Experimental Phonetics

LELA20342 // 2015-2016 // Semester 2

Dr. Wendell Kimper

Course Outline

1 Contact

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Office: Samuel Alexander N1.15
Office Hours: Monday 13:00–14:00, Friday 10:00–11:00

TA: Chris McCall-Twentyman
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Office: Phonetics Lab, Samuel Alexander LG Studio 5
Office Hour: Tuesday 10:30–11:30

2 Objectives

This course unit examines quantitative methods of describing and explaining the physical nature of speech, primarily from the angles of acoustic phonetics and speech perception. While the course deals with basic principles of acoustics in order to understand how sound waves originate in the vocal tract, it does so in a way that requires no previous knowledge of physics. Students will learn how to measure vowel qualities, segment durations, pitch patterns, and other acoustic characteristics of speech, and will also become familiar with the types of research questions this techniques can be used to answer.

3 Texts

The two main textbooks for this class are:

- Johnson, Keith. 2003. Acoustic and Auditory Phonetics, 2nd edition. Oxford: Blackwell.
- Ladefoged, Peter. 2003. Phonetic Data Analysis. Oxford: Blackwell.

The brand-new 3rd edition of the Johnson book is also acceptable. Additionally, you may find it useful to consult the following sources:

- Ladefoged, Peter. 2005. Vowels and Consonants, 2nd edition. Oxford: Blackwell.
- Hayward, Katrina. 2000. Experimental Phonetics. Harlow: Pearson.
- Ladefoged, Peter. 1996. Elements of Acoustic Phonetics, 2nd edition. Chicago: University of Chicago Press.

Published articles related to the topics we discuss will also be assigned as required reading; these will be made available on Blackboard.

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4 Software

We will be using the speech analysis program Praat, which is free, open-source, cross-platform, and developed by phoneticians. You can download it at `http://www.praat.org` and/or use it on the computers in the Phonetics Laboratory.

5 Tutorials

Tutorials will be held in the Phonetics Lab, and provide hands-on experience doing acoustic analysis with Praat. Attendance is vital for gaining practical skills that are needed for the coursework. Please bring your own headphones or earbuds to tutorial. If you can, please bring a laptop with Praat installed on it.

6 Laboratories

The Phonetics Laboratory is temporarily located in Samuel Alexander LG Studio 5 — you are welcome to use the lab to do work for this class, and recording equipment is available for you to borrow. The Psycholinguistics Laboratory is located in Samuel Alexander NG.15, and has a sound-attenuated booth which you may use to make recordings. To sign out equipment or schedule time to use the labs, please contact the appropriate lab assistant:

Phonetics Lab: Deepthi Gopal (`deepthi.gopal@manchester.ac.uk`).
Psycholinguistics Lab: Fernanda Barrientos (`fernandab@postgrad.manchester.ac.uk`)

7 Assessment

More detailed instructions will be provided for each component of the assessment.

Tutorial Participation (5%)

Tutorials for this course unit are absolutely essential, providing hands-on training in the software and measurement techniques you'll need for your coursework and final project. *Attendance is not sufficient* — you must participate in the tutorial in order to receive credit. Your TA will keep track of tutorial participation.

Experiment Participation (5%)

One of the best ways to get a feel for what it's like to run phonetics experiments is to participate in one. To sign up for an experiment, go to `https://manchester-lel.sona-systems.com` and click "Request Account". Make sure you include your Student ID number and select Experimental Phonetics as the course to apply experiment credit to. When you log in, you can sign up for time slots (when they become available) — choose any experiment that relates to phonology or phonetics.

Reading Reports (10%)

Each week, a selection of relevant articles from the primary academic literature on phonetics will be provided on Blackboard. You do not need to read all of these; you must choose **two** articles (at various points in the semester) and read them carefully, and then write brief reports answering some basic questions about the contents. Each report will be marked pass/fail.

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Class experiment (20%)

This will be a collaborative experiment done together as a class. You will be given a word list and a set of measurements to take, and each student will be responsible for recording and measuring one experimental subject. You'll answer a set of targeted questions about your subject's results, and then all the data will be compiled to give us the overall results. Your data collection and measurement will be marked pass/fail.

Group project (60%)

Working in groups of 4(ish), you will carry out an original experiment. You'll be given a set of well-formed research questions to choose from, but you will be responsible for all aspects of the design, implementation, and analysis of your experiment.

A Note About Deadlines

"The key to successful procrastination is knowing when the last minute is." – my dad.

I've set the deadlines to the very end of the day (23:59) for your benefit — but if you have last-minute problems, please don't count on me (or your TA) being awake that late to answer your questions! You stand the best chance of getting a timely reply before 18:00, and after 21:00 you should assume that you're on your own.

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8 Schedule

Attendance in lectures and tutorials is vital, since these will cover material not found in the readings. If you must miss a session, please make arrangements to get notes from a classmate.

	Tutorial	Lecture	
1		5 Feb	**Introduction & Preliminaries**
2	**Intro to Praat**	12 Feb	**The Larynx**
3		19 Feb	**Stops and VOT**
4	**Basic measurements** *due: Recorded word list (21 Feb*)*	26 Feb	**(No Lecture)**
5		4 Mar	**Categorical Perception** *due: Reading Report #1 (3 Mar)*
6	**VOT & peak frequency** *due: Measurements 1 (6 Mar)*	11 Mar	**Fricatives** *due: Form project groups (10 Mar*)*
7		18 Mar	**The source-filter model** *due: Research proposal (17 Mar)*
			(Easter Break)
8	**Vowel formants** *due: Measurements 2 (10 Apr)*	15 Apr	**Vowel Quality**
9		22 Apr	**Liquids & nasals** *due: Experiment Participation (21 Apr*)*
10	**Ultrasound/Airflow** *due: Measurements 3 (24 Apr)*	29 Apr	**Coarticulation**
11		6 May	**What is sonority?** *due: Reading Report #2 (5 May)*
12	**TBA**	13 May	**Wrap-up & Data Analysis**
		Group project write-up: due Friday, 20 May	