

Hong Kong University of Science and Technology

**HUMA 2030**  
**Spring Semester 2012**

*Structure of the Chinese Language:*  
**CHINESE SPEECH SOUNDS**

漢語語音

[ xɑn˨˩ ɥy˨˩ ɥy˨˩ jɪn˨˩ ]  
[ hɑn˨˩ ɥy˨˩ ɥy˨˩ jɛm˨˩ ]  
[ hɛi˨˩ jɥy˨˩ jɥy˨˩ jɪŋ˨˩ ]  
[ tʰami˨˩z 'spi˨˩tʃ saundz ]

**Course Introduction**

What is the most complex muscular activity you do (needing up to 1400 events per second)? Speaking! Speech is also the most important medium through which we convey our ideas, emotions and identity.

This course focuses on speech sounds in Chinese – not just Standard Chinese, although of course we will look at that – but *all* varieties of Chinese. Its aim is to explain to you how different Chinese dialects differ in their speech sounds – how Cantonese differs from Shanghai for example – and what they have in common. To an untrained ear, languages can often sound very different from each other: Cantonese from English, for example, or Arabic from Zulu. But the speech sounds of the world's languages do not vary without limit and are in fact built up according to fairly simple structural principles. We also therefore look at how different Chinese speech sounds are from the world's languages in general; and in what ways they are typical.

Speech sounds are studied in the discipline of *Phonetics*. This course is both a theoretical and practical introduction to Chinese Phonetics. It teaches you about how speech sounds are made by the human vocal tract; how they are transmitted acoustically; and a little bit about how the speech acoustics are perceived. The course also has a strong hands-on approach (or rather, ears- or tongues-on): you will learn how to recognise and transcribe a large number speech sounds, including such exotica as clicks, ejectives, and implosives, and much more. You will also learn how to quantify some important speech acoustics with a computer. A course website is used which includes unique materials designed by the lecturer to develop students' transcriptional and analytical skills. The lecturer is an acknowledged expert on the phonetics of tone, especially in Chinese.

We will focus on three main areas of Chinese speech sounds that are phonetically interesting: *vowels*, *tones* and *consonants*, and we will look at how they differ in at least four varieties: Cantonese, Putonghua, the simplest dialect and the most complex. The way tones, vowels and consonants combine and interact within the syllable in Chinese is also of theoretical importance and interest and differs considerably between varieties, and we will study that as a fourth topic, called *Phonology*.

**“Learning outcomes”**

Depending on how well you study and learn, at the end of the course you should be able to do one or more of the following:

1. understand the nature and variety of Chinese speech sounds, and explain how they are produced, and transmitted acoustically.
2. recognise, describe and transcribe a large number of Chinese speech sounds from any dialect, and quantify vowel and tone acoustics with a computer.
3. understand and analyse how Chinese speech sounds behave and combine as a system to signal the identity of a word.

**Lecturer:** Dr. Phil Rose.

**Lectures/practical/tutorial:** There will be three contact hours a week. Two will be lectures; the third hour will be divided between LECTURE and TUTORIAL / PRACTICAL.

**Times:** Monday Wednesday Friday 11.00 – 11.50

**Lecture Venue:** 2502

**Teaching Assistant(s):** TBA

**Practical/tutorial venue:** TBA

**Course web-site:** TBA

**Syllabus**

Here is a list of the topics we will cover in each lecture. You can see that the course is divided into four basic sections: *Vowels*, *Tones*, *Consonants*, and *Phonology*. For each section we will first study its general properties, reinforced with practical analysis. Then we will look at the phenomenon in varieties of Chinese (usually Cantonese and Putonghua, and its simplest and most complex manifestation in other dialects).

