Computer Science 4436A / Music 3863A - Game Audio Development Outline

The University of Western Ontario
London, Canada

Department of Computer Science and Don Wright Faculty of Music

Computer Science 4436A / Music 3863A - Game Audio Development

Course Outline - Fall 2017

Course Description

This is an interdisciplinary course between the Department of Computer Science and the Don Wright Faculty of Music. Students will be introduced to game development in historical and cultural contexts, discuss current issues in research scholarship, and develop an understanding of the multifaceted field of video games, with a particular focus on game audio, music, and sound effects. Students will be provided with the practical skills and expertise to explore this subject matter in collaboration with their classmates, and will be able to engage with guest speakers currently working in the industry. Through this experiential education, students will culminate their learning through designing and creating their own video game in a team project leveraging the technical and musical backgrounds of their teammates. (Please note that prior musical background or training is not required for Computer Science students and prior computing background is not required for Music students.)

Lecture Hours

12:30 - 2:30pm, Tuesdays, MC 316

1:30 - 2:30pm, Thursdays, MC 316

Prerequisites: 2.0 courses from: Computer Science 3305A/B, 3307A/B/Y, 3331A/B, 3340A/B, 3342A/B, 3350A/B; or permission of the Department of Computer Science (for Computer Science 4436A)

Open to students in Year 3 or 4 in the Don Wright Faculty of Music (for Music 3863A)

Note: *Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.*

Instructor Information

Instructor:	Michael Katchabaw	Leslie Linton
Office:	MC 28H	TC 123
Office Hours:	11:30am - 12:30pm, Tuesdays and Thursdays	2:30-4:30 Tuesdays 1:30-3:30 Thursdays
E-Mail:	katchab@csd.uwo.ca	llinton5@uwo.ca
Phone:	Western extension 84059	Western extension 85598

Course Texts

While there are no required texts for this course, the following books are recommended as references for this course.

- Collins, K. (2008). *Game sound: An introduction to the history, theory, and practice of video game music and sound design.* MA: MIT Press.
- Collins, K. (2013). *Playing with sound: A theory of interacting with sound and music in video games.* MA: MIT Press
- Collins, K. (2017). *From Pac-Man to pop music: Interactive audio in games and new media.* New York: Routledge.
- Cheng, W. (2014). *Sound play: Video games and the musical imagination.* New York: Oxford University Press.
- Donnelly, K.J., Gibbons, W., & Lerner, N. (Eds.) (2014). *Music in video games: Studying play.* New York: Routledge
- Farnell, A. (2010). *Designing sound.* MA: MIT Press
- Fullerton, T. (2014). *Game design workshop: A playcentric approach to creating innovative games, 3rd Ed.* FL: CRC Press.
- Greher, G. & Heines, J. (2014). *Computational thinking in sound: Teaching the art & science of music & technology.* New York: Oxford University Press.
- Horowitz, S. & Looney, S. (2014). *The essential guide to game audio.* MA: Focal Press
- Kamp, M., Summers, T., & Sweeney, M. (Eds.). *Ludomusicology: Approaches to video game music.* CT: Equinox Publishing Ltd.
- Marks, A. (2017). *The complete guide to game audio: For composers, musicians, sound designers, and game developers, 3rd edition*. MA: Taylor & Francis.

- Novak, J. (2012). *Game development essentials, 3rd edition.* NY: Delmar Cengage Learning.
- Phillips, W. (2014). *A composer's guide to game music*. MA: MIT Press
- Schartmann, A. (2016). *33 1/3 Koji Kondo's Super Mario Bros. soundtrack.* New York: Bloomsbury.
- Schell, J. (2015). *The art of game design: A book of lenses, 2nd edition.* FL: CRC Press.
- Sonnenschein, D. (2001). *Sound design: The expressive power of music, voice, and sound effects in cinema.*
- Sweet, M. (2015). *Writing interactive music for games.* New York: Addison-Wesley.
- Thomas, C. (2016*). Composing music for games: The art, technology, and business of video game scoring. MA: Taylor & Francis.*
- Viers, R. (2008). *The sound effects bible: How to create and record Hollywood style sound effects.* CA: Michael Weise Productions.
- Wolf, M.J., & Perron, B. (Eds.) (2016). *The Routledge companion to video game studies.* New York: Routledge.

