**《听力科学》课程教学大纲（2020版）**

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| 课程基本信息（Course Information） | | | | | | | |
| 课程代码（Course Code） | FL3301 | | \*学时（Credit Hours） | 64 | | \*学分（Credits） | 4 |
| \*课程名称（Course Name） | （中文）听力科学 | | | | | | |
| （英文）Hearing Sciences & Lab | | | | | | |
| 课程类型 (Course Type) | 线上授课 | | | | | | |
| 授课对象（Target Audience） | 本科生 | | | | | | |
| 授课语言 (Language of Instruction) | 全英语 | | | | | | |
| \*开课院系（School） | 外国语学院 | | | | | | |
| 先修课程（Prerequisite） |  | | 后续课程 (post） |  | | | |
| \*课程负责人（Instructor） | 刘畅 | | 课程网址 (Course Webpage) |  | | | |
| \*课程简介（中文）（Description） | （中文300-500字，含课程性质、主要教学内容、课程教学目标等）  本课程为听力科学基础必修课程，将作为美国德克萨斯大学全球课堂项目课程之一，向来自美国德克萨斯大学、中国上海交通大学等高校的本科生开设，旨在促进学生跨文化沟通交流的能力，培养学生宽广的全球视野。  课程形式包括授课和实践操作。通过本课程的学习，学生将掌握：1）声音的物理属性，2）听觉处理与感知的生理和心理属性。同时，课程将结合学生的专业和文化背景，着重讨论语言和文化背景对言语、语言的影响以及语音和非语音的听觉处理机制，帮助学生开展有效的跨学科学习，掌握扎实的听力学专业基础知识。 | | | | | | |
| \*课程简介（英文）（Description） | This is an introductory course for hearing science. This course is a UT Global Classroom Project class offered to the students at UT, and universities in China such as Shanghai Jiao Tong University (SJTU)., with an emphasis on the global interactions among students. This course is composed of lectures and/or labs and students are strongly recommended to register for the 1-credit lab (SLH 113P, Hearing Science Lab). This course will explore two general topics related to the hearing process: (1) the physics of sound, and (2) auditory processing and perception of sound. In particular, the class is focused on how language and cultural backgrounds of listeners on their speech production and auditory processing of non-speech and speech sounds. This course is also flagged with global culture at UT. | | | | | | |
| 课程目标与内容（Course objectives and contents） | | | | | | | |
| \*课程目标 (Course Object) | There are two major areas in this class. The learner outcomes are listed in the three areas in which students will be able to:   1. Acoustics    1. Describe the basic concepts in physics related to acoustics    2. Explain generation and properties of sinusoidal and complex sound waves    3. Analyze acoustic properties of sounds    4. Speech acoustics and synthesis 2. Auditory processing    1. Describe auditory pathways, peripheral and central.    2. Explain cochlear mechanics and physiology    3. Understand basic psychoacoustic methods    4. Explain auditory sensations such as sensitivity, intensity resolution, frequency resolution, and temporal resolution.    5. Interpret auditory perception of complex sounds like speech sounds | | | | | | |
| \*教学内容进度安排及对应课程目标 (Class Schedule & Requirements & Course Objectives) | 章节 | 教学内容（要点） | 学时 | 教学形式 | 作业及考核要求 | 课程思政融入点 | 对应课程目标 |
| 示例： | | | | | | |
|  | Overview of the course |  | Lecture |  |  |  |
|  | Basic physics and Nature of sounds  Sinusoidal wave (I) |  | Lecture | Supplemental reading  Chapt. 2 (Yost); Chapt. 1 (Lass) |  | 1a |
|  | LABOR DAY,  No Class  **Quiz 1;** Sinusoidal wave (II); |  | Quiz | Chapt. 2 (Yost); Chapt. 1 (Lass)  Quiz 1 |  |  |
|  | Log, antilog, and their laws and sound decibel (I)  Sound intensity and decibels (II) |  | Lecture | Supplemental reading  Chapt. 3 (Yost); Chapt. 1 (Lass) |  | 1a |
|  | Complex sounds (I)  **Quiz 2;** Complex sounds (II) |  | Lecture | Chapt. 4 (Yost); Chapt. 1 (Lass)  Quiz 2 |  | 1b, 1c |
|  | Sound propagation and resonance  Speech acoustics (I) |  | Lecture | Supplemental reading |  | 1b, 1c, 1d |
|  | Speech acoustics (II)  **Quiz 3;** Speech acoustics (III) |  | Lecture | Supplemental reading  Quiz 3 |  | 1d |
|  | Music acoustics (I);  Music acoustics (II) |  | Lecture | Supplemental reading |  | 1d |
|  | **Exam 1**  Outer and middle ear |  | Lecture | Chapt. 6 (Yost); Chapt. 2 (Lass)  Exam 1 |  | 2a |
|  | Cochlear anatomy  **Quiz 4**; Cochlear physiology |  | Lecture | Chapt. 7 & 8 (Yost); Chapt. 3 (Lass)  Quiz 4 |  | 2a, 2b |
|  | Auditory nervous system  Introduction to psychoacoustics |  | Lecture | Chapt. 15 & 10 (Yost); Chapt. 4 & 15 (Lass) |  | 2a, 2c |
|  | Auditory discrimination (I)  **Quiz 5;** Auditory discrimination (II) |  | Lecture | Chapt. 11 (Yost); Chapt. 5 (Lass)  Quiz 5 |  | 2c, 2d |
|  | Masking and critical band (I)  Masking and critical band (II) |  | Lecture | Chapt. 11 (Yost); Chapt. 6 (Lass) |  | 2c, 2d |