Wk.	Date	Lect.	Content
1	1 <sup>st</sup> Feb	1	<b>Preliminaries:</b> Aims, scope and organisation; work, assessment, tutorials. <i>Please print out and read the syllabus BEFORE this lecture, so that you can ask questions if you are not sure of anything.</i>
1	3 <sup>rd</sup> Feb	2	<b>Speech Chain:</b> The stages in conveying meaning in vocalisations

**VOWELS**

2	6 <sup>th</sup> Feb	3	<b>Speech Organs (1):</b> Supralaryngeal Vocal Tract
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2	8 <sup>th</sup> Feb	4	<b>Vowels (1):</b> Basic Vocalic Parameters ( <i>Height Backness Rounding</i> ). Reference / Cardinal vowels.
2	10 <sup>th</sup> Feb	5	<b>Practical:</b> Identification of SLVT structures; transcription / production practice: some basic reference vowels and consonants.
3	13 <sup>th</sup> Feb	6	<b>Basic Vowels in Chinese:</b> Identification & description of Chinese vowels from elicitation and traditional 聲韻調 arrangements. Generalisations.
3	15 <sup>th</sup> Feb	7	<b>Vowel Acoustics:</b> Acoustic parameters, formants and vowel quality, acoustic plotting.
3	17 <sup>th</sup> Feb	8	<b>Practical</b> Measuring Cantonese vowel acoustics with <i>Praat</i> .
4	20 <sup>th</sup> Feb	9	<b>Vowels (2):</b> Secondary vocalic parameters ( <i>dynamicity, nasalisation, apicality, rhotisation, length</i> ).
4	22 <sup>nd</sup> Feb	10	<b>Augmentation of Chinese vowel systems:</b> Identification & description of more Chinese vowels from elicitation and traditional arrangements. Generalisations.
4	24 <sup>th</sup> Feb	11	<b>Practical</b> Acoustics of secondary vocalic features.

### TONES

5	27 <sup>th</sup> Feb	12	<b>Speech Organs (2):</b> Larynx anatomy & physiology; Mechanism of modal phonation ( <i>myoelastic-aerodynamic theory</i> ).
5	29 <sup>th</sup> Feb	13	<b>Tones:</b> Tone and Tone Language Typology. The many senses of “tone”.
5	2 <sup>nd</sup> Mar	14	<b>Practical</b> Transcribing tonal pitch.
6	5 <sup>th</sup> Mar	15	<b>Practical</b> Measuring Tonal Acoustics & sex differences with <i>Praat</i> .
6	7 <sup>th</sup> Mar	16	<b>Tones in Chinese (1)</b>
6	9 <sup>th</sup> Mar	17	<b>Tones in Chinese (2)</b>
7	12 <sup>th</sup> Mar	18	<b>Tone Sandhi:</b> Typology and mechanics.
7	14 <sup>th</sup> Mar	19	<b>Phonation types:</b> Phonation types, phonation type typology.
7	16 <sup>th</sup> Mar	20	<b>Phonation types in Chinese</b>

### CONSONANTS

8	19 <sup>th</sup> Mar	21	<b>Consonants:</b> Architecture of consonantal description: <i>Articulation, Initiation, Phonation</i> . Manners of articulation: <i>Plosives, nasals, fricatives, affricates, laterals, rhotics, glides</i> .
8	21 <sup>st</sup> Mar	22	<b>Practical</b> Transcription of Manners.
8	23 <sup>rd</sup> Mar	23	<b>Manners in Chinese</b>
9	26 <sup>th</sup> Mar	24	<b>Place of Articulation:</b> Active and Passive articulators.

9	28 <sup>th</sup> Mar	25	<b>Practical</b> Transcribing Place.
9	30 <sup>th</sup> Mar	26	<b>Place of Articulation in Chinese</b>
10	2 <sup>nd</sup> Apr	27	<b>Voice onset time:</b> “Aspiration”, “Voicing”.

Mid-Term Break (3<sup>rd</sup> – 9<sup>th</sup>)

10	11 <sup>th</sup> Apr	28	<b>Practical</b> VOT
10	13 <sup>th</sup> Apr	29	<b>VOT in Chinese</b>
11	16 <sup>th</sup> Apr	30	<b>Initiation:</b> Implosives Ejectives Clicks. Demo with Zulu.