Additional references and suggested journal readings will be provided throughout the course as the project requires them. Please check back to the course website for updates and more information.

Course Topics

The course will address as many of the following topics as time will allow:

- History of music and audio in games
- Fundamentals of digital audio
- Techniques used to create music for games
- DAW specific topics for creating, recording, and editing audio
- Recording equipment and procedures
- Evolution of interactive music
- Game audio technology, procedures, and aesthetics
- Audio tools, middleware, and game engines

Lecture Notes

Course lecture notes and materials will be made available on the course website on a weekly basis, as they are developed. They are provided as a courtesy by the course instructor. Possessing (and even reading) these notes is not a suitable substitute for attending lectures.

Course Website

The CS4436A / Music 2863A website is accessible through OWL at http://owl.uwo.ca. Class and project

information will be posted on this website on a fairly regular basis. You are responsible for reading this information frequently.

Computing and Other Facilities

Each student will have access to computing and other lab facilities administered by the Department of Computer Science, the Don Wright Faculty of Music, the Faculty of Information and Media Studies, and Western University. In accepting their accounts, students agree to abide by the various guidelines governing their use. (For example, for Computer Science, the Department's Rules of Ethical Conduct.)

Note: *Access to certain lab rooms is by student card. If your card does not grant access to a space that you should have access to, please consult your instructors accordingly. In the case of space managed by the Department of Computer Science, please see the Systems Group for the Department for issues related to access.*

E-Mail Contact

We will occasionally need to send e-mail messages to the whole class, or to students individually. E-Mail will be sent to the Western e-mail address assigned to students by Information Technology Services (ITS), i.e. your e-mail address @uwo.ca. It is each student's responsibility to read this e-mail on a frequent and regular basis, or to have it forwarded to an alternative e-mail address if preferred. See the ITS website for directions on forwarding e-mail.

However, you should note that e-mail at ITS (your Western account) and other e-mail providers may have quotas or limits on the amount of space they can use. If you let your e-mail accumulate there, your mailbox may fill up and you may lose important e-mail from your instructors. Losing e-mail that you have forwarded to an alternative e-mail address is not an excuse for not knowing about the information that was sent.

Wherever you receive e-mail, be sure to configure your spam filter to allow e-mail from the instructors' e-mail addresses given above. Otherwise, important messages could get trapped by your spam filter and missed. This is also not an excuse for not knowing about information that has been sent.

Student Evaluation and Project Components

Due Dates (tentative)

Grades will be based on individual and project work, divided into a series of milestones and deliverables. These include:

Evaluation	Description	Percentage	Work load	Date Assigned	Date Due
Assignment 1	Pitch/Proposal	15%	medium	September 12, 2017	October 3, 2017
Assignment 2	Plan/Prototype	25%	light	September 19, 2017	October 24, 2017
Assignment 3	Final Game Submission	40%	heavy	October 24, 2017	November 28, 2017
Assignment 4	Postmortem	5%	medium	October 24, 2017	December 7, 2017
Participation	Online discussions and class participation	15%	medium	Ongoing	Ongoing

If, for any reason, the project schedule given above cannot be adhered to, the project marks will be pro-rated accordingly.

Project Feedback

Every effort will be made to have project components marked and handed back within 3 weeks of the handin date, preferably sooner. If we are unable to comply with our intended return dates, revised dates will be posted on the course website.

