听力科学课程教学大纲

<table>
<tr><td colspan="6">课程基本信息（Course Information）</td></tr>
<tr><td>课程代码
（Course Code）</td><td>EM017</td><td>*学时
（Credit Hours）</td><td>32</td><td>*学分
（Credits）</td><td>2</td></tr>
<tr><td rowspan="2">*课程名称
（Course Name）</td><td colspan="5">听力科学</td></tr>
<tr><td colspan="5">Hearing Science</td></tr>
<tr><td>课程性质
(Course Type)</td><td colspan="5">选修课</td></tr>
<tr><td>授课对象
（Audience）</td><td colspan="5">本科生</td></tr>
<tr><td>授课语言
(Language of Instruction)</td><td colspan="5">英语</td></tr>
<tr><td>*开课院系
（School）</td><td colspan="5">外国语学院 / University of Texas at Austin</td></tr>
<tr><td>先修课程
（Prerequisite）</td><td colspan="5">无</td></tr>
<tr><td>授课教师
（Instructor）</td><td colspan="2">LIU, Chang （刘畅）</td><td>课程网址
(Course Webpage)</td><td colspan="2"></td></tr>
<tr><td>*课程简介（Description）</td><td colspan="5">本课程为听力科学的基础课程，主要注重于两个听力科学的方向：（1）声音的物理属性（即声学，含语音声学）；（2）听觉的生理和心理学。适合于各个年级的本科生，作为听力科学的基础课程，另外也适用于心理学，语言学等专业的研究生。
此课程的主要内容是教授听力科学的基础知识和应用的基本技能: (1). 声音的知识(比如声音的产生和传导，声音的物理特性，尤其是不同语言的语音特性如美国英语和汉语，声音的声学分析等等)；(2). 声音在人类的听觉系统中的传导（比如听觉系统的组成，以及声音是如何从外耳，中耳，内耳到大脑进行传导和加工的）。(3). 非语音和语音的听觉感知（比如声音的各种物理特性是如何感知的，文化和语言背景对于语音感知的影响，以及双语和第二语言语音的感知）。根据这门课的全球课堂教学的特点，本课程的内容会着重于语言，文化背景对于语音的产生，语音声学，以及听觉感知的影响，在教学形式上会侧重于上海交大学生和美国德克萨斯大学（UT Austin）学生之间通过各种方式的相互交流和协作（比如课堂讨论和课外项目）。</td></tr>
<tr><td>*课程简介（Description）</td><td colspan="5">This is a basic course for hearing science. This course will explore two primary topics related to the hearing process: (1) the physics of sound including speech acoust (2) physiology and psychology of hearing. This course is for undergraduate students, a also
for graduate students in psychology, linguistics and other related fields.
The goals of this course are to provide basic knowledge on (1). sounds (e.g., sou generation</td></tr>
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	and propagation, physical features of sounds, particularly speech sounds across differ languages like American English and American English, acoustic analysis of sounds), (2). auditory processing of sounds in human auditory system (e.g., how the human auditory system is organized and functions to process acoustic stimuli from the outer, middle, inner ear to the brain), and (3) auditory perception of non-speech and speech sounds (e.g. how to perceive acoustic features of sounds, and the culture and language impacts on speech perception, bilingual and non-native speech perception). Based on the Global Classroom Teaching Project, one particular goal of this course is to focus on the cultural and linguistic Effects on speech production, speech acoustics, and auditory perception. Also, another goal of this class is to provide the opportunit for students from SJTU and UT to interact with each such as group discussions in class and group projects outside the classroom.
课程教学大纲（Course Syllabus）	
*学习目标 (Learning Outcomes)	There are two major areas in this class. The learner outcomes are listed in the three are in which students will be able to: 1. Acoustics a. Describe the basic concepts in physics related to acoustics b. Explain generation and properties of sinusoidal and complex sound Waves including speech sounds c. Analyze acoustic properties of sounds d. Record and analyze speech sounds, particularly American English and Mandarin Chinese. e. Synthesize non-speech and speech sounds using speech synthesizer 2. Physiology and Psychology of Hearing a. Physiology of Hearing i. Describe auditory pathways, peripheral and central ii. Interpret sound processing in the peripheral and central auditory system iii. Explain cochlear mechanics and physiology b. Psychology of Hearing i. Understand basic psychoacoustic methods ii. Interpret auditory sensations such as sensitivity, intensity resolution, frequency resolution, and temporal processing. iii. Explain auditory perception of complex sounds iv. Interpret the methods and theories of speech perception, in particular speech perception for non-native speakers and bilingual speakers. v. Build up the ability of designing behavioral experiments to examine auditory perception of human listeners.

