



California State University, Sacramento

Department of Communication Sciences and Disorders

GRADUATE SYLLABUS & COURSE OUTLINE

Semester/Year: Fall/2020	Course: CSAD 611- Anatomy and Physiology of the Auditory and Vestibular Systems	Section: 01
Meeting Days: TTH	Meeting Times: 5:00 PM-6:15 PM	Location: Synchronous Online/Zoom
Instructor: Charles Sanders, AuD	Email: csanders@csus.edu	Phone: 916-278-6631
Office Location: Zoom Meetings	Office Hours/Appointments: Monday and Wednesday 4:30p -5:00p and 6:15-7p by appointment. Via Zoom	

Catalogue Course Description:

CSAD 611. Anatomy and Physiology of the Auditory and Vestibular Systems

3 Units

Prerequisite(s): Admission to the Doctor of Audiology program

Term Typically Offered: Fall only

Anatomical, physiological, and neurological bases of the auditory system and central nervous system. Covers embryologic development, including genetic factors, and normal structure and function. Anatomical and physiological bases of the vestibular system, including congenital, peripheral and central, and neurologic factors will also be introduced.

Place of Course in Program

This course is designed to provide first-year Doctor of Audiology students with an understanding of the anatomy and physiology of the peripheral and central auditory and vestibular systems. The focus of this course will be on the structure and function of normal auditory and vestibular systems. Basic neuroscience, including the biochemistry of hearing and balance, will also be discussed.

Sacramento State Graduate Learning Goals (GLG)	Addressed by this course (Y/N)
Disciplinary knowledge: <i>Master, integrate, and apply disciplinary knowledge and skills to current, practical, and important contexts and situations.</i>	Y
Communication: <i>Communicate key knowledge with clarity and purpose both within the discipline and in broader contexts.</i>	N
Critical thinking/analysis: <i>Demonstrate the ability to be creative, analytical, and critical thinkers.</i>	N
Information literacy: <i>Demonstrate the ability to obtain, assess, and analyze information from a myriad of sources.</i>	N
Professionalism: <i>Demonstrate an understanding of professional integrity.</i>	N
Intercultural/Global Perspectives: <i>Demonstrate relevant knowledge and application of intercultural and/or global perspectives.</i>	N

Course Learning Outcomes:

GRADUATE

Mastery of each student-learning outcome listed below is indicated by a grade of B or better on each component of the corresponding measures listed in the table. Students are required to track their progress towards meeting each learning outcome and must make an appointment with the instructor for any grade equal to or less than a B. The instructor will suggest strategies to help you establish competence and knowledge in these areas.

CSAD 611: SPECIFIC STUDENT LEARNING OUTCOMES

Upon completion of this course, students will be able to:

1. Identify key structures of the peripheral and central auditory system and vestibular system
2. Describe the normal developmental anatomy of the various structures in the auditory and vestibular systems
3. Explain the physiology of key anatomical structures
4. Explain the role and interaction of various structures in the transduction and perception of sound

Students should track their progress towards meeting each learning outcome by listing their grades on the table below over the course of the semester.

Course Learning Outcome	Components Indicating Competence	Grades Received
1	Quiz 1	
1	Quiz 2	
2	Quiz 3	
2	Quiz 4	
2	Quiz 5	
2	Quiz 6	
2	Quiz 7	
3	Quiz 8	
3	Quiz 9	
1,2,3	Exam 1	
3	Quiz 10	
3	Quiz 11	
4	Quiz 12	
1, 2, 3, 4	Exam 2	

1	Quiz 13	
1	Quiz 14	
1	Quiz 15	
1	Quiz 16	
1, 2, 3, 4	Midterm 3	
6	Quiz 17	
3&4	Project	
6	Quiz 18	
1	Quiz 19	
1	Quiz 20	
3&4	Presentation	
3&4	Paper	
1, 2, 3, 4	Final Exam	

Knowledge And Skills Acquisition (KASA) For Certification in Audiology

CSAD 611: Anatomy and Physiology of the Auditory and Vestibular Systems

Scientific and Research Foundations

- The basic sciences

Standard II-A: Foundations of Practice

- A1. Genetics, embryology and development of the auditory and vestibular systems, anatomy and physiology, neuroanatomy and neurophysiology, and pathophysiology of hearing and balance over the life span

Standard II-C: Audiologic Evaluation

- C4. Identifying, describing, and differentiating among disorders of the peripheral and central auditory systems and the vestibular system

Required Textbooks and Materials:

American Psychological Association. (2020). Publication Manual of the American Psychological Association (7th Ed.). Washington, DC: American Psychological Association.

