



Jordan University of Science and Technology
Faculty of Applied Medical Sciences
Audiology & Speech Pathology Department

AS225 Anatomy And Physiology Of Hearing
First Semester 2024-2025

Course Catalog
2 Credit Hours. Detailed study of the anatomical and physiological properties of the human auditory system. Also, the content of this course will also cover the basic psychoacoustical features related to auditory perception.
Teaching Method: On Campus

Text Book	
Title	The Auditory System: Anatomy, Physiology, and Clinical Correlates
Author(s)	Frank E. Musiek & Jane A. Barn
Edition	2nd Edition
Short Name	Ref # 1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref # 2	Hearing Anatomy, Physiology, and Disorders of the Auditory System	Aage Moller	3rd Edition	

Instructor	
Name	Miss Sumaia Alshajrawi
Office Location	Hearing & Speech Clinic at KAUH
Office Hours	Sun : 09:30 - 10:30 Mon : 10:30 - 11:30 Tue : 09:30 - 10:30 Tue : 13:00 - 14:00 Wed : 11:30 - 13:30
Email	ssalshajrawi2@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue : 11:30 - 12:30 Room: N1303

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Introduction to the course + Anatomy & physiology of the outer ear	Ch 2 From Ref # 1
Week 2	Physiology of the outer ear + Anatomy of the tympanic membrane	Ch 2 + 3 From Ref # 1
Week 3	Physiology of the tympanic membrane + Anatomy of the middle ear	Ch 3 From Ref # 1
Week 4	Anatomy of the middle ear	Ch 3 From Ref # 1
Week 5	Physiology of the middle ear	Ch 3 From Ref # 1
Week 6	Anatomy of the cochlea	Ch 4 From Ref # 1
Week 7	Cochlear Physiology I: Mostly mechanics	Ch 5 From Ref # 1
Week 8	Midterm Exam	Ch 4+5 From Ref # 2
Week 9	Cochlear physiology II: Mostly electrophysiology	Ch 6 From Ref # 1
Week 10	Structure & Function of the auditory nerve	Ch 7 From Ref # 1
Week 11	The central auditory system: The cochlear nucleus & Superior olivary complex	Ch 8 + 9 From Ref # 1
Week 12	The central auditory system: The lateral lemniscus, inferior colliculus, & the medial geniculate body	Ch 10 + 11 From Ref # 1
Week 13	The auditory cortex & subcortex	Ch 12 From Ref # 1

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Give a brief introduction about the anatomy and physiology of auditory system.	1%	
Describe the anatomy of pinna and external auditory canal.	2%	

Describe the physiological functions of pinna and external auditory canal.	3%	
Explain all the nerves, arteries, and veins responsible for the innervation and blood supply of pinna and external auditory canal.	1%	
Define the position and the layers composed the tympanic membrane.	1%	
List the main landmarks served as a clue for a normal tympanic membrane.	10%	
Explain the role of tympanic membrane in processing the auditory signal.	3%	
Explain the anatomy of the ossicular chain and the Eustachian tube.	12%	
Identify the main functions of ossicular chain and Eustachian tube.	5%	
Define the lever action of ossicular chain and mechanical advantage arises from this action.	2%	
Name the muscles attached the small bony ossicles in addition to describe their involvement in hearing process.	2%	
Explain the innervation and blood supply of the middle ear.	5%	
Explain the main two sensory parts of the inner ear, hearing and vestibular systems.	1%	
Describe the cochlear structures and substructures participating in hearing sense.	1%	
Explain the composition, source, and location of the perilymph and endolymph fluids inside the cochlea.	1%	
Explain the process of converting the mechanical energy to hydroelectric impulses done by cochlear structures.	5%	
Learn the differences in the shape, anatomy, location, and function between the outer and inner hair cells.	3%	
Explain the efferent and afferent neural systems attached to the outer and inner hair cells, respectively.	6%	
Name the common electrical potentials of the cochlea and eight cranial nerve.	4%	
Understand the process of initiating the action potential.	2%	
Describe the neural transmission of the electrical signals through the vestibulocochlear nerve.	2%	
Learn the variations in the physiology and anatomy of the cochlear and vestibular branches of eight cranial nerve.	1%	
Discuss the central auditory pathways and define major nuclei involving in the auditory signal processing.	18%	
Explain the anatomy and physiology of vestibular structures inside the inner ear.	9%	

Relationship to Program Student Outcomes (Out of 100%)					
PLO1	PLO2	PLO3	PLO4	PLO5	PLO6

Evaluation	
Assessment Tool	Weight
Midterm Exam	50%
Final Exam	50%

Policy	
Statement of Professionalism	Professional behavior is expected of students at all times. Attitude and professional behavior are a minimum criterion for passing this class. Examples of unprofessional behavior include but are not limited to: missing classes, tardiness, lack of attention for a speaker, talking to others during lecture, leaving a lecture prior to its completion without prior authorization of the instructor, and working on other class material during class.
Cheating	The student should maintain a high level of academic integrity; plagiarism and cheating in exams are punishable according to the University's laws and regulations.
Attendance	University regulations will be applied. Students are not allowed to be absent for more than 20% of lectures for any reason or excuse. If a student exceeds the absence limit, he or she will not be allowed to sit for future course exams. (Please review university regulation for more details)
Make-up Exams	Make-up exams is entitled for students who miss the exam with accepted legal or medical excuse endorsed by the instructor within 24 hours after the scheduled exam (Please review university regulation for more details).
Feedback	Concerns, complaints, questions, and feedback are welcomed & appreciated. You can contact your instructor using the e-mail or during office hours.

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