

**126.288 Acoustic Phonetics (3)**

2005-06 Term 2, Slot 14 (TR 2:30-3:45pm), 302 Tier

Instructor: Robert Hagiwara, Ph.D. e-mail: robh@cc.umanitoba.ca  
 Office: 547 Fletcher Argue voice: 474-6998  
 Office hours: Mondays and Tuesdays, 11:30 to 12:30, and by appointment

**Required text**

Johnson, Keith (2001). *Acoustic and Auditory Phonetics* (2<sup>nd</sup> edition). Oxford: Blackwell Publishers.

**Course overview**

This course explores the physical properties of sound waves generated in normal speech. Topics covered include the analysis of acoustic information of speech sounds, and the physics of sound generation, propagation and reception as factors in shaping phonetic and phonological systems of language.

**Schedule (tentative)\***

Week of	Topics	Text**
Jan 2	Basics of sound, simplex waves	Ch 1, pp. 3-6
Jan 9	Complex waves and sampling	Ch 1, pp. 6-18
Jan 16	Frequency and amplitude analysis	Ch 2, pp.19-33
Jan 23	Fourier's Theorem	Ch 2, pp. 33-42
Jan 30	Source-Filter Theory	Ch 2, pp. 42-45; Ch 5, pp. 79-85
Feb 6	Vocal tract resonances, and perturbation	Ch 5, pp. 85-97
Feb 13	<i>Mid-Term Break</i>	
Feb 20	Tube models, Helmholtz resonators	Ch 6, pp. 102-111
Feb 27	Nomograms and vowel quanta	Ch 6, pp. 111-119
Mar 6	Vowels	Ch 5; Ch 6
Mar 13	Noise, fricatives and plosives	Ch 7
Mar 20	Place and manner, nasals and side cavities	Ch 8; Ch 9
Mar 27	Approximants, spectrogram reading	Ch 9
Apr 3	Prosody and review	

\* This list is tentative and subject to change at any time.

\*\* This list roughly indicates which sections in Johnson (2001) will be relevant to the scheduled topic(s). However, readings do not substitute for lectures, nor *vice versa*.

**Rules, regulations, policies and assorted fine print**

Late assignments cannot be accepted. No early quizzes will be given. In extreme cases (e.g. documented medical emergencies) and at the discretion of the instructor, a make up quiz may be offered, or the final grade calculated with an average of other quiz scores substituted for the missed quiz. In the case of general emergency affecting the entire class or other circumstance that makes it impossible to give or grade a quiz, the instructor reserves the right to schedule a new quiz of equal value.

Great value is placed on academic integrity. Students should be acquainted with University policies and procedures regarding cheating, plagiarism and personation at exams, as set out in the General Calendar.

Please be respectful of others at all times. Late arrivals, early departures, disruptions by phone, beeper, or similar devices, and other disturbances must be avoided.

**Evaluation**

Grades will be determined by performance on:

Occasional homework		7%	total
Laboratory project 1		10%	total
Laboratory project 2		13%	
Two term exams	20% each	40%	total
Take-home final exam		30%	
	<i>Total:</i>	<i>100%</i>	

Final marks, subject to departmental approval, will be determined using the following scale (descriptors from the *Undergraduate Calendar*).

<b>Letter grade</b>	<b>Range</b>	<b>Descriptor</b>	<b>Letter grade</b>	<b>Range</b>	<b>Descriptor</b>
A+	97-100	Exceptional	C+	75-79	Satisfactory
A	90-96	Excellent	C	70-74	Adequate
B+	85-89	Very Good	D	60-69	Marginal
B	80-84	Good	F	<60	Failure

**Regarding collaboration**

This class involves not only understanding new material, but problem solving and even a little math. While cheating in all forms is prohibited, I encourage you to form small study groups if that will assist you. If you choose to work in groups, you must indicate the names of your study partner(s) on work you turn in to me. This includes some assignments where you are assigned a working group. Anything you turn-in for evaluation must be written independently, in your own words. Specific ideas that you get from others (e.g. study-partner(s), the web, published sources, etc.) must be attributed appropriately. Please ask if you have any questions regarding these policies.

**Quiz schedule and other important dates**

Tuesday, 31 January	Exam 1, Basics of sound and acoustics
Monday, 13 February – Friday 17 February	Mid-term break
Thursday, 9 March	Exam, 2, Acoustic Theory of Speech Production
Friday, 17 March	Voluntary withdrawal deadline
Thursday, 6 April	Take-home final exam distributed
Tuesday, 11 April	Final exam due before 5pm, at 547 Fletcher Argue

**Lab projects**

The two long assignments (lab projects) require access to a computer, a program called Praat, and files you will download from the University of Manitoba's Jump portal.

If you have your own computer, you can download Praat for free from the Praat homepage (<http://www.fon.hum.uva.nl/praat/>). The Dafoe Computer Lab (in the tunnel) should also have the program on all its computers. You will still require internet access and a UofM claimid username and password to use the Jump portal and access the required sound files for analysis.

Details to follow.