Jacobson, G., Shepard, N., Barin, K., Burkard, R., Janky, K., McCaslin, D. (Editors), (2021). Balance Function Assessment and Management, (3rd ed.). San Diego: Plural Publishing.

Musiek, F. & Baran, J. (Eds.) (2020). The Auditory System: Anatomy, Physiology, and Clinical Correlates, (2nd edition). San Diego: Plural Publishing.

Online Resources:

Access the CSUS Library is a requirement of this course. Please become familiar with library access and login information as quickly as possible. This will make your life much easier. Link the CSUS Library to any scholarly search engine you use as this will give you access to required readings of journal articles. Do not pay for any articles. As a CSUS student you should have free access to the library and its resources. The Department has access to the Health Sciences Librarian Rachel Stark. She is available to you for assistance and questions on how to utilize the library effectively.

<https://library.csus.edu/directory/rachel-stark>

Access to CANVAS is a requirement of this course. Campus computers are available for student use in many locations. Laptops are available to loan out as needed. Please contact the Department for further information. This course is posted on CANVAS. All lecture material and required readings not in the text book will be available only on CANVAS. I do not recommend printing the lectures until the day before class as the content could possibly change. Grades and statistics for the tests will be posted on CANVAS. Please forward interesting links to me as I will post them for the benefit of the entire class. Required readings will be posted in WORD or PDF format on CANVAS. All submissions must be in WORD or PDF format.

Mac PAGES submissions will not be accepted.

Course Requirements/Components:

Microsoft Office Suite

- WORD
- EXCEL
- POWER POINT
- Adobe Reader

Grading Policy:

Assessments: All assessment will be given online during synchronous class periods. These assessments will include 1 Paper, 1 Presentation, 1 Project, 4 Midterms, and 20 Quizzes.

Midterms: There will be 4 midterms given throughout the semester. The midterms will include a combination of multiple choice questions, short answer and essay questions. The value of each midterm is listed below. Each midterm will cover the topics of each section. This class is cumulative. You will need to have a good understanding of the material to continue to the next section. All previous subject matter maybe tested during these exams. All midterms are required. (280 points) **There are NO MAKE-UPS.**

Quizzes: There will be 20 short quizzes. The quizzes will be given each class period through CANVAS.. **There are NO MAKE-UPS.** The quizzes will include areas covered in the previous class period and the current readings. Each quiz will be worth 20 points. (227 points)

Discussions: The discussion section on Canvas there are five sections. Four of the sections are graded. Please post to the questions by the due dates. The main section "Ask Questions Here" is for us to ask questions of each other, and form study groups. This is present for you to be able to communicate with each other and myself outside of class. Please ask questions here. You may not be the only one with the same question. (105) See Canvas for Rubric.

Paper: Write a research paper about one aspect of the physiology of human audition. You may choose your own topic but will need approval of that topic in advance. Requirements: 7-10 pages, use the APA format, minimum of 10 citations of peer reviewed articles or textbooks. (100 points) See Canvas for Rubric.

Presentation: You will then present that paper in class to your peers. This will be a 15-minute presentation. They will be given live during synchronous class time. (100) See canvas for Rubric.

Project: The project consists of creating a model of the aspect of auditory mechanism that best matches your paper. Using materials of your choosing make a 3D model detailing this portion of the human auditory mechanism. You will show your model on camera the week of thanksgiving. (100) See Canvas for Rubric.

The Final Grade will be based on a percentage of total points (945) and will be assigned as follows:

Source	Points	% of Grade
Midterm 1	70	7.0%
Midterm 2	77	7.7%
Midterm 3	71	7.1%
Final Exam	150	15.0%
All Exams	368	36.8%
Quizzes		
Quiz 1	10	1.0%
Quiz 2	10	1.0%
Quiz 3	12	1.2%
Quiz 4	8	0.8%
Quiz 5	18	1.8%
Quiz 6	11	1.1%
Quiz 7	16	1.6%
Quiz 8	10	1.0%
Quiz 9	10	1.0%
Quiz 10	15	1.5%
Quiz 11	10	1.0%
Quiz 12	10	1.0%
Quiz 13	10	1.0%
Quiz 14	12	1.2%
Quiz 15	10	1.0%
Quiz 16	10	1.0%
Quiz 17	12	1.2%
Quiz 18	10	1.0%
Quiz 19	13	1.3%
Quiz 20	10	1.0%
All Quizzes	227	22.7%
Other Assignments		
Discussions	105	10.5%
Project	100	10.0%
Presentation	100	10.0%

