California State University, Sacramento
Department of Communication Sciences and Disorders
GRADUATE (AuD) SYLLABUS

Table 1: Class Information

Semester/Year: Summer 2024	Course: CSAD 662: Implantable Devices and Technology	Section: 01
Meeting Days: Tuesdays and Thursdays	Meeting Times: 9:00 – 10:25 AM	Location: Folsom 2604
Instructor: Elaine Xu, Ph.D.	Email: c.xu@csus.edu	Phone: 916-278-4898
Office Location: Folsom 2306A or Zoom	Office Hours/Appointments: Tuesdays and Thursdays 10:30 AM – 12:00 PM (Appointment only)	

Catalogue Course Description:

CSAD 662. Implantable Devices and Technology. **2 Units**

Prerequisite(s): Admission to Doctor of Audiology program; CSAD 611, CSAD 612, CSAD 613, CSAD614, CSAD 621, CSAD 622, CSAD 622L, CSAD 623, CSAD 624, CSAD 631, CSAD 632, CSAD 641, CSAD 641L, CSAD 642, CSAD 643, CSAD 651, CSAD 652, CSAD 653
Term typically offered: Summer only
Description: Pre-operative assessment and post-operative management of cochlear implants and other implantable devices. Includes patient counseling for expectations, introduction to surgical procedures, mapping, use of assistive devices, and current developments in research.

Place of Course in Program

Table 2: Sacramento State Graduate Learning Goals for the 21st Century (GLG)

This course presents information related to the functioning of a cochlear implant, candidacy requirements in the United States, evaluation and validation, and parameters for programming. Students will also learn about the surgical process, which will be observed through CSAD655 Medical Observation, and the benefits and limitations for cochlear implants in children and adults.

WHY IS THIS COURSE IMPORTANT?

For individuals with severe to profound hearing loss or conductive or mixed hearing losses, implantable technology can be used to improve communication and quality of life. Audiologists are involved in various stages of the process, from evaluation, pre- and post-operative assessments, fitting, and rehabilitation.

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

Course Learning Outcomes:

GRADUATE LEARNING OUTCOMES

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.

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

CSAD 662 SPECIFIC STUDENT LEARNING OUTCOMES:

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

1. Outline the historical developments in implantable technology for hearing impairment
2. Describe candidacy requirements for a cochlear implant in pediatric and adult populations, including federal regulations, contraindications, and audiologic and medical assessments
3. List the major components of a cochlear implant, bone-anchored hearing aid, and middle-ear implant
4. List the professionals typically involved in pediatric and adult cochlear implant teams
5. Compare and contrast the three major cochlear implant manufacturers, including programming, electrodes, electrode arrays, dimensions, depth of implantation, casing, magnets, sound processors, dynamic range, user controls, accessories, and battery life
6. Describe verification and validation procedures for implantable devices
7. Outline mapping procedures for cochlear implants
8. Summarize surgical procedures for cochlear implants, bone-anchored hearing aids, middle-ear implants, and auditory brainstem implants

Table 2: Course Learning Outcomes, Components, and Grades Received

Course Learning Outcome	Components Indicating Competence	Grades Received
1	Quiz 2, Midterm and Final Exams	
2	Quizzes 2-3, Midterm and Final Exams	
3	Quizzes 2-5, Midterm and Final Exams	

4	Quizzes 2, 4, and 5, Midterm and Final Exams	
5	Quizzes 4 and 5, Midterm and Final Exams, CI Software Practicum Activities, Clinic Resource Guide, Discussion Questions, Clinic Session Reflection, Case Presentation	
6	Quizzes 3 and 4, Midterm and Final Exams, CI Software Practicum Activities, Clinic Session Reflection, Case Presentation	
7	Quizzes 3 and 4, Midterm and Final Exams, CI Software Practicum Activities, Clinic Session Reflection, Case Presentation	
8	Quizzes 2 and 5, Midterm and Final Exams	

Textbooks and Materials:

Required Text:

Wolfe, J. (2020). *Cochlear Implants: Audiologic Management and Considerations for Implantable Hearing Devices*. Plural Publishing.

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

Optional Text:

Gifford, R. H. (2020). *Cochlear implant patient assessment: Evaluation of candidacy, performance, and outcomes*. Plural Publishing.

