at https://www.usm.edu/sexual-misconduct.

ACADEMIC INTEGRITY

All students at the University of Southern Mississippi are expected to demonstrate the highest levels of academic integrity in all that they do. Forms of academic dishonesty include (but are not limited to):

1. Cheating (including copying from others' work)
2. Plagiarism (representing another person's words or ideas as your own; failure to properly cite the source of your information, argument, or concepts)
3. Falsification of documents
4. Disclosure of test or other assignment content to another student
5. Submission of the same paper or other assignment to more than one class without the explicit approval of all faculty members' involved
6. Unauthorized academic collaboration with others
7. Conspiracy to engage in academic misconduct

Engaging in any of these behaviors or supporting others who do so will result in academic penalties and/or other sanctions. If a faculty member determines that a student has violated our Academic Integrity Policy, sanctions ranging from resubmission of work to course failure may occur, including the possibility of receiving a grade of "XF" for the course, which will be on the student's transcript with the notation "Failure due to academic misconduct." For more details, please see the University's Academic Integrity Policy. Note that repeated acts of academic misconduct will lead to expulsion from the University.