**PHONOLOGY**

11	18 <sup>th</sup> Apr	31	<b>Internal structure of Speech sounds:</b> Tone, vowel & consonantal Features.
11	20 <sup>th</sup> Apr	32	<b>Phonemic analysis (1):</b> Contrast. <i>Contrastive distribution, complementary distribution, free variation, allophones, allotones.</i>
12	23 <sup>rd</sup> Apr	33	<b>Practical</b> Easy Phonemic Analysis Problems.
12	25 <sup>th</sup> Apr	34	<b>Phonemic analysis (2):</b> Generalising over allophones. <b>Phonotactics.</b>
12	27 <sup>th</sup> Apr	35	<b>Practical</b> More complicated Phonemic Analysis
13	30 <sup>th</sup> Apr	36	<b>Internal structure of words and syllables:</b> Feature Geometry. <i>Onset, Rhyme, Nucleus, Coda.</i>
13	2 <sup>nd</sup> May	37	<b>Chinese Phonology (1):</b> Analysis of vowels and onsets in Putonghua.
13	4 <sup>th</sup> May	38	<b>Practical</b> Reinforcing Chinese phonemic analysis.
14	7 <sup>th</sup> May	39	<b>Chinese Phonology (2):</b> Analysis of tones and rhyme structure in Cantonese.
14	9 <sup>th</sup> May	40	<b>Chinese Phonology (3):</b> Analysis of tones, onsets & rhymes, & sandhi in Wu dialects.
14	11 <sup>th</sup> May	41	<b>Summary.</b> Comments on Exam.

**Work**

- *Attendance* Obviously attendance at lectures and tutorials is important. The course is strongly cumulative, and it will be difficult for you to understand the content of a lecture if you have missed the previous one(s). If for some reason you have to miss a lecture or tutorial, please find out from your fellow students what was covered and discussed so that you can catch up and understand.
- *Reading* There is no single suitable text book to set for this course, so instead I will be posting readings each week on the current topic. The final exam will presuppose knowledge and understanding of the readings.

- *Assignments* There will be three assignments. Two are on phonetic description and acoustic analysis of vowels and tones in Chinese dialects; one is on phonological analysis. Each assignment counts 20% towards your final mark. Language is English, although of course you can use Chinese when explaining/referring to examples.

Please note: (1) If you use a computer to write-up your assignment, please make sure your work is **backed-up somewhere separately**. Computer failure will not be accepted as an excuse for handing in work late. (2) On-line submission of assignments is not acceptable. (3) It is best to convert your files to .jpg format before printing out, to preserve things like phonetic symbols, which may not print out correctly from .doc files.

- *Final Exam* This will consist of two or three analytical problems. All topics in the course are presupposed. It counts 40% of your total mark.

### Other matters

- *Software* You will need to download software for editing and analyzing speech acoustics. We will be using *Praat*, which you can download (for free!) from:

[http://www.fon.hum.uva.nl/praat/download\\_win.html](http://www.fon.hum.uva.nl/praat/download_win.html)

- Another software useful for editing speech is *Audacity*, downloadable from:

<http://audacity.sourceforge.net/download/>

- It's a good idea to download these now and start playing with them (although you will of course be shown how to use them during the course). The most important thing to be able to do at first is read-in .wav format audio files.

- **COLLABORATION, COPYING & PLAGIARISM**

Please be aware that **all your work must be completed entirely on your own, and not in collaboration with others**. Collaboration, and any form of copying, entails severe penalties, including forfeiting the mark for the problem, and possible failure of the whole unit. Please also note that, as in any scholarly work,

**You must give credit for material you have obtained from other sources, by citing a reference, for example.**

Failure to do this – presenting someone else's work/ideas as your own – is called *Plagiarism*. It attracts severe penalties: don't do it. If in doubt, ask! If you are taking the course, I will assume that you have read this.

- OK, that's it for now. Keep an eye on the UST website for this course towards the beginning of next semester, as I shall start posting on it then.

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