Online Resources:

Canvas

Fu, Q.-J. (2019). *AngelSim: Cochlear implant and hearing loss simulator.* [Computer program], available at http://www.tigerspeech.com/angelsim/angelsim_about.html

Course Requirements/Components:

Course Format:
In-person lectures

Class Preparation:
All required readings are for the date listed in the course schedule, not the following class period. Students are responsible for all assigned readings, whether discussed in class or not.

Class Participation:
Students are expected to actively participate in class discussions and are required to have read the assigned material prior to class meetings.

Class Attendance:
Classroom attendance is mandatory for this course. Students are expected to arrive on time as class begins at 9 AM on Tuesdays and Thursdays. You are allowed **two unexcused absences** without penalty. Each additional unexcused absence will result in a **5% reduction per occurrence** from your attendance grade. An Academic Performance Improvement Plan (APIP) will also be initiated if you have more than two unexcused absences.

If you are sick, stay home and do not attend class. Notify your instructor. Please self-diagnose if you are experiencing any COVID- like symptoms (fever, cough, sore throat, muscle aches, loss of smell or taste, nausea, diarrhea, or headache) or have had exposure to someone who has tested positive for COVID contact Student Health & Counseling Services (SHCS) at 916-278-6461 to receive guidance and/or medical care. The CDC provides a good source of information regarding COVID-19 and a way to self-check symptoms: https://www.cdc.gov/coronavirus/2019-ncov/index.html

Students must adhere to COVID-19 policies regarding mask wearing and vaccinations as described on the CSUS website. Please see https://www.csus.edu/compliance/risk-management/coronavirus.html and https://www.csus.edu/return-to-campus/return-to-campus-faq.html for more information and updates.

Class Assignments:
Course grades will be based on quizzes, midterm and final exams, discussion questions, clinic session reflection, CI software practicum activities, and clinic resource guide.

Exams

- **Exam procedures**: There will be a midterm exam and a final exam. Exams will be completed in person during the scheduled timeframe unless you have a documented accommodation (85 minutes for each exam). Exams will be based on class lectures, assigned readings, class activities/homework, and discussions. Each exam will be composed of short answers and case study questions.

- **Exam absences**: No make-up examinations will be given unless there is a documented emergency for which you have written proof. In the case of a documented medical emergency prior to the exam, you will be required to notify me in advance of the exam and provide documentation of the illness/injury or emergency. Any approved make-up exams will be scheduled at a later date and may be administered in a different format from the original exam, for example, essay format. If you do not complete one or more of the exams by the last day of the final exam period, you may receive a "0" on your exam(s) as per instructor discretion. Please note that you remain individually responsible for being aware of your exam dates and times posted in the course syllabus.

Quizzes
There will be 5 quizzes throughout the semester. All of them will be completed in class except the first quiz (syllabus quiz). Quizzes will be composed of multiple-choice questions. Each quiz is worth 10 points. You will have 20 minutes to complete each quiz. You will be able to drop your lowest quiz score among quizzes 2, 3, 4, and 5 (a missed quiz is a zero). Save this dropped quiz for an emergency. No make-up quizzes will be given.

CI Manufacturer Activities

There will be three guest lectures given by representatives from the major three CI manufacturers. There will be corresponding assignments/activities to complete for each CI manufacturer pre- and post- guest lecture.

- Discussion Board Questions (Pre-lecture)
    - You are required to raise **two** questions for each manufacturer and post them on Canvas Discussion Board by due dates.
- CI Fitting Software Practicum (Post-lecture, Group Project)
    - Each manufacturer will provide a fitting software practicum activity prior to the guest lecture (MED-EL and Advanced Bionics: Software Scavenger Hunt; Cochlear: A software case practicum). You may explore the software at your own time before each lecture. All the representatives will also walk through their software in class.
    - Each practicum activity will need to be completed as a group and submitted on Canvas by due dates with required screenshots, data files, etc. Requirements and rubric will be posted on Canvas during the semester.

