Lab1: If0 Be sure to download the related reading on If0: Connell

Background
There is a tendency for the fundamental frequency (f0) to be inversely correlated with the height of the first formant (F1) such that the lower F1 is, the higher the f0. Since F1 is correlated with our perception of vowel height the effect has also been described as vowel height interacting with the pitch of the voice: the higher the vowel, the higher the pitch. This phenomenon is referred to as inherent fundamental frequency or If0. It is thought to have a physiologic basis, however there seem to be language dependent factors that influence the duration and magnitude of the f0 perturbation as well.

If0 lab 1: Experimental design
   design expt to test relationship between vowel height and If0
   pick a language of interest (should be one from within your group)
   pick an independent variable that you think might influence f0
   quantify vowel height (how will you measure it?)
   quantify pitch perturbation (how will you measure it?)
   relate pitch perturbation to vowel height

If0 lab 2: Implementation of experiment and experimental writeup
   background for hypothesis
   methods section
      describe recording details (elicitation style, recording setup, sampling rate)
      describe measurement details (LPC details, pitch tracking details, measurement points)
      Record set of words
      measure pitch
      plot pitch values against vowel height measure and fit a line (using excel or some other tool)
   write up results using the writeup guideline

Lab 2: VOT Be sure to read the related reading: Lisker & Abramson
Voice onset time (VOT), defined as the duration between the onset of the release burst and the onset of the vowel’s periodicity, is a well known cue to voicing contrasts in stop consonants. However, it is known to be affected by a number of variables in a language specific way. In this assignment you will design a data set and measure one speaker to answer the following questions. For the assignment only look at a single voicing contrast (voiced-voiceless or aspirated-unaspirated) of a native speaker of a language with a voicing contrast (ie not Korean, Taiwanese, or Thai, which have a complicated laryngeal contrasts).

What effect does vowel height have on the VOT of word initial stops?

What effect do the three places of articulation (labial, alveolar, velar) have on the VOT of word initial stops?

Are voiced and voiceless stops affected equally by these variables?
VOT 1: Experimental design
   design expt to test relationship between stop place, vowel height and VOT
   quantify vowel height
   quantify VOT duration
   relate VOT duration to consonant place and vowel height

VOT 2 Implementation of experiment and experimental writeup
   Record set of words
   measure VOT
   produce one aggregate plot of VOT against vowel height and fit a line (using excel or some other tool)
   produce a separate plot of VOT (for each place of articulation) against vowel height
   write up results using the writeup guideline