Paper	100	10.0%
Total	1000	100.0%

Letter grades are assigned according to the following scores:

Points	%	Letter
1000-950	93-100%	A
949-900	90-92.99%	A-
899-870	87-89.99%	B+
869-830	83-86.99%	B
829-800	80-82.99%	B-
799-770	77-79.99%	C+
769-730	73-76.99%	C
729-700	70-72.99%	C-
699-670	67-69.99%	D+
669-630	63-66.99%	D
629-600	60-62.99%	D-
599 or below	59.99 or Below	F

Course Policies/Procedures:

Remediation: *If you receive a midterm grade lower than a B, you are required to sign up for an office hour to discuss your exam. If you cannot come during office hours, I will set up a special appointment time with you. I will analyze your exam with you and identify areas where you have had difficulty with specific course learning outcomes/competencies. I will give you specific strategies and suggestions that will help you establish competence and knowledge in these areas.*

Make-up Policy: There are no make-up quizzes or exams. Your attendance is required at every class period to take these quizzes and exams. The syllabus clearly states necessary dates. Your lowest quiz will be dropped. This is provided to you to allow unforeseeable events preventing you from taking a quiz. No make-up exams are given unless there is a documented medical emergency with written proof. Being late for an exam or quiz will not entitle you to extra time. Please make sure you arrange your schedules to be here on time for the exams. If you miss a short quiz because you are late for class or absent you will not be given another to make up.

Email: Students in the Au.D. program are required to maintain an active CSUS email address, which is linked to the student ID number. Official emails will be sent through CSUS email. Students are expected to regularly check their CSUS emails.

Scholarly Writing and Publishing Principles: The course (and this entire program) will follow the Publication Manual of the American Psychological Association for citation (APA Style). You will be provided with those guidelines. It would also serve you better if you were to purchase the APA manual.

Readings: The assigned readings are not optional you will be tested on the material. The material will only be covered briefly in class. All readings will have their links posted on Canvas or be list on Cavass for your required Texts. This course requires extensive reading. Information from these readings will be on the exams. Be prepared and read all reading assignments prior to class.

Policy on attendance: Students are expected to arrive in class on time, prepared to participate and engage in classroom activities for both in-person and synchronous/virtual interactions. Students are responsible for class content, lecture materials, assignments, announcements, and must be aware of changes in the class schedule. Your attendance is required daily. Assessments will be given each class session. In order to perform well you must be

present on the zoom call. Students are advised that instructional faculty may include an attendance policy in courses, which may require attendance as part of the student’s course grade. These policies will be set in the syllabus.

Given the full-time, intensive nature this doctoral program, it is important that students contact instructors if they are absent or are anticipating absence, especially over an extended period of time. In the case of the latter, the Au.D. Program Director must also be notified.

Group Discussions: If you need to speak to your classmate on an issue not pertaining to the lecture please use the chat feature. Refer to the netiquette section on Canvas for more specifics. If it pertains to the class please ask me or address the entire class. Please keep your behavior in class professional.

Academic conduct

Students enrolled in the Au.D. program must adhere to the Department and University policies on academic misconduct. Please see the department’s policy on academic misconduct (“Policy on Student Academic and Clinical Conduct”). The following are expectations for professional behavior in the classroom:

- Ethics: Students must uphold the ethical standards set forth by professional bodies in the field (see Appendices C and D of the Au.D. Student Handbook).
- Respect: Students should demonstrate respect to their peers, instructors, and staff.
- Feedback: Students are expected to self-reflect and modify their work in response to feedback, while displaying non-defensive behavior to suggestions.
- Health: Students should maintain their personal wellness and health, attending to any needs in a timely fashion in order to support their academic and professional growth.
- Attire: Students should dress appropriately for class. Classes may be held in clinic space, so students are expected to observe the clinic dress code.
- Accountability: Students are expected to be accountable, honest, and professional for their activities and communications. The general principles of ethical behavior should be applied to their coursework, evaluations, and examinations.
- Language: Students should demonstrate professional oral and written communication, including emails. Discretion and professional language should be used in all modalities, emphasizing constructive rather than reactive use.
- Scholarship: Students should take an active role in their learning, recognizing their deficiencies and seeking to correct them, as part of their commitment to lifelong learning.
- Effort: Students should collaborate and work to complete tasks and assignments on time or by the set deadline. Students are expected to follow through on all activities while maintaining professionalism and intellectual curiosity.