Clinic Session Reflection and Case Presentation

You are required to observe or complete at least one CI, middle ear implant, or BAHA appointment under the supervision of a clinical instructor during summer semester either on campus or at your internship sites. If you are not expecting to be involved in any experience with implantable devices at your internship, please reach out to Dr. Cassar as early as possible to volunteer for on-campus clinic. All volunteer opportunities are first come, first served. Activities may include but not limited to candidacy evaluation, activation, mapping, follow-up programming, troubleshooting, counseling. You are required to complete:

- A reflection-on-action form for **one** session using a template on Canvas.
- A 15-min case study presentation of the same session or a different session of implantable devices. Please submit your case study presentation PPT on Canvas by your presentation day. Case study presentation may include but not limited to, depending on the type of your clinic session:
    - Case history
    - Clinical assessments and interpretations
    - Recommendations and treatment and/or management
    - Clinical implications
    - One discussion question for your classmates
    - Q&A

Students are responsible to know what information is considered PHI and to not violate any HIPAA laws (i.e., all cases must be de-identified). Any violations will result in no credit for the reflection-on-action form and/or case presentation and students may jeopardize their ability to pass the course. Please remain mindful of PHI and make sure that any cases are properly de-identified prior to presentation.

Clinic Resource Guide

This is an ongoing project throughout the semester. It is suggested you include ANY material you found helpful from the course that you might use in future settings (4th year or jobs). Please submit a single document or a link to your OneDrive folder where you collect all materials. You must include a table or any other format that compares and contrasts three major CI manufacturers. The table may include but not limited to their electrodes, electrode arrays, dimensions, depth of implantation, casing, magnets, sound processors, dynamic range, programming, user controls, accessories, and battery. You will likely need at least 2 hours cumulatively to complete the organization and references sections of the resource guide.

Extra Credits

- **Wellness activities (1 point on total grade)**: Mental and physical wellness are incredibly important but are

often neglected by graduate students in times of stress. To incentivize you to take care of yourselves, I am offering 1 wellness point that can be added to your total score. You must upload a picture or write a paragraph of description of your wellness activity to earn this extra credit.

- **CI simulation (1 point on total grade):** To earn this extra credit, you will be required to download AngelSim**, a CI simulation software and complete the following tasks.
    - Record yourself reading "I am craving chocolate chip cookies" and start simulation.
        - Only change Carrier Type in Step 2. Compare and describe your perception of sound quality between White noise as carrier vs. Sinewave as carrier.
        - Only change Number of Channels in Step 3. Compare and describe your perception of sound quality between 8 (Number of simulated) vs. 21 (Number of simulated).
        - Only change Number of Implants. Compare and describe your perception of sound quality between Single Implant vs. Bilateral Implants.
    - Write down your comparisons and submit it on Canvas.

    ** The software is only available on Windows. The software will be available on a clinic computer if you do not have a laptop or desktop with Windows system.

Grading Policy:

Table 3: Course Requirements and Grade Distribution

Source	**Points Available**
Attendance	10
Quizzes (10 points x 4)	40
CI manufacturer discussion questions (5 points x 3)	15
CI fitting software practicum (15 points x 3)	45
Clinic session reflection	10
Case presentation	15
Clinic resource guide	15
Midterm exam	50
Final exam	50
Total	**250**
Extra Credit: Wellness Activity	1
Extra Credit: CI Simulation	1

Letter grades are assigned according to the following scores:

Table 4: Points, Percentages and Letter Grades

Grading

Letter	%
A	93-100%
A-	90-92.99%
B+	87-89.99%
B	**83-86.99%**
B-	80-82.99%

C+	77-79.99%
C	73-76.99%
C-	70-72.99%
D+	67-69.99%
D	63-66.99%
D-	60-62.99%
F	< 60%

Course Policies/Procedures:

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).
- 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.

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. 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. Attendance for clinical practica is outlined in the clinic handbook.

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.

Late work/ regrading

All assignments must be submitted by the scheduled deadline. In the case that life events or other reasons prevent the student from submitting the assignment on time, contact the instructor to request for an extension. This request should be made one week in advance, or as early as possible. This extension will not be provided more than twice during the semester. Late submission will result in **reduction by 10% per day of delay in submission**. Grades will not be changed under any circumstances to elevate a grade level (e.g. B to B+) and no emails regarding the same will be entertained.

