

## U MA Lowell Acoustics & Psychoacoustics - Class Date 10/17/13

### *Syllabus Supplement*

This supplement serves to add to and clarify the original syllabus for this class. It does not change any of the original requirements unless specifically stated.

### **Musical Instrument Project: Further Details**

As stated in the original syllabus, you are required to submit a music instrument, on November 10, which you are to design and build. The requirements of this project are repeated here for convenience:

*Musical Instrument Project (MIP) will count as one-third (33%) of the assignment portion of the grade. Students will be expected to spend minimal money (less than \$50 would be advisable) to construct a musical instrument that can faithfully produce a C major scale (in any audible octave) at a reasonable volume level. The instrument must be tunable within reason and the student must submit a short (one page) written description of his/her instrument along with a short verbal presentation to the class with a demonstration performance of the C major scale live.*

- If needed, more than one page can be submitted, but try to keep it below three pages maximum.
- The notes must be initiated by interaction with your hands/fingers/feet/knee/other. The means by which the note is sounded must be via something other than voice. That is, a kazoo is *not* acceptable because the pitch/frequency is developed from the human voice and not the instrument itself. If you are not sure that your potential design violates this, ask the instructor.
- The scale MUST be in C major: no other key is acceptable.
- Electronic instruments (built from parts with innovative designs) and instruments coupled with amplifiers and/or signal processing are generally acceptable providing these aspects aid in demonstrating the acoustic principals involved in the sound creation process. Synthesizers are not acceptable because at no time is the note created by acoustic means: a tone-wheel organ is acceptable as the note is created by air movement (hence acoustically) even though it is electronically amplified and processed.
- Instruments which need more than one person to operate are acceptable.
- You will have the opportunity to accumulate 150 points (out of 100) which could help boost a sagging overall homework grade if you get really creative. If you meet the core requirements above exactly, you can get 100 points at least. Each instrument will be graded regarding the following points:
  - Ability to play a C major scale (Core: 20 points)
  - Intonation, ability to stay in tune (Core: 20 points)
  - Acoustic output (volume level) (Core: 20 points)
  - Applicability of materials used (Core: 20 points)
  - Written/verbal explanation of instrument design and function (Core: 20 points)
- Up to 50 points extra credit for unique solutions and creativity (list is NOT all-inclusive):*
  - Ease of tuning (does not include off the shelf tuners, etc.)
  - Method of initiating a note(s)
  - Uniqueness and creativity in general
- After the MIP class, you are to take your instrument back with you.