Acoustic Phonetics Curriculum and Study Guide

Know how to do these things. Rogers Ch. 7-8 covers them pretty well, so looking again at these will help.

1. Pitch
   - Calculate pitch from a waveform or spectrogram (vertical stripes).
   - Use Wavesurfer to view pitch contours

2. Vowels
   - Know how to spot the lowest formants on a spectrogram.
     - A useful precaution: in [i] F2 is quieter than F3; don’t mistake F3 for F2.
     - Knowing the rough formant frequencies of vowels helps you spot the formants for a particular vowel.
   - Roughly identify vowels (particular, more than one at a time) by using the basic relations between formant frequency and vowel quality:
     - High F1, low vowel / low F2, high vowel
     - High F2, front vowel / low F2, back vowel
     - Rounding lowers all formants

3. Identifying segment boundaries
   - Segment a spectrogram, relying on various cues:
     - Vowels are loud and look it; especially stressed vowels and low vowels
All sonorants (vowels, approximants, nasals) are vertically striped, one stripe per pitch period.

Glides look like quiet high vowels.

Nasals, liquids also look like quiet vowels. Nasals have sharp boundaries.

Stops ([b] and [ḍ] below) are usually fairly silent, except for a very low voice bar in truly-voiced stops.

Fricatives ([s] and [ʃ] below) look fuzzy, sibilant fricatives are louder than non-sibilants.

4. Identify voicing in stops

- Look for the voice bar, as in comparing the last two consonants of [jalamafabapa] above. This can be very useful in transcribing your term paper recording.

5. Matching up sibilants to their spectrogram representation by pitch

- Listen to the sibilant for its auditory pitch and match it up.
  - If you make the spectrogram yourself, it pays to adjust the pitch maximum up to 8000 hertz.
6. **Identifying velar consonants by their velar pinch**

- Typically (but alas, not always) F2 and F3 come together just before and after a velar consonant.
- This is not so for bilabials or alveolars (distinguishing the latter two is harder and is not on the curriculum).

7. **Identifying /ɹ/ by low F3; glides by vowel-like formant frequencies**

In a [ɹ] (also [ɻ], [ɚ]) F3 comes down close to F2. In the following spectrogram, note that [j] and [w] resemble their partner vowels [i] and [u] in their formant frequencies, but are quieter.
8. Taps

- These are easy because they look like very short stops. *A daughter* has one of both:

9. Measuring Voice Onset Time

We will cover this when we get to Rogers Chapter 12.