

AMath390: Mathematics and Music Fall 2016

Lectures: MWF 10:20-11:20 MC 4064 (sect 1) or 1:30-2:20 MC 4058 (sect. 2)

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Office hours: Wednesdays 3-5pm or by appointment

This course provides a introduction to some of the deep connections between mathematics and music. Mathematics will be used to provide insights into several important aspects of music. Topics covered include: acoustics, including pitch and harmonics, the mathematics behind the differing pitch and timbre of string, wind and percussion instruments, digital music as well as scales and temperaments.

The course material will be available from Coursewares and on Learn.

Prerequisites any first-year calculus course; third-year level or above.

Assignments: There will be an assignment due every 1-2 weeks. Assignments are to be submitted by 10am to the drop box (location to be announced) on the due date.

Students are expected to attend at least one live musical performance during the term and submit a report. (A number of free performances are available on campus and students can also obtain \$15 tickets to the Kitchener Symphony.)

Project: An essay (or other approved format) on connections to mathematics & music, on material not covered in class, is due no later than December 9. These projects should be done in pairs. Suggestions for topics and intermediate milestones will be handed out in class. Students who submit the project by November 23 have the possibility of extra credit by presenting their report to the class.

Quizzes: Th. Oct. 6 4:30-6:00pm STC0050
 Fr. Nov. 4 4:30-6:00pm STC0010
 Fr. Dec. 2 4:30-6:00pm STC0010

Evaluation: quizzes 60%
 homework & participation 15%
 project 25%

It is fine to discuss assignments with your classmates but the writing of an assignment must be done independently and all sources acknowledged. Plagiarism (including copying of solutions between classmates) will lead to a penalty of 0% on the assignment and a reduction of 5 marks in the final grade for all students involved. All such cases will be reported to the faculty and recorded. A similar penalty will apply to plagiarism on a quiz or on the project.

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. (Check www.uwaterloo.ca/academicintegrity/ for more information.)

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4 <http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing academic offenses and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the undergraduate associate dean. For information on categories of offenses and types of penalties, students should refer to Policy 71, Student Discipline: <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>. For typical penalties check Guidelines for the Assessment of Penalties: <http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm>.

Appeals: A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals: <http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>.

Note for students with disabilities: The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.