TENTATIVE Course Schedule/Outline:

Week	Date	Topic/Class Content	Readings	Assignments
1	6/4	• Course Introduction • Basic Operation and History of CI	Course Syllabus Ch 1	Quiz 1 (Syllabus)
	6/6	• Anatomy and Physiology Associated with CI • Medical and Surgical Aspects of CI	Ch 3, 12	
2	6/11	• CI Candidacy	Ch 4, 5, 6	
	6/13	• Basic Terminology of CI Programming • CI Signal Coding Strategies	Ch 7, 8	Quiz 2
3	6/18	Fundamental Practices of CI Programming	Ch 14, 15, 16, 17	
	6/20	Hearing Preservation, EAS, Hybrid CI, Bimodal Hearing	Ch 24	
4	6/25	• CI Outcomes and Factors Affecting CI Outcomes • CI Counseling	Ch 21, 22	Quiz 3
	6/27	Review		
5	7/2	Midterm Exam		Midterm Exam
	7/4	NO CLASS (Holiday)		
6	7/9	Guest Lecture (MED-EL: Dr. Heidi Frazier)	Ch 17	Discussion questions due 7/7/24 at 5 PM
	7/11	Guest Lecture (Advanced Bionics: Dr. Madison Wageck)	Ch 15	Discussion questions due 7/9/24 at 5 PM
7	7/16	Bone Conduction Hearing Devices	Ch 26, 27	Quiz 4
	7/18	Guest Lecture (Cochlear: Dr. Mary Swantek)	Ch 16	Discussion questions due 7/16/24 at 5 PM
8	7/23	Middle Ear Implants	Ch 28	MED-EL Scavenger Hunt
	7/25	Auditory Brainstem Implants	Ch 25	AB Scavenger Hunt
9	7/30	Case Presentation (5 students)		Quiz 5

	8/1	Case Presentation (2 students) Review		Cochlear Fitting Case Practicum Clinic session reflection Extra credits, clinic resource guide due 8/9/24
	TBA	Final Exam		Final Exam

Please note that dates, class format/location, topics, and assignments are subject to change. In the event of a change, you will be given ample notice.

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: https://www.csus.edu/umanual/student/stu-100.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.

Locations of gender-neutral restrooms on campus:
Maryjane Rees Language, Speech and Hearing Clinic, 2nd Floor of Folsom Hall

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 Disability Access Center (DAC), and wish to discuss academic accommodations, please contact your instructor as soon aspossible. It is the student's responsibilityto provide documentation of disability to DAC and meet with a DAC counselor to request special accommodation before classes start**. Sacramento State Disability Access Center** 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, DAC provides consultation and serves as the information resource on disability related issues to the campus community. DAC is located in Lassen Hall 1008 andcan be contacted by phone at (916) 278-6955(Voice) or (916) 278-7239 (TDD only) or via email at dac@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
- Disability Access Center: https://www.csus.edu/student-affairs/centers-programs/disability-access-center/
- 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

Knowledge And Skills Acquisition (KASA) For Certification in Audiology

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

A3. Language and speech characteristics and their development for individuals with normal and impaired hearing across the life span

A4. Principles, methods, and applications of acoustics, psychoacoustics, and speech perception, with a focus on how each is impacted by hearing impairment throughout the life span

A5. Calibration and use of instrumentation according to manufacturers' specifications and accepted standards

A7. Applications and limitations of specific audiologic assessments and interventions in the context of overall client/patient management

A8. Implications of cultural and linguistic differences, as well as individual preferences and needs, on clinical practice and on families, caregivers, and other interested parties

A10. Effects of hearing impairment on educational, vocational, social, and psychological function throughout the life span

A11. Manual and visual communication systems and the use of interpreters/transliterators/translators

A12. Effective interaction and communication with clients/patients, families, professionals, and other individuals through written, spoken, and nonverbal communication

A13. Principles of research and the application of evidence-based practice (i.e., scientific evidence, clinical expertise, and client/patient perspectives) for accurate and effective clinical decision making

A14. Assessment of diagnostic efficiency and treatment efficacy through the use of quantitative data (e.g., number of tests, standardized test results) and qualitative data (e.g., standardized outcome measures, client/patient-reported measures)

A17. Importance, value, and role of interprofessional communication and practice in patient care