|  | **Quiz 6;** Loudness and pitch (I) Thanksgiving break, No Class. |  | Lecture | Chapt. 11 (Yost); Chapt. 7 (Lass)  Quiz 6 |  |  |
|  | Loudness and pitch (II)  Language and culture effect on auditory perception |  | Lecture | Chapt. 11 (Yost); Chapt. 7 (Lass) Supplemental reading |  | 2c, 2e |
|  | **Exam 2** |  | Exam | Exam 2 |  |  |
| 注1：建议按照教学周周学时编排。  注2：相应章节的课程思政融入点根据实际情况填写。 | | | | | | |
| \*考核方式 (Grading) | **Quiz:** There will be biweekly quizzes (totally six) on Wednesdays except Quiz 6 (for details, please see the tentative schedule at the end of this syllabus). The quizzes may not be taken at an alternative time unless there is some documented or reasonable excuse. An example of a documented, excused absence is a note from a doctor that states you are physically UNABLE to attend the final. Another example of a documented excused absence is family emergency for which you need to contact Dean’s office for details. There is no need to have the doctor’s note for the class absence if you do not feel well or there is a family member you need to take care of due to health or other reasons. Please let me know as soon as possible if there is a need to reschedule the exam/quiz. Each quiz will cover the contents from the last quiz/assignment/exam while each exam covers the entire section.  **Project:** There will be 6 projects, most of which are group projects. Project details and requirement including the deadline will be provided in a timely manner. The project deadline should be strictly followed. All project files and reports are required to be submitted electronically.  **Exam:** There will be 2 exams, each of which cover the materials on acoustics and auditory perception, respectively. Both exams are held in the regular class time on Mondays (Oct. 19 and Dec 7).  **Laboratory:** The laboratory (SLH 113P) on Monday serves two purposes: 1. Go through the projects; 2. In-class discussions on the topics of hearing science that will be provided in advance (in general one week before the discussion). More details are available at the syllabus of the lab course.  **Attendance Policy:** Attendance is required for this course. You NEED to contact the instructor at least three days before the class that you are going to miss. If any emergency, contact the instructor immediately when you are able to. Your attendance will be counted toward your final grade (see the Grading section for details).  **Grading:** There will be 6 biweekly quizzes, 6 projects, 2 exams, and in-class discussions (during the laboratory time and only applied for students who take the laboratory) for this course. For the final grade, the exams contribute 40%, projects contribute 40% (the best five of six projects counted), the quizzes contribute 20% with the lowest quiz dropped. There will be randomly BONUS quizzes/assignments in class. The grade of each bonus quiz ranges from 1 (fully correct), 0.5 (partially correct), 0 (incorrect) to -1 (absence from the class with no acceptable reasons). The bonus-quiz points will be added to the final grade with the range between -3 to 3.  ***Your FINAL grade follows the formula below:***  ***Final grade = 40% \* average exam grade + 40%\* average project grade + 20%\*average quiz/assignment grade + bonus-quiz points.***  For example, if your average grade of the exams, projects and quizzes are 90, 90, and 80 respectively, and you get 2 in-class quiz-bonus credits, your final grade is 40%\*90 + 40%\*90 + 20%\*80 + 2 = 90.  The overall cutoff scale is as follows (total points: 100):  93.0 – 100 A, 89.0 – 92.9 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.  *Please note: The grading standards are the same for all the evaluations including quizzes, exams, projects, and discussion (if applicable) regardless of the lab course is registered or not.* | | | | | | |
| \*教材或参考资料 (Textbooks & Other Materials) | （必含信息：教材名称，作者，出版社，出版年份，版次，书号）  Norman J. Lass and Charles M. Woodford (2006). Hearing Science Fundamentals, 1st Edition by Mosby.  William A. Yost (2006). Fundamental of hearing: an introduction, 5th Edition, by Brill Publisher.  The textbook will be supplemented with notes and readings. | | | | | | |
| 其它（More） |  | | | | | | |
| 备注（Notes） |  | | | | | | |
| 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学安排为宜，字数不限。 | | | | | | | |