

Amath390 Project Milestones Fall 2016

A major part of the mark in this course will be for a report on some aspect of the connection between mathematics and music. The project should be done in pairs; in some cases three people may work together, but discuss this with me. Your reading and analysis must go beyond what is in the course textbook. Many topics are possible.

The final report should be about 10-15 pages in 12pt type, not including reference list. I will not mark more than 15 pages.

If you submit a project report by November 23 you may have the option of earning bonus marks by presenting your project in class.

Some possible topics: Mathematical model of the cochlea, detailed model of kettledrum, bell or other musical instrument, hearing the shape of a drum, computer synthesis of the sound of orchestral instruments, using music to teach concepts in mathematics to a elementary or high school class, tuning of gamelan, theory of consonance (see book by Sethares), symmetry in music, explain a number of historical tuning systems, East Asian scales, bells & combinatorics, acoustics of a gong, Middle Eastern scales and harmony, tuning of mbira, mathematics of rhythm, symmetry in music, dither...

Milestones

- Oct. 17, 4pm: title and one paragraph description. I will provide feedback and suggestions.
- Oct. 28, 4pm: detailed outline (including section headings), reference list
- December 9, noon: written report due. Marks will be deducted for late projects

Students who submit the project by November 15 have the possibility of earning extra credit by presenting their report to the class.