TENTATIVE Course Schedule/Outline:

<i>Date</i>	<i>Topic/Lecture</i>	<i>Written Instructional Material</i>	<i>Assignments/ Assessments/ Deliverables</i>
Week 1 September 1	Introduction to class; anatomical direction and planes; overview of anatomy of auditory system.	Syllabus Cardon, G., Campbell, J., Sharma, A. (2012). Plasticity in the Developing Auditory Cortex: Evidence from Children with Sensorineural Hearing Loss and Auditory Neuropathy Spectrum Disorder. <i>Journal of the</i>	Discussion Introduction Video Discussion (20) Due Sept 10

		<p><i>American Academy of Audiology</i>. 23, 396-411.</p> <p>Musiek, F. & Baran, J. (Eds.) (2020). The Auditory System: Anatomy, Physiology, and Clinical Correlates, (2nd ed). (Ch.1). San Diego: Plural Publishing.</p>	
September 3	Embryology	<p>Peck, J. (1994). Development of Hearing Part II: Embryology. <i>J Am Acad Audiol</i> 5, 395-365.</p> <p>Litovsky, R. (2015). Handbook of Clinical Neurology, Vol. 129 (3rd series) The Human Auditory System. (pp. 55-72). Cambridge, MA, Elsevier B.V.</p> <p>Musiek, F. & Baran, J. (Eds.) (2020). The Auditory System: Anatomy, Physiology, and Clinical Correlates, (2nd ed). (Ch. 2&16). San Diego: Plural Publishing.</p>	Quiz 1 : Anatomic Direction (10)
Week 2 September 8	Temporal bone External Ear	<p>da Silva, R., Papin, A., Blasca, Q., Wanderlécia, Lauris, P., Roberto, J., Oliveira, M., Jerusa, R. (2013) Correlation between the characteristics of resonance and aging of the external ear. Study carried out at the Department of Speech-Language Pathology and Audiology, School of Odontology of Bauru, Universidade de São Paulo - USP - Bauru (SP), Brazil.</p> <p>Musiek, F. & Baran, J. (Eds.) (2020). The Auditory System: Anatomy, Physiology, and Clinical Correlates, (2nd ed). (pp. 333-334, Ch. 2). San Diego: Plural Publishing.</p>	Quiz 2: Embryology (10)
September 10	External Ear (cont.)	<p>Staab, W. (2014). The Human Ear Canal</p> <p>Liu, T.C., & Chen, Y.S. (2000). Aging and external ear resonance. <i>Audiology</i>, 39(5), 235-237</p> <p>Musiek& Baran- Ch. 2</p>	Quiz 3: Pinna (12)
Week 3 September 15	Middle Ear: Tympanum	<p>Musiek, F., (2018). The Internal Auditory Meatus (IAM): It's neuroanatomy & comment. Pathways</p>	Quiz 4: Temporal Bone (8)

		<p>Mei, X., Scharf-Moren, N., Li, H., Ladak, H., Agrawal, S., Behr, R., Rask-Andersen, H. (2019). Three-Dimensional Imaging Of The Human Internal Acoustic Canal And Arachnoid Cistern: A Synchrotron Study With Clinical Implications. <i>J. Anat.</i> 234, pp316-326.</p> <p>Musiek& Baran- Ch. 3&14</p>	
September 17	Middle ear: Tympanic membrane	<p>Fay, J., Puria, S., Steel, C. (2006). The Discordant Eardrum. <i>PNAS</i>, vol. 103, no. 52</p> <p>Aernouts, J. (2012). Mechanical Properties of the Tympanic Membrane: Measurement and Modeling. Pg. 57-67</p> <p>Boedts, Michael. (2020). Tympanic Resonance Hypothesis. <i>Frontiers in Neurology</i>. Vol. 11, Article 14</p> <p>Musiek& Baran- Ch. 3</p>	Quiz 5: Tympanum (18)
Week 4 September 22	<p>Middle Ear: Ossicular Chain</p> <p>Middle ear: Eustachian tube</p> <p>Choose Topics for Project and Paper</p>	<p>Szymanski A, Agarwal A. (2020). Anatomy, Head and Neck, Ear Eustachian Tube. Treasure Island (FL): StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK482338/</p> <p>Musiek& Baran- Ch. 3</p>	Quiz 6: Tympanic Membrane (11)
September 24	Middle Ear: Nerves and Acoustic Reflex	<p>Clark, J. Open access guide to audiology and hearing aids for otolaryngologists</p> <p>Mukerji, MD, Sudeep, Windsor, BA, Alanna Marie, and Lee, MD, Daniel J. (2010). Auditory Brainstem Circuits That Mediate the Middle Ear Muscle Reflex. <i>Trends in Amplification</i> 14(3) 170-19.</p> <p>Arslan, Michele. (1960). The innervation of the Middle Ear. <i>Proceedings of the Royal Society of Medicine</i>, Volume: 53 issue: 12, page(s): 1068-1074</p> <p>Musiek& Baran- Ch. 3</p>	<p>Quiz 7: Ossicular Chain (16)</p> <p>Discussion Week 4 (10)</p>