A18. The role, scope of practice, and responsibilities of audiologists and other related professionals

A22. Legal and ethical practices, including standards for professional conduct, patient rights, confidentiality, credentialing, and legislative and regulatory mandates

Standard II-B: Prevention and Screening

B2. Establishing relationships with professionals and community groups to promote hearing wellness for all individuals across the life span

Standard II-C: Audiologic Evaluation

C1. Gathering, reviewing, and evaluating information from referral sources to facilitate assessment, planning, and identification of potential etiologic factors

C3. Obtaining client/patient-reported and/or caregiver-reported measures to assess function

C9. Selecting, performing, and interpreting developmentally appropriate behavioral speech audiometry procedures to determine speech awareness threshold (SAT), speech recognition threshold (SRT), and word recognition scores (WRSs); obtaining a performance intensity function with standardized speech materials, when indicated

C10. Evaluating basic audiologic findings and client/patient needs to determine differential diagnosis and additional procedures to be used

C11. Selecting, performing, and interpreting physiologic and electrophysiologic test procedures, including electrocochleography, auditory brainstem response with frequency specific air and bone conduction threshold testing, and click stimuli for neural diagnostic

Standard II-D: Counseling

D4. Enhancing clients'/patients' acceptance of and adjustment to hearing aids, hearing assistive technologies, and osseointegrated and other implantable devices

D5. Addressing the specific interpersonal, psychosocial, educational, and vocational implications of hearing impairment for the client/patient, family members, and/or caregivers to enhance their well-being and quality of life

D9. Monitoring and evaluating client/patient progress and modifying counseling goals and approaches, as needed

Standard II-E: Audiologic Rehabilitation Across the Life Span

E2. Identifying the need for, and providing for assessment of, concomitant cognitive/developmental concerns, sensory-perceptual and motor skills, and other health/medical conditions, as well as participating in interprofessional collaboration to provide comprehensive management and monitoring of all relevant issues

E3. Responding empathically to clients'/patients' and their families' concerns regarding communication and adjustment difficulties to establish a trusting therapeutic relationship

E6. Engaging clients/patients (including, as appropriate, school-aged children/adolescents) and family members in shared decision making regarding treatment goals and options

E7. Developing and implementing individualized intervention plans based on clients'/patients' preferences, abilities, communication needs and problems, and related adjustment difficulties

E8. Selecting and fitting appropriate amplification devices and assistive technologies

E9. Defining appropriate electroacoustic characteristics of amplification fittings based on frequency-gain characteristics, maximum output sound-pressure level, and input–output characteristics

E10. Verifying that amplification devices meet quality control and American National Standards Institute (ANSI) standards

E12. Incorporating sound field functional gain testing when fitting osseointegrated and other implantable devices

E14. Identifying individuals who are candidates for cochlear implantation and other implantable devices

E15. Counseling cochlear implant candidates and their families regarding the benefits and limitations of cochlear implants to (a) identify and resolve concerns and potential misconceptions and (b) facilitate decision making regarding treatment options

E16. Providing programming and fitting adjustments; providing postfitting counseling for cochlear implant clients/patients

E17. Identifying the need for—and fitting—electroacoustically appropriate hearing assistive technology systems (HATS) based on clients'/patients' communication, educational, vocational, and social needs when conventional amplification is not indicated or provides limited benefit

E19. Ensuring compatibility of HATS when used in conjunction with hearing aids, cochlear implants, or other devices and in different use environments

E20. Providing or referring for consulting services in the installation and operation of multi-user systems in a variety of environments (e.g., theaters, churches, schools)

Standard II-F: Pediatric Audiologic (Re)habilitation

F2. Counseling parents to resolve their concerns and facilitate their decision making regarding early intervention, amplification, education, and related intervention options for children with hearing impairment

F3. Educating parents regarding the potential effects of hearing impairment on speech language, cognitive, and social–emotional development and functioning

F4. Educating parents regarding optional and optimal modes of communication; educational laws and rights, including 504s, individualized education programs (IEPs), individual family service plans (IFSPs), individual health plans; and so forth

F5. Selecting age/developmentally appropriate amplification devices and HATS to minimize auditory deprivation and maximize auditory stimulation

F6. Instructing parents and/or child(ren) regarding the daily use, care, and maintenance of amplification devices and HATS

F9. Administering self-assessment, parental, and educational assessments to monitor treatment benefit and outcome

ACAE Competencies

Foundation:

1. Explain basic cell, organ, and body systems, with special emphasis on the auditory and vestibular/balance systems and their interrelationships to the body as a whole over the lifespan, including newborns, infants, children, adolescents, adults, elderly and individuals with special needs.

