

## 课程大纲 COURSE SYLLABUS

1.	<b>课程代码/名称</b> Course Code/Title	听觉科学及信号检测技术 (Auditory Science & its signal detection techniques)
2.	<b>课程性质</b> Compulsory/Elective	Elective
3.	<b>课程学分/学时</b> Course Credit/Hours	3
4.	<b>授课语言</b> Teaching Language	English
5.	<b>授课教师</b> Instructor(s)	陈放怡 Fangyi Chen
6.	<b>是否面向本科生开放</b> Open to undergraduates or not	否 No
7.	<b>先修要求</b> Pre-requisites	(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) 普通物理 Physics
8.	<b>教学目标</b> Course Objectives	(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) This course examines the physiology & pathology of auditory system, with emphasis on techniques to detect and measure the function and responses of the system.
9.	<b>教学方法</b> Teaching Methods	(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) Mostly lectures, and a few lab demonstrations.
10.	<b>教学内容</b> Course Contents	(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)
	<b>Section 1</b>	Introduction to the auditory system
	<b>Section 2</b>	Middle Ear mechanics
	<b>Section 3</b>	Microscopic imaging of the middle ear
	<b>Section 4</b>	Inner ear mechanics & cochlear amplification
	<b>Section 5</b>	Vibration measurement on the biological tissues
	<b>Section 6</b>	Hair cells & mechano-electrical-transduction
	<b>Section 7</b>	Modelling of the inner ear
	<b>Section 8</b>	Hearing loss: Ototoxicity & noise exposure
	<b>Section 9</b>	Examination of the hearing loss

	<b>Section 10</b>	Hierarchy of the auditory system
	<b>Section 11</b>	Electrical activity along the auditory neural pathway
	<b>Section 12</b>	Measurement of the weak physiological signals
	<b>Section 13</b>	Vestibular system
	<b>Section 14</b>	Stimulation to the vestibular system & its responses
	<b>Section 15</b>	Animal models for hearing loss
	<b>Section 16</b>	Recent advances in inner ear physiology
<b>11.</b>	<b>课程考核 Course Assessment</b>	
	<p>( ① 考核形式 Form of examination; ② .分数构成 grading policy; ③ 如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)</p> <p>1. Attendance 20%; 2. Homework 30%; 3.Review papers 50%</p>	
<b>12.</b>	<b>教材及其它参考资料 Textbook and Supplementary Readings</b>	
	<p><b>An Introduction to the Physiology of Hearing: Fourth Edition by James Pickles</b> <b>Hearing: Anatomy, Physiology, and Disorders of the Auditory System Third Edition by Aage R. Møller</b></p>	