<p>Week 5 September 29</p>	<p>Middle ear: Impedance matching</p>	<p>Goode, MD, Richard, Killion PhD, Mead, Nakamura MD, Koshiro, Nishihara, MD, Shinsei. (1994) New Knowledge About the Function for the Human Middle Ear: Development of a New Analog Model. <i>The American Journal of Otology</i> Vol. 15, no. 2</p> <p>Musiek& Baran- Ch. 3</p>	<p>Quiz 8: Middle Ear Muscles (10)</p>
<p>October 1</p>	<p>Review for Exam 1</p>	<p>Musiek& Baran- Ch. 3</p>	<p>Quiz 9: Impedance Matching (10)</p>
<p>Week 6 October 6</p>	<p>Exam 1</p>		<p>Exam 1 (75)</p>
<p>October 8</p>	<p>Cochlea: Anatomy Organ of Corti, Nerves, Fluids and Blood Supply</p>	<p>Gopen Quinton, Rosowski John J., Merchant, Saumil N. Anatomy of the normal human cochlear aqueduct with functional implications. <i>Hearing Research</i>, Volume 107, Issues 1–2, May 1997, Pages 9-22.</p> <p>Shi X. (2011). Physiopathology of the cochlear microcirculation. <i>Hearing research</i>, 282(1-2), 10–24.</p> <p>Delprat, Benjamin: Cochlear Fluids.</p> <p>Musiek& Baran- Ch. 4&14</p>	
<p>Week 7 October 13</p>	<p>Cochlear physiology: Mechanics</p>	<p>Olson, E. S., Duifhuis, H., & Steele, C. R. (2012). Von Békésy and cochlear mechanics. <i>Hearing research</i>, 293(1-2), 31–43. https://doi.org/10.1016/j.heares.2012.04.017</p> <p>Oghalai J. S. (2004). The cochlear amplifier: augmentation of the traveling wave within the inner ear. <i>Current opinion in otolaryngology & head and neck surgery</i>, 12(5), 431–438. https://doi.org/10.1097/01.moo.0000134449.05454.82</p> <p>Yasin, I., & Plack, C. J. (2005). The role</p>	<p>Quiz 10: Cochlear Anatomy (15)</p>

		<p>of suppression in the upward spread of masking. <i>Journal of the Association for Research in Otolaryngology : JARO</i>, 6(4), 368–377. https://doi.org/10.1007/s10162-005-0014-7</p> <p>Musiek& Baran- Ch. 5</p>	
October 15	Cochlear physiology: Electrophysiology	<p>Brownell W. E. (1982). Cochlear transduction: an integrative model and review. <i>Hearing research</i>, 6(3), 335–360. https://doi.org/10.1016/0378-5955(82)90064-8</p> <p>Barbour D. L. (2011). Intensity-invariant coding in the auditory system. <i>Neuroscience and biobehavioral reviews</i>, 35(10), 2064–2072. https://doi.org/10.1016/j.neubiorev.2011.04.009</p> <p>Musiek& Baran- Ch. 6</p>	Quiz 11: Mechanics (10)
Week 8 October 20	Auditory nerve: Structure and Function Review for Exam 2	<p>Musiek& Baran- Ch. 7</p> <p>Campbell, J., Nielsen, M., LaBrec, A., & Bean, C. (2020). Sensory inhibition is related to variable speech perception in noise in adults with normal hearing. <i>Journal of Speech, Language, and Hearing Research : JSLHR.</i>, 1-13.</p> <p>Hopkins, K. (2015). Deafness in cochlear and auditory nerve disorders. <i>Handbook of Clinical Neurology</i>, 129, 479-494.</p>	Quiz 12: Electrophysiology(10)
October 22	Exam 2		Exam 2 (77)
Week 9 October 27	Brainstem Divisions: VSLIM CANS: Cochlear Nucleus, cells and response types, coding,	<p>Musiek& Baran- Ch. 8</p> <p>Rhode W.S., Greenberg S. (1992) Physiology of the Cochlear Nuclei. In: Popper A.N., Fay R.R. (eds) <i>The Mammalian Auditory Pathway: Neurophysiology</i>. Springer Handbook of Auditory Research, vol 2.</p>	
October 29	CANS: Superior olivary complex	<p>Caird, D, & Klinke, R. (1983). Processing of binaural stimuli by cat superior olivary complex neurons. <i>Experimental Brain Research</i>, 52(3), 385.</p>	Quiz 13: Brainstem divisions (10)

