University of Texas at Austin
Moody College of Communication
Department of Communication Sciences and Disorders
Course Syllabus

Semester: Summer 2020

Department, Course Number, Title and Credit Hours: CSD F313L, Hearing Science, 3 credits
Unique number: 72700
Class time: 7-8:30pm Mon. and Thu., web-based class

Instructor: Chang Liu, PhD
Email Address: changliu@utexas.edu
Office Hours: 11-12pm on Tue. or by appointment

Catalog Description: This is an introductory course for hearing science. This course is composed of lectures and/or labs and students are strongly recommended to register for the 1-credit lab (CSD 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.

Prerequisite(s): None

Textbook(s) and Related Material (recommended):

William A. Yost (2006). Fundamental of hearing: an introduction, 5th Edition, by Brill Publisher.

Norman J. Lass and Charles M. Woodford (2006) Hearing Science Fundamentals, 1st Edition by Mosby

The textbooks will be supplemented with notes and readings.

Format of lectures: PowerPoint lecture notes will be available at Canvas as well as recorded lectures with PPT notes. The online sessions will be composed of the review of the class materials from the last online session and the instruction of how to conduct the class project.

Technology Expectations: PowerPoint presentation will be used in most of the lectures.

Learner Outcomes:

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
    a. Describe the basic concepts in physics related to acoustics
    b. Explain generation and properties of sinusoidal and complex sound waves
    c. Analyze acoustic properties of sounds
    d. Speech acoustics and synthesis
2. Auditory processing
    a. Describe auditory pathways, peripheral and central.
    b. Explain cochlear mechanics and physiology
    c. Understand basic psychoacoustic methods
    d. Explain auditory sensations such as sensitivity, intensity resolution, frequency resolution, and temporal resolution.
    e. Interpret auditory perception of complex sounds like speech sounds

Quizzes and Exams: Quizzes and exams will be taken and proctored online on Canvas at a certain time/day. 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 and excused absence is a doctor note. 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 will cover the contents from the last quiz/exam while each exam covers the entire section (Acoustics, and Psychoacoustics).

Time for Quizzes and Exams: The quiz will take 20 mins from 7:00pm to 7:20pm and the exam will take 1.5 hours from 7:00 to 8:30pm on the quiz/exam day. The quiz and exam will not be accessible at Canvas until the assigned time slot. For example, the exam 1 is scheduled on June 22nd (Monday), meaning the exam will be accessible only between 7:00 and 8:30pm on that day. You need to download the exam, finish it, and then submit it to Canvas within the 1.5-hour slot (instructions of how to do so will be released before the exam). If the exam day happens to be on Mon. or Thu., there is no online class on that day. If the quiz day happens to be on Mon. or Thu., we will have the online class after the quiz. If the quiz/exam is scheduled on days other than Mon. and Thu., there is ONLY a quiz/exam on that day, NO online meetings.

Project: There will be three 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. For the group project, each group will be composed of five to six students and only one project submission is needed with everyone in the same group receiving the same project grade.

Attendance Policy: Attendance on two time-synchronous (live) online sessions per week using Adobe Connect is required for this course. The online meeting will be held by Adobe Connect on ***Monday and Thursday evening 7:00-9:00pm.***. The online session from 7 to 9pm on Mon. and Thu. combines the time of lecturing and lab. The website for the meeting will be released 1-2 days in advance. 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. You attendance will be counted toward your final grade (see the Grading section for details). In addition to the Mon. and Thu. online meetings, there may be some other online meetings for the purpose of sectional reviews and these additional meetings are not required, but highly recommended if needed. The time/date of the additional sessions will be informed at least three days in advance.

Grading: There will be **TWO** exams, **THREE** projects, and **FOUR** quizzes for this course. For the final grade, the exams contribute 40% with each taking 20%, while the projects contribute 45% with each taking 15% with the quizzes contributing 15% (e.g., the best three of the four quizzes counted). There will be randomly **BONUS** quizzes in online classes. 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 = 40%* average exam grade + 45%*average project grade + 15*average quiz grade + bonus-quiz points.
For example, if your average grade of the two exams, three projects, and four quizzes are 85, 95, and 95 respectively, and you get 2 in-class quiz-bonus credits, your final grade is 40%*85 + 45%*95 + 15%*95 + 2 = 93.
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.

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 the 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.

Special Needs: In case you have a physical, perceptual, psychiatric/emotional, medical, or learning disability that may impact your ability to carry out assigned course work, contact the Service for Students with Disability (SSD), Student Services Building 4.104. (Voice 512-471-6259 or 512-471-TTY for users with hard of hearing) at the Office of the Dean of Students. SSD will review your concerns, confirm your disability, and determine, with you, what accommodations are necessary. All information and documentation of your disability is confidential and will not be released by SSD without your written permission. A letter that documents the disability from the SSD should be presented to the instructor in each course at the beginning of the semester and accommodations needed should be discussed at that time. Five business days before an exam the student should remind the instructor of any testing accommodations that will be needed.

