

Computational Musicology 8824.02
(Music 8824.02)
Spring 2021

Instructors	Contact	Office
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Format of instruction: For Spring semester of 2021, this class will be taught synchronously via Zoom. We will be delivering lectures at the scheduled time, with combined lectures on Mondays, and smaller group sessions on Wednesdays and Fridays.

Course goals:

1. Become fluent enough with the toolkits used in computational musicology to conduct your own research projects.
2. Learn the techniques of music information retrieval, as well as the analysis of both symbolic and audio data.

Unit	Week	Topic	Project
Symbolic Data	1	Symbolic Representation of Musical Data	
	2	Representing Rhythm and Meter	
	3	Key-Finding Algorithms	
	4	Pattern-Finding in Score Data	Rough Draft of Project Due
	5	Student Presentations	Project 1: 20%

			Analyze a large collection of musical works in score format, using Python. Asking some sort of analytical broad question. Presentations in Week 5.
Audio Data	6	Beat Tracking	
	7	Melodic extraction	
	8	Audio and Score Alignment	
	9	Harmonic Analysis of Audio Data	Rough Draft of Project Due
	10	Student Presentations	Project 2: 30% Analyze a large collection of musical works in audio format, using Python. Asking some sort of analytical broad question. Presentations of Project 2
Machine Learning Analytical Models	11	Bayesian learning, Decision trees, Random forests,	
	12	Logistic Regression, Other Machine Learning Concepts: LDA, KNN, SVM, cross-validation, validation,	
	13	Unsupervised Models: Clustering, PCA, ANN, RNN	
	14	Supervised Models: LSTM, CNN	Rough Draft of Project Due
	15	Student Presentations	Final Project 30%: doing some sort of machine learning project that incorporates either symbolic or audio data?

Grading:

Project 1	20%
Project 2	30%
Project 3	30%
Weekly Assignments	20%

Breakdown of assignments:

Weekly Assignments: Every week, you will be tasked with completing problem sets in a Python notebook. These will provide skills needed for the unit projects.

Projects: There will be three projects for this class. The first will focus on symbolically encoded data, the second on audio data extracted from recordings, and the third will implement a machine learning analysis on a dataset of your choice.

Expectations for attendance and preparation: Your daily schedule and course materials will be posted on the Canvas server. You are responsible for completing any assigned materials ahead of the due date, including reading, watching, or listening to any material that will help you prepare for class. Class time will be primarily used to deepen understanding of concepts and practice skills. Therefore, we expect you to attend class daily. Having said that, attendance will not directly affect your grade this semester. Instead, we will be taking attendance for the purposes of advisement. You are encouraged to reach out to your instructor if you have to miss a class to ensure that you are caught up on all material and coursework.

Excused and Unexcused Absences: You may turn in assignments or make up work only if you obtain an excused absence. Absences may be excused by the instructor in cases of family emergency, debilitating illness with doctor's note, religious observance, participation in varsity athletics, or participation in music-related activity requiring travel. To obtain an excused absence, consult with the instructor in advance and show proper documentation. Whenever possible, complete assignments beforehand. All missed work is due in class on the day you return unless other arrangements are made in writing.

If your absence is unexcused, you will not be able to make up missed quizzes or turn in assignments. Keep in mind that more than three unexcused absences will likely result in a lower final grade and may jeopardize your completion of the course.

Disability Services: The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can

privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Academic Honesty: It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

Counseling Services: As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life Counseling and Consultation Services (CCS) by visiting ccs.osu.edu or calling (614) 292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at (614) 292-5766 and 24-hour emergency help is also available through the 24/7 National Prevention Hotline at 1-(800)-273-TALK or at suicidepreventionlifeline.org

Sexual Misconduct/Relationship Violence: Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at titleix@osu.edu.

Statement on Diversity: The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual

based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Hearing Wellness: Protection and preservation of your hearing is an important responsibility as a mature musician. All students are encouraged to schedule annual hearing examinations to monitor subtle changes in hearing over time. Additionally, the acquisition and regular use of custom-fitted “musician’s ear plugs” will help ensure preservation of hearing. Audiology examinations and custom-fitted hearing protection can be attained through the Ohio State Department of Speech and Hearing Science on west campus. More information is available at <https://sphs.osu.edu/clinic/audiology-services>.