		Journal of Neuroscience 15 February 2002, 22 (4) 1454-1467 Musiek& Baran- Ch. 9	
Week 10 November 3	CANS: Lateral lemniscus/inferior colliculus	Musiek& Baran- Ch. 10 Felmy, F. (2019) The Nuclei of the Lateral Lemniscus. The Oxford Handbook of the Auditory Brainstem. https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780190849061.01.0001/oxfordhb-9780190849061-e-13 Batra, R. (2014) Inferior Colliculus. Encyclopedia of the Neurological Sciences, Second Edition. 692-694.	Quiz 14: CN/SOC (12)
November 5	CANS: Medial geniculate body, auditory cortex	Musiek& Baran- Ch. 11-13 Lee, C. (2015) Exploring functions for the non-lemniscal auditory thalamus. Frontiers in Neural Circuits (9)-69 Steinmann Saskia, Leicht Gregor, Mulert Christoph (2014). Interhemispheric auditory connectivity: structure and function related to auditory verbal hallucinations. Frontiers in Human Neuroscience 8(55).	Quiz 15: LL/IC (10)
Week 11 November 10	The Efferent System Review for Exam 3	Musiek& Baran- Ch. 15 Delano Paul H., Elgoyhen Ana B. (2016). Editorial: Auditory Efferent System: New Insights from Cortex to Cochlea. Frontiers in Systems Neuroscience 10 (50) URL= https://www.frontiersin.org/article/10.3389/fnsys.2016.00050	Quiz 16: MGB/AC (10)
November 12	Exam 3		Exam 3 (71)
Week 12 November 17	Historical Perspective Ontogeny	Jacobson, G., Shepard, N., Barin, K., Burkard, R., Janky, K., McCaslin, D. (Editors), (2021). Balance Function Assessment and Management, (3 rd ed.). (Ch. 1&2) San Diego: Plural Publishing. Beraneck, Mathieu, Lambert, Francois,	Discussion Week 12 (10)

		Sadeghi, Soroush, (2014). Development of the Auditory and Vestibular Systems, 4 th ed. (15) 449-487.	
November 19	Practical Anatomy & Physiology of the Ocular Motor System	<p>Jacobson, Shepard et al (2021) Ch. 3</p> <p>Sharpe, James and Wong, Agnes, (2015) Clinical Neuro-Ophthalmology. Anatomy and Physiology of the Ocular Motor Systems. (17) 809-885.</p> <p>Rucker, Janet, (2010). Overview of the anatomy and physiology of the Ocular Motor System. Handbook of Clinical Neurophysiology. Volume 9 Pages 18-42.</p> <p>Purves D, Augustine GJ, Fitzpatrick D, et al., editors. (2001) Neuroscience. 2nd edition. Control of Saccadic Eye Movements.</p>	Quiz 17: Hx & Ontogeny (12)
Week 13 November 24	Show Projects		Project Show (100)
November 26	Thanksgiving		
Week 14 December 1	Practical Anatomy and Physiology of the Vestibular System	<p>Jacobson, Shepard et al (2021) Ch. 4</p> <p>Kingma, H., & van de Berg, R. (2016). Anatomy, physiology, and physics of the peripheral vestibular system. Handbook of Clinical Neurology, 137, 116.</p> <p>Halmagyi, G. & Curthoys, Ian. (2013). Clinical Anatomy and Physiology of the Vestibular System.</p> <p>Khan, S., & Chang, R. (2013). Anatomy of the vestibular system: A review. NeuroRehabilitation, 32(3), 437-443.</p>	Quiz 18: Ocular Motor (10)
December 3	Practical Biomechanics and Physiology of Balance	<p>Jacobson, Shepard et al (2021) Ch. 5</p> <p>Røgind, H., Lykkegaard, J.J., Bliddal, H. and Danneskiold-Samsøe, B. (2003), Postural sway in normal subjects aged 20–70 years. Clinical Physiology and</p>	Quiz 19: A&P Vestibular (13)