About the Assignment and Project Components

- Component descriptions will be posted on the course website by the dates listed above.
- Any changes, updates, and clarifications to these descriptions will also be posted on the website. It is your responsibility to monitor these pages closely.
- As mentioned earlier, the project components will involve design and creation of a video game, as well as related assets and content.
- While the project is a group project, grades will be assigned to each student based on both group and individual performance for each component. Individual performance will be based on a number of factors, some of which may include peer evaluations, contributions made during class, repository logs, individual reports of work completed, and so on.

Submission

- All components must be type-written for legibility and to facilitate electronic submission. If components require the creation of diagrams or illustrations, these too must be submitted electronically. Appropriate tools will be discussed in class and in the descriptions of the components. (Hand drawings of some elements for mock-ups might be accepted, but will still require electronic submission; this will be discussed when the appropriate components are assigned later in the course.)
- You are required to submit each component electronically through OWL. (If final submissions are too large for OWL submission, alternate arrangements will be made.) Details will be given in the descriptions. We reserve the right to use similarity detection software to detect possible plagiarism cases.
- Components are expected to be individual efforts (where individual could also mean designated group in the case of a group project component). Any code or resource that is borrowed from an existing source or book must be clearly identified as such in the appropriate documentation; otherwise, this may constitute a plagiarism offence.

Late Policy

- Late components will be accepted for up to two days after the due date, with weekends counting as a single day; the late penalty is 20% of the available marks per day. Lateness is based on the time the assignment or project component is submitted.
- Extensions will be granted only by one of the course instructors. If you have serious medical or compassionate grounds for an extension, you **must** take supporting documentation to the Academic Counselling unit of your faculty, who will contact the instructors accordingly.

Marking

- Project components are marked by the instructors and/or a teaching assistant assigned to the course. We will attempt to include some information about the marking criteria in the appropriate descriptions.
- When marking has been completed, you will be informed via the course website and/or e-mail.
- A request for adjustment in a mark must be made within 2 weeks of the date on which it was first available for pickup. (Beyond that date, regrading will not be considered.) Such a request must be submitted in writing, and must include specific reasons why you believe you deserve more marks. The request must be accompanied by all materials that were originally handed in, as well as the original marker's grade summary sheet. Regrading requests will take a minimum of 24 to 48 hours to process; you will be informed when it is complete.
- Component marks may be posted periodically throughout the term through OWL. It is your responsibility to check that your marks have been recorded correctly.

Backups

It is your responsibility to keep up-to-date backups of all project files in case of system crashes or inadvertently erased files. Retain copies of all material handed in, as well as the actual graded version, to guard against the possibility of lost components or errors in recording marks. It is not safe to discard these materials until you are satisfied that your final mark for the course has been computed properly.

Academic Accommodation for Medical Illness

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Academic Counselling office of your home Faculty as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. For further information please see:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or an Accommodation Certificate from Student Health Services. The Student Medical Certificate form can be found
here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Ethical Conduct

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence. Please note, however, that students are not allowed to make use of the work of others unless explicitly instructed to do so in the description of an assignment.

All projects are to be exclusively your own work. While project work requires you to work in teams, each team is expected to act individually. You may discuss approaches to problems among yourselves; however, the actual details of the work (coding, documentation, etc.) must be an individual effort. Incidents that are judged to be the result of academic dishonesty will be reported to the appropriate Undergraduate Chair. The selection of penalty to be applied is up to the Chair, with consultation of the instructors.

The standard penalty for works that are judged to be the result of academic dishonesty is, for the student's first offence, a mark of zero for the assignment, with an additional penalty equal to the weight of the assignment also being applied. Students registered in Computer Science 4436A are responsible for reading and respecting

the Department of Computer Science's policy on Scholastic Offenses. and Rules of Ethical Conduct.

The University of Western Ontario uses software for plagiarism checking. Students may be required to submit their written work and programs in electronic form for plagiarism checking.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com/).

Accessibility Statement

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

Support Services

Learning-skills counsellors at the Student Development Centre (http://www.sdc.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counseling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, http://westernusc.ca/services.

The website for Registrarial Services is http://www.registrar.uwo.ca.