2. Describe the development of normal auditory and communication processes, including the embryology and development of the auditory/vestibular, central nervous and related systems.

3. Explain theoretical and applied principles of acoustics, psychoacoustics, non-acoustic stimuli, and electronics as applied to the normal and disordered auditory and vestibular systems.

12. Critically evaluate the research foundation for hearing, balance and communication sciences.

Diagnosis and Management:

1. Diagnose, triage, treat and manage auditory and vestibular/balance conditions and diseases for patients over the lifespan, including newborns, infants, children, adolescents, adults, elderly and special needs individuals.

2. Apply audiologic diagnosis, treatment, and management principles in diverse settings including, for example, private practice-based, educational and occupational/industrial environments.

3. Apply critical thinking skills to assess the patient's auditory and vestibular status.

4. Prescribe, perform and interpret clinical, laboratory and other diagnostic procedures and tests in consultation with other health professionals as may be required for proper management of the patient.

5. Interpret and synthesize the findings from the patient's history, examination and other diagnostic tests and procedures in order to identify the etiology, the pathogenesis of the condition, and the diagnosis.

6. Formulate a treatment plan and understand the implications of various treatment options.

7. Explain any relevant limitations for diagnosis and treatment and formulate a plan for consultation or referral, as appropriate.

8. Discuss the findings, diagnosis and treatment options with the patient, parent or guardian, family, other health care or service providers, as well as any modifications or consequences that may occur over the course of treatment.

10. Plan and implement treatment and rehabilitation methods used for the management of auditory and vestibular disorders, including all forms of personal amplification and hearing assistance technology.

11. Present the patient with the sequence of treatment (including preventive care), estimated fees, payment arrangements, time requirements, and the patient's responsibilities for treatment. Apply the informed consent process as it relates to clinical procedures.

12. Characterize and implement evidence-based practice methods and a critical evaluation of the literature to provide optimal outcomes for diagnosis and treatment of auditory and vestibular disorders.

13. Integrate all aspects of a patient's life (development, participation, environment and culture), as identified by the International Classification of Functioning (ICF), World Health Organization (WHO) and World Health Assembly, May 2001, into the treatment management of patients with hearing and/or balance disorders.

Communication:

1. Communicate effectively, both orally and in written form, with patients, families, caregivers, and other healthcare and service providers.

2. Produce professional written reports on the diagnoses, evaluations and consultations encountered during clinical experiences.

3. Demonstrate empathy and active listening behaviors for patients and families.

4. Demonstrate understanding and respect for all individuals encountered in audiologic practice, regardless of disability, income, gender, sexual orientation, race, religion, culture or national origin.

5. Safeguard the privacy and confidentiality of a patient's medical record information.

6. Maintain accurate and complete up-to-date patient records, with clear and appropriate documentation of each patient encounter.

7. Advocate for patient-centered care and shared decision-making by teaching self-advocacy skills to patients and family members.

8. Model and apply the skills needed to provide effective patient/family-centered counseling and shared decision-making when providing information, resources and evidence-based options for diagnosis and treatment.

Professional Responsibilities and Values:

1. Adhere to professional ethics as they relate to the practice of audiology.

2. Demonstrate sensitivity to the psychosocial dynamics of the doctor/patient relationship.

3. Describe social, cultural, psychological, and economic forces affecting diverse patient populations.

9. Describe Current Procedural Terminology (CPT), Healthcare Common Procedure Coding System (HCPCS), International Classification of Diseases (ICD-10) billing and coding as well as implications of different professional settings on reimbursement.

11. Respect the unique cultures, values, roles/responsibilities, and expertise of other health professions, including the value of inter-professional education and collaboration for patient care.

14. Describe the value of life-long learning in order to stay current with changing medical, technologic and business advances.