		Functional Imaging, 23: 171-176. doi: 10.1046/j.1475-097X.2003.00492.x	
Week 15 December 8	Presentations		Quiz 20: Biomechanics (10) Presentation (100)
December 10	Presentations		
Week 16 December 15	Finals Week Final Exam Date and Time TBA		Paper (100) Final (100)

Additional Information

Online Learning

For additional information, please review the [CSAD Handbooks](https://www.csus.edu/college/health-human-services/communication-sciences-disorders/student-resources.html) website
<https://www.csus.edu/college/health-human-services/communication-sciences-disorders/student-resources.html>

Zoom/ Online Instruction privacy and relevant rights and responsibilities:

Any time that a class session is recorded during the COVID-19-related Remote Instruction Period, students will be notified. If students do not want their likeness during class participation included in the recorded class session, they may elect to not participate via video recordings. Recordings will be available for viewing during the Remote Instruction Period subject to the following:

Only students enrolled in the subject class during the Remote Instruction Period may view the recording.

- Students may not post or use the recordings in any other setting (e.g., social media) for any purpose. Students who violate this will be subject to student discipline, up to and including expulsion.
- Federal and California law as well as University policies protecting intellectual property rights and use of instructional materials (including any recordings of class sessions) remain in effect during the Remote Instruction Period.
- If faculty have any plan to use the recording for a different class in the future, the faculty member will need written FERPA consent from those students in the current class who are identifiable in any of the recordings. A FERPA consent form signed by all students in the course will also be needed if the recordings are made available to others beyond the classroom on a nonsecure digital platform.

Important Tips for Success as an Online Learner

There are some basic technical skills and requirements that you will need to have to be successful in this online course. If you have difficulties using Canvas, please go through the [Canvas Student Tour](#).

- ***Begin planning now for private, uninterrupted time in your schedule*** to complete the assignments – preferably in at least one-hour blocks and at least three times a week. It can be easy to fall behind!
- *Check your email account regularly* for updated information. We will be using your Saclink email account for communication. Use Saclink e-mail for private messages to the instructor and other students.
- Read directions carefully.
- For online communication, conventions of on-line etiquette ("netiquette"), which include a courtesy to all users, will be observed. Please see [Guidelines for Online Discussions](#).

Attitudes & Technical Skills Required

You will find that the following attitude will significantly contribute to your success in this online class:

- A positive attitude towards technology
- An open mind towards online education
- Willingness to share your experiences with others
- Strong analytical and critical thinking skills for when you "get stuck"
- Resourcefulness - don't be afraid to click on links and explore and ask questions
- Time management

Online learning requires only basic technical skills:

- Be competent with file management (for example, creating a folder on your desktop, moving files from one location to another, finding a saved file)
- Possess internet navigation skills
- Update your Internet browser
- Send and receive email
- Create and save documents (Word, PowerPoint, Excel or HTML)
- Toggle between two open software applications on your computer
- Copy text from a word processing program and paste them into another program

Technical Assistance

Seek help when you can't access Canvas or class materials.

- For technical assistance, contact the IRT Help Desk. Visit AIRC 2005 during [open hours](#) to speak with the IRT Service Desk Team, or call (916)278-7337. [IRT website.](#)
- For assistance with course materials, contact your instructor

Spam and Phishing Scams

- Learn how to stay safe and protect yourself from hackers who may try to access your personal information: [Don't Fall for a Phishing Scam](#)
- Use anti-virus, anti-spyware, and anti-malware software. [Sac State's Software and Tools](#) available for download.
- Use pins and passwords to secure your computer and devices- don't share your password with anyone. Use strong passwords that include a combination of letters and numbers that no one can guess.

Canvas Student App

Canvas is fully functional on many types of smartphones and tablets. Compatible devices include platforms such as iPhone/iPad/iPod Touch, and Android. However, it is recommended that you do not solely rely on one of these devices to complete your online course work. Access to a computer is still needed for many online activities. Visit the [Mobile section](#) of the [Canvas Guides](#) website for more information.