See website below for more information: http://www.utexas.edu/diversity/ddce/ssd/

Campus Safety: Emergency Preparedness and Emergency Plan Instructions: Although this is a web-based class, emergency may occur. Emergencies may range from inclement weather, to building evacuations, to campus closures, and the university has a variety of tools to communicate with the public in the event of these and other possible emergencies. There is a monthly emergency communications test (every first Wednesday at 11:50 a.m.)) and there are several communications channels the university uses during emergencies like siren system, emergency website, local press and social media, text alert, university group email and etc. All occupants of university buildings are required to evacuate a building when a fire alarm and/ or an official announcement is made indicating a potentially dangerous situation within the building. Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building. If you require assistance in evacuation, inform

your instructor in writing during the first week of class. Please call Behavior Concerns Advice Line (BCAL: 512-232-5050) if you have concerns regarding the attitude or actions of students, staff, or other faculty. If you would like more information regarding emergency preparedness, visit http://www.utexas.edu/safety/preparedness/.

Counseling and Mental Health Services

Taking care of your general well-being is an important step in being a successful student. If stress, test anxiety, racing thoughts, feeling unmotivated or anything else is getting in your way, there are options available for support.

For ***immediate*** support:
- Visit/Call the Counseling and Mental Health Center (CMHC): M-F 8-5p | SSB, 5th floor | 512-471-3515 |cmhc.utexas.edu
- CMHC Crisis Line: 24/7 | 512.471.2255 | cmhc.utexas.edu/24hourcounseling.html

CARE Counselor in the Moody College of Communication is: Abby Simpson, LCSW
- |CMA 4.134 | 512-471-7642 (Please *leave a message* if she is unavailable)

FREE Services at CMHC:
- Brief assessments and referral services
- Mental health & wellness articles - cmhc.utexas.edu/commonconcerns.html
- MindBody Lab - cmhc.utexas.edu/mindbodylab.html
- Classes, workshops, & groups - cmhc.utexas.edu/groups.html

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 for quizzes and exams.
2. **Canvas** will be frequently used for the class, mainly for general course information, class notes, discussion, communication and etc.
3. Pay attention to **figures and pictures** in the book and readings, which are usually helpful to understand the texts.
4. If you have any difficulty or concern for the course, come to talk with me **AS SOON AS POSSIBLE!**

Tentative Course Schedule: NOTE – This schedule is tentative and may be changed during the summer session.

Date	**Syllabus**	**Reading schedule (Yost)**	**Reading schedule (Lass)**
Jun. 4	Overview of the course		
Jun. 5	Basic physical concepts and nature of sound	Supplemental readings	Supplemental
Jun. 8	**Quiz 1;** Sinusoidal wave (I);	Chapt. 2	Chapt. 1
Jun. 9	Sinusoidal wave (II);	Chapt. 2	Chapt. 1
Jun. 10	Exponent and logarithm	Supplemental readings	Supplemental
Jun. 11	Sound intensity and decibel (I);	Chapt. 3	Chapt. 1
	Project 1 – sine wave generation (individual)	Chapt. 3	Chapt. 1
Jun. 12	Sound intensity and decibel (II)		
Jun. 15	**Quiz 2**; Complex wave (I)	Chapt. 4	Chapt. 1
Jun. 16	Complex wave (II)		
Jun. 17	Speech acoustics (I)		
Jun. 18	Speech acoustics (II)		
	Project 2 – Vowel acoustics (group)		
Jun. 19	Speech acoustics (III) – culture and language effect		
Jun. 22	**EXAM 1;** Intro. to A&P	Supplemental readings	Supplemental
Jun. 23	Outer and middle ear	Chapt. 6	Chapt. 2
Jun. 24	Cochlea	Chapt. 7, 8	Chapt. 3
Jun. 25	Central auditory system	Chapt. 15	Chapt. 4
Jun. 26	Introduction to Psychoacoustics	Chapt. 10	Chapt. 15
Jun. 29	**QUIZ 3;** auditory discrimination (I)	Chapt. 11	Chapt. 5
	Project 3 – auditory discrimination (group)		
Jun. 30	Auditory discrimination (II)		
Jul. 1	Masking and critical band (I)	Chapt. 11	Chapt. 6
Jul. 2	Masking and critical band (II)	Chapt. 11	Chapt. 6
Jul. 3	Independence day observed, No class		
Jul. 6	**QUIZ 4;** Loudness and pitch perception (I)	Chapt. 11	Chapt. 7
Jul. 7	Loudness and pitch perception (II)	Chapt. 13	Chapt. 7
Jul. 8	Auditory perception – culture and language effect		
Jul. 9	**EXAM 2**		