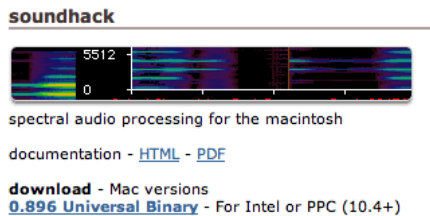**Composition: Electronic Media II**
Spring 2011
Assignment 1

1. Assignment 1 will be presented in class on Feb. 7, 2011.

2. The purpose of this assignment is to learn through documentation and experimentation the different types of signal processing sound transformations available in SoundHack.

3. SoundHack is freeware and can be downloaded for Mac at: http://www.soundhack.com/freeware.php. The latest version is 0.896 Universal Binary, as shown below.

4. Documentation can be opened in html or downloaded as a PDF file.

5. SoundHack works by opening an aiff soundfile, then selecting the Hack menu, whose items are shown below:

6. Each student in class will give a 20-30 minute on one of the processes shown below:
   a. Convolution: Yunsoo.
   b. Mutation: Matt
   c. Phase Vocoder: Stephanie
   d. Varispeed with drawing function: Tyler
   e. Spectral Extractor: Brian (who has the option of presenting one of the plug-ins as discussed in class).

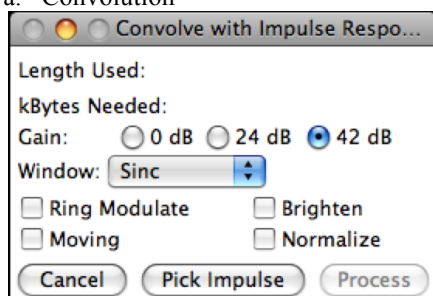7. Each student will prepare 16 soundfiles with the following attributes:

Soundfile	High	Low	Short	Long	Pitched	Unpitched	Monophonic	Polyphonic
1	•		•		•		•	
2	•		•		•			•
3	•		•			•	•	
4	•		•			•		•
5	•			•	•		•	
6	•			•	•			•
7	•			•		•	•	
8	•			•		•		•
9		•	•		•		•	
10		•	•		•			•
11		•	•			•	•	
12		•	•			•		•
13		•		•	•		•	
14		•		•	•			•
15		•		•		•	•	
16		•		•		•		•

8. Each student will make a handout using the format of those in class. Screen snapshots are essential. The most important functions of each process should be listed in the handout and discussed in class.
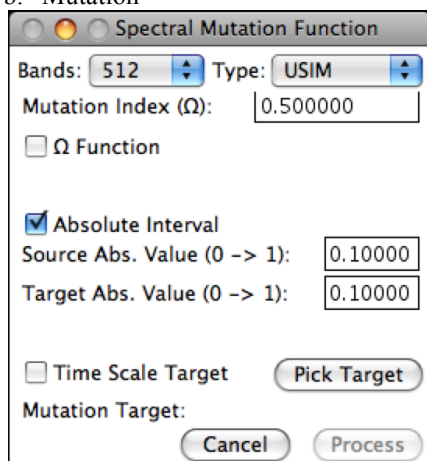
9. Each function should be demonstrated with before and after examples using some of the soundfiles prepared in Step 7, above.

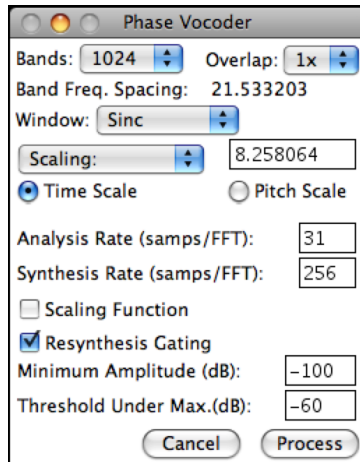10. Below are some of the processes from the Hack menu:
   a. Convolution

   b. Mutation

c. Phase Vocoder

Phase Vocoder

Bands: 1024   Overlap: 1x
Band Freq. Spacing: 21.533203
Window: Sinc

Scaling: 8.258064
⦿ Time Scale   ○ Pitch Scale

Analysis Rate (samps/FFT): 31
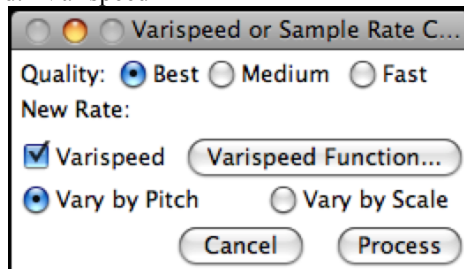Synthesis Rate (samps/FFT): 256

☐ Scaling Function
☑ Resynthesis Gating
Minimum Amplitude (dB): −100
Threshold Under Max.(dB): −60

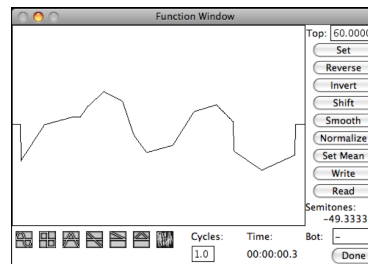Cancel   Process

d. Varispeed

Varispeed or Sample Rate C...
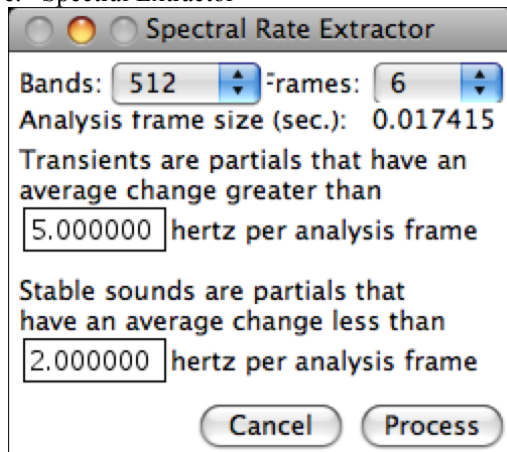
Quality: ⦿ Best ○ Medium ○ Fast
New Rate:

☑ Varispeed   Varispeed Function...
⦿ Vary by Pitch   ○ Vary by Scale

Cancel   Process

Function Window

Top: 60.0000
Set
Reverse
Invert
Shift
Smooth
Normalize
Set Mean
Write
Read
Semitones:
−49.33333

Cycles: Time: Bot: −
1.0   00:00:00.3   Done

e. Spectral Extractor

Spectral Rate Extractor

Bands: 512   Frames: 6
Analysis frame size (sec.): 0.017415

Transients are partials that have an
average change greater than

5.000000 hertz per analysis frame

Stable sounds are partials that
have an average change less than

2.000000 hertz per analysis frame

Cancel   Process