Additional Information

Commitment to Integrity:

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

Sac State's Academic Honesty Policy & Procedures:

“The principles of truth and honesty are recognized as fundamental to a community of scholars and teachers. California State University, Sacramento expects that both faculty and students will honor these principles, and in so doing, will protect the integrity of academic work and student grades.” Read more about Sac State's Academic Honesty Policy & Procedures at the following website: <http://www.csus.edu/umannual/student/stu-0100.htm>

Definitions: At Sac State, “cheating is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means.” **Plagiarism** is a form of cheating. At Sac State, “plagiarism is the use of distinctive ideas or works belonging to another person without providing adequate acknowledgement of that person's contribution.” Source: Sacramento State University Library Note: Any form of academic dishonesty, including cheating and plagiarism, shall be reported to the [Office of Student Conduct](#).

Department Policy on Use of APA format

The Department of Communication Sciences and Disorders requires the use of the APA format and style. All students are required to reference the APA manual. All assignments are to be composed using APA format and style unless otherwise noted.

Understand When You May Drop This Course:

It is the student's responsibility to understand when he/she need to consider disenrolling from a course. Refer to the Sac State Course Schedule for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons include: (a) documented and significant change in work hours, leaving student unable to attend class, or (b) documented and severe physical/mental illness/injury to the student or student's family. Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned if there is a compelling extenuating circumstance. All incomplete course assignments must be completed by the department's policy.

Inclusivity:

Students in this class are encouraged to be active participants in all aspects of the course, including but not limited to lectures, synchronous and asynchronous activities, discussion posts, etc. Each of us must show respect for each other, as our class represents a diversity of beliefs, backgrounds, and experiences. This enriches all of our learning experiences together. Our individual differences deepen our understanding of one another and the world around us, rather than divide us. In this class, people of all ethnicities, genders and gender identities, religions, ages, sexual orientations, disabilities, socioeconomic backgrounds, regions, and nationalities are strongly encouraged to share their rich array of perspectives and experiences. If you feel your differences may in some way isolate you from our classroom community, or if you have a specific need, please contact the instructor early in the semester. Your instructor will work with you to ensure that you become an active and engaged member of our class and community.

Equal Access:

California State University-Sacramento, Department of Communication Sciences and Disorders, seeks to provide equal access to its programs, services, and activities for people with disabilities. If you have a documented disability and verification from the Office of Services to Students with Disabilities (SSWD), and wish to discuss academic

accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of disability to SSWD and meet with a SSWD counselor to request special accommodation before classes start. **Sacramento State Services to Students with Disabilities (SSWD)** offers a wide range of support services and accommodations for students in order to ensure students with disabilities have equal access and opportunity to pursue their educational goals. Working collaboratively with students, faculty, staff and administrators, SSWD provides consultation and serves as the information resource on disability related issues to the campus community. SSWD is located in Lassen Hall 1008 and can be contacted by phone at (916) 278-6955 (Voice) or (916) 278-7239 (TDD only) or via email at sswd@csus.edu.

Basic Needs Support

If you are experiencing challenges with food, housing, financial or other unique circumstances that are impacting your education, help is just a phone call or email away! The CARES office provides case management support for any enrolled student. Email the CARES office at cares@csus.edu to speak with a case manager about the resources available to you. Check out the [CARES website](#).

Other Resources

- The Office of Student Affairs maintains a list of campus resources/centers: <https://www.csus.edu/center/>
- Testing Center: <https://www.csus.edu/student-affairs/centers-programs/testing-center/>
- Library: <https://library.csus.edu/> for consultation : Rachel Stark, MS, AHIP, stark@csus.edu
- Services to Students with Disabilities: <https://www.csus.edu/student-affairs/centers-programs/services-students-disabilities/>
- Student Health and Counseling Services at The WELL: <https://www.csus.edu/student-life/health-counseling/>
- Student Academic Success and Education Equity Programs: <https://www.csus.edu/student-affairs/retention-academic-success/>
- Crisis Assistance and Resource Education Support (CARES): <https://www.csus.edu/student-affairs/crisis-assistance-resource-education-support/>
- CHHS Student Success Center: <https://www.csus.edu/college/health-human-services/student-success/>
- Reading & Writing Center: <https://www.csus.edu/undergraduate-studies/writing-program/reading-writing-center.html>
- Peer & Academic Resource Center: <https://www.csus.edu/student-affairs/centers-programs/peer-academic-resource/>
- SMART Thinking (tutoring resource): <https://www.csus.edu/student-affairs/centers-programs/degrees-project/internal/documents/smarthinking.pdf>