*教学内容、进度安排及	教学内容	学时	教学方式	作业及要求	基本要求	考查方式

					inner ear	
	Central auditory system (CAS)	2	Lecture		Interpret the structures and function of CAS	Exam
	Introduction to psychoacoustics	2	Lecture	Project 2	Understand basic psychoacoustic methods	Project, exam
	Loudness and pitch perception	2	Lecture, group discussion	Project 2	Interpret how loudness and pitch is perceived	Project, exam
	Intensity, frequency and duration discrimination	4	Lecture, group discussion		Understand how listeners discriminate changes in sound intensity, frequency, and duration	Exam
	Auditory critical band	4	Lecture		Interpret the concept of auditory critical band (channel)	Exam
	Speech perception	8	Lecture, group discussion	Project 3	Understand the methods and theories of speech perception	Project exam
	Exam 2	2	Exam 2			

*考核方式(Grading)	There will be TWO exams, THREE GROUP projects and FOUR quizzes/assignments plus several group discussions in class, for this course. For the final grade, the exams contribute 30% with each taking 15%, the projects contribute 45% with each taking 15%, the assignments/quizzes contribute 10%, and the group discussion in class

	the class with no acceptable reasons). The bonus-quiz points will be added to the fi grade with the range between -3 to 3. . For example, if one's average grade of the three exams and four quizzes/assignments ar 90 and 95, respectively, and s/he gets 90 as the average of the class projects, 100 for in-class group discussions, and 2 in-class quiz bonus credits, her/his final grade is 30%*90 + 10%*95 + 45%*90 + 15%*100 + 2 = 94. The overall cutoff scale is as follows (total points: 100): 94.0 – 100 A, 89.0 – 93.9 A-, 84.0 – 88.9 B+, 80.0 – 83.9 B, 77.0 – 79.9 B-, 73.0 – 76.9 C+, 70.0 – 72.9 C, 67.0 – 69.9 C-, 63 - 66.9 D+, 60 – 62.9 D, 57.0 – 59.9 D-, and below 57 F.
*教材或参考资料 (Textbooks & Other Materials)	William A. Yost (2006). Fundamental of hearing: an introduction, 5th Edition, by Brill Publisher. The textbook will be supplemented with notes and readings that will be posted online.
其它（More）	The class is entirely instructed in English. Requirement and suggestion: 1. Pre-reading the textbook or related readings is helpful for your class. Also, the review of the textbook and/or notes can help you understand the lectures and prepare fo quizzes and exams. 2. Tape recorders are welcome and highly recommended. The material moves quickl and recorded lessons allow for checking and correcting notes. 3. Please TURN OFF the cell phone and pager or set them to VIBRATE during the clas 4. Online course management system will be frequently used for the class, mainly fo general course information, class notes, discussion, communication and etc. 5. Pay attention to figures and pictures in the book and readings, which are usually helpful to understand the texts. 6. Come to the office hours or make an appointment with me or TA if you have any question on the course. 7. If you have any difficulty or concern for the course, come to talk with me AS SOON AS POSSIBLE!
备注（Notes）	Course Assignments/Homework: Assignments will be assigned for the first section (Acoustics) in this class. All assignments are required to be completed and submitted ELECTRONICALLY before or on the due date that is specified in each assignment. Each assignment will cover the contents from the last quiz/assignment/exam. No credits will be given to overdue assignments. Projects: The class projects will be group projects. Each group is formed by SJTU studen

	and UT students. A 3-page report is required for each project. The goals of the projects are to 1. Solidify the knowledge learnt in class lectures; 2. Provide the opportunities the SJTU students and UT students to interact with each other. Details for the project will be released at the beginning of the semester. Quizzes and Exams: There will be no make-up quiz or exam and they may not be taken at an alternative time unless there is some documented excuse. An example of a documented, excused absence is a note from a doctor that states you are physically UNABLE to attend the final. Simply not feeling your best is NOT considered to be an excused absence, as we all have days in which we are not feeling well but must take c of our responsibilities anyway. If you are up and walking around campus on the day of quiz or or exam, you must take it. Another example of a documented excused absence is family emergency for which you need to contact Dean's office for details. Again, no make-up quizzes or exams are allowed without the documented excuse. NO EXCEPTIONS. Each quiz/exam will cover the contents from the last quiz/assignment exam. Academic Honesty: A standard of honesty, fairly applied to all students, is essential to a learning environment. Students abridging a standard of honesty must accept consequences; penalties are assessed by appropriate classroom instructors or other designated people. Serious cases may result in discipline at the college or University level and may result in suspension or dismissal. Dismissal from a college for academic dishonesty, constitutes dismissal from the University.

备注说明：

1．带*内容为必填项。

2．课程简介字数为 300-500 字；课程大纲以表述清楚教　　程