

Physics 225: Musical Acoustics

Course Syllabus

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Office hours: M 11:00 — 12:00, Thurs 1:30 — 2:30

The Course: Lectures, Tues/Thurs 2:35 — 3:55 PM, Rutherford room 114
Lecture notes: available online
webpage: <http://www.physics.mcgill.ca/~guymoore/ph225>

Intended Syllabus: Overview of waves
Wave and medium properties
Reflection and impedance
Refraction and absorption
Music hall acoustics
Instrument acoustics:

- reeds: nonlinear elements
- flutes: stream instabilities
- brass: shock formation
- strings: bowing, body resonances

A schedule by lecture will (eventually) be available on the course page.

Prerequisites: Either Freshman mechanics (Phys. 131) or the Physics of Music (Phys. 224). Mathematics including complex numbers, trigonometric functions, logs and exponentials. In addition I may sneak in small amounts of calculus.

Course Grade: See Reverse

Comments: Homeworks will be assigned on Tuesdays and are due the next Tuesday, in class or in my mailbox by 17:00. Late assignments are accepted until Friday at 17:00 and are marked down 25%; homeworks later than that are marked but no points are given. Please discuss with me if you need special arrangements.

Reading materials will be available through the course webpage and as handouts during the term. Lectures will mix blackboard, projector, sound producing and analyzing software, and demonstrations; attendance is recommended. Lecture notes will (hopefully) be posted as the course progresses.

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism, and other academic offences under the Code of Student Conduct and Disciplinary Procedures: see www.mcgill.ca/integrity for more information.

Grading Scheme

Grades will be based on 3 components:

- Homeworks: 30%
- Midterm: 25%
- Final: 45%

I will then re-calculate grades based on

- Homeworks: 40%
- Final: 60%

that is, dropping the midterm. For each individual student, the higher grade will be counted—that is, I will automatically drop the midterm grade if it is to the student's advantage.

The grading will be done using the standard McGill procedure that 85% = *A*, 80% = *A*−, 75% = *B*+ , 70% = *B*, 65% = *B*−, 60% = *C*+, 55% = *C*, 50% = *D*, and < 50% = *F*.

My recommendation if you want a good grade is, first, do all homeworks. If pressed for time (we all are sometimes), do a quick, incomplete job or turn it in late. Half points are a lot better than no points, and almost all low grades in the past have resulted mostly from poor homework performance. Second, attend class regularly and learn the course material. Feel free to use my office hours—that is what they are for!

Students who receive a D or F grade have the option of writing a supplemental exam. The usual university rules for such supplemental exams will apply.