

## PHYS 108: Physics of Music: Build a Musical Instrument Assignment Prompt

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Professors Donald Running and Jamie Kern

### Build a Musical Instrument

This project will require both an understanding of the physics of sound and the physics of musical instruments. You are to build an acoustical musical instrument from one of the four families (strings, brass, woodwind, percussion) that is capable of playing a recognizable pentatonic scale.

Your project will be graded on four criteria:

#### Instrument construction (35%)

- The instrument is built as ruggedly as can be expected for this type of instrument
- Attention has been given to the aesthetic details of this instrument
- The pitches are accurate and in tune.
- The instrument produces tones that are as clear and strong as expected with this type of instrument

#### Lab Report (35%)

- The report has a professional appearance and is error-free
- **The report will detail use of the scientific method in designing your instrument**
- The report is rich in detail about the entire process of engineering and building the instrument
- Includes a log of time spent on various activities involved in producing the instrument. This could include scale drawings, photos of the building process, necessary calculations, a recount of design problems and solutions, and a self-evaluation of the work done.

#### Presentation and Performance (15%)

- The presentation is between three and five minutes long
- The presentation is well rehearsed recounting the engineering challenges and solutions to problems encountered.
- Your original composition will be performed

#### Group Performance (15%)

- The performance is well rehearsed and you can clearly explain the process of how the ensemble piece came to be. What is the story?
- **The group performance will be performed in front of the Burnell preschool children.**
  - **You will need to explain to the children what your instrument is and how it works**
  - **Your group will need to explain the concept behind your group composition**