

**Communication Sciences and Disorders (CS&D) 863: Implantable Protheses (2 credits)**

University of Wisconsin-Madison  
Department of Communicative Disorders  
Fall Semester, 2020

**Location: Due to Covid-19 this course will be offered through Remote teaching engagement on a combination of Zoom and Canvas using BlackBoardCollaborate**

**Professor Ruth Litovsky**  
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Office Phone: 608-262-5045  
Mobile phone: 608-852-0616

Class meeting times (synchronously): 2:30-4:10pm Wednesday

Join Zoom Meeting

<https://us02web.zoom.us/j/87669119232?pwd=K1hXNGcySGNoYzV6aXNLMVNCb2pEZz09>

How do I get help outside of class?

- 1) **Canvas: download material.** Prepare for class, do your reading, review material, prepare for quizzes and exams.
- 2) I can meet with students before or after class; please contact me by email for an appointment.
- 3) My cell phone is: 608-852-0616

**Most important:**

- I'm delighted to be your teacher this semester. This material is fascinating, and hope you will enjoy learning about the world we hear in.
- Let's build a community of learning and listening, where all students' voices are heard.
- Please feel free to ask any questions at any time.
- Come to class prepared.
- Leave social media out of the classroom and engage with what the class has to offer.

**Readings:**

Required texts:

- a. Jace Wolfe (2020). Cochlear Implants: Audiologic Management and Considerations for Implantable Hearing Devices. Plural Publishing. ISBN 9781597568920.
- b. Rene Gifford (2020). Cochlear Implant Patient Assessment: Evaluation of Candidacy, Performance, and Outcomes. 2<sup>nd</sup> edition. Plural Publishing. ISBN 9781635501285.

**Additional Readings** (book chapters and original research articles) can be found on Canvas

***What else is on Canvas.wisc.edu?***

Syllabus, lecture notes, assignments and answer keys, news and general updates

Log in using the following:

Username: your NetID

password: your NetID password

**Course Description:**

This is a 2 credit graduate course, which is offered by the Department of Communicative Sciences and Disorders. It is typically taken by students in the AuD program during their 3<sup>rd</sup> year. The 2 credits are accomplished by attending 100 minutes of lecture per week for 14 weeks. Students typically spend 2-3

hours outside of class per credit hour reading, preparing for lecture, studying for exams and quizzes. In addition, students spend numerous hours outside of class researching their topic and preparing the presentation.

**Learning Outcomes:** Understand basic terminology, concepts, theories, and recent studies pertaining to implantable auditory prostheses.

1. Students will know what are auditory implants?
2. Understand history, background, development of internal and external components.
3. Understand patient candidacy and outcomes.
4. Attain knowledge and basic background in programming philosophy and overview.
5. Learn basics regarding use of objective measures.
6. Choose a topics in the field and study that topic in preparation for a professional presentation

**Course Policies:**

- Class attendance is mandatory, unless students provide a reasonable explanation for missing class. Students are asked to provide the professor with advanced notice of planned absences via email. Students are required to make up material presented during missed class periods.
- If you observe religious holidays that conflict with course activities and wish to reschedule assignments or tests that may conflict with such an observance, please notify the instructor no later than two weeks after the beginning of the semester.

**Policies that ensure courtesy to other students:**

- **Students are here to learn. Please be respectful of this. Avoid side conversations during class. It's not only disruptive to other students, but to the instructor as well.**
- **If you own a mobile phone make sure it's turned off before class.**
  - **Do NOT use text messaging, IM, email, social networking, etc., during class.**
  - **If you must do so, please leave the room first.**
- **Laptop computer or electronic pads may be used during class to take notes.**

**Course Evaluations**

Students will be provided with an opportunity to evaluate this course and your learning experience.

Student participation is an integral component of this course, and your feedback is important to me. I strongly encourage you to participate in the course evaluation.

We will use Digital Course Evaluation (AEFIS). In most instances, you will receive an official email two weeks prior to the end of the semester when your course evaluation is available. You will receive a link to log into the course evaluation with your NetID where you can complete the evaluation and submit it, anonymously. Your participation is an integral component of this course, and your feedback is important to me. I strongly encourage you to participate in the course evaluation.

**Academic Calendar & Religious Observances**

- See: <https://secfac.wisc.edu/academic-calendar/#religious-observances>

**Academic Integrity**

By virtue of enrollment, each student agrees to uphold the high academic standards of the University of Wisconsin-Madison; academic misconduct is behavior that negatively impacts the integrity of the institution. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these previously listed acts are examples of misconduct which may result in disciplinary action. Examples of disciplinary action include, but is not limited to, failure on the assignment/course, written reprimand, disciplinary probation, suspension, or expulsion.

### **Accommodations For Students With Disabilities Statement**

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. I will work either directly with you, or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA. (See: McBurney Disability Resource Center)

### **Diversity & Inclusion Statement**

Diversity is a source of strength, creativity, and innovation for UW-Madison. I value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We all commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals. The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.

### **Usage of Audio Recorded Lectures Statement**

Lecture materials and recordings are protected intellectual property at UW-Madison. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. Students may not copy or have lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

**Grading:** Grading is based on performance on 2 exams, 3 quizzes and 1 presentation. Grades are not curved. The total number of points that can be earned equal 300. The final grade will consist of the percentage of points out of 300, as follows:

#### **UW Madison**

**A** = 94-100%, **AB** = 89-93%, **B** = 84-88%, **BC** = 79-83%, **C** = 70-78%, **D** = 60-69%, **F** = 59% or less.

#### **UW Stevens Point**

**A** = 94-100, **A-** = 91-93, **B+** = 89-89, **B** = 84-88, **B-** = 81-83, **C+** = 79-80, **C** = 70-78, **D** = 60-69, **F** = 59 or less.

**Exams:** Two open-book take-home exams will be given during the semester. Each one is worth up to 100 points (200 points total). No proctoring will be required.

**Presentation:** 1 presentation at the end of the semester per student (100 points).

### **Preparing the Presentation:**

During the last 3 weeks of the semester, students will give a 15-minute presentation. Each presentation will be based on a topic that the instructor approves in advance. The presentations are intended to focus on novel findings and outcomes with new programming or coding strategies in patients who use one of the following:

- 1) bone-anchored hearing aids
- 2) middle ear implants
- 3) cochlear implants
- 4) hybrid (cochlear implant + hearing aid)
- 5) single sided deafness (cochlear implant + normal ear)
- 6) brainstem implants

**\*Websites that students are encouraged to spend time exploring:**

- <http://www.cochlearamericas.com/>  
<http://www.advancedbionics.com/us/en/home.html>  
<http://www.medel.com/us/>

**Course Format:**

Lectures, participation in discussion, presenting at the end of the semester. Students are responsible for all material covered in class and for all reading assignments. Students are encouraged to ask questions and participate in class discussion.

**COURSE SCHEDULE**

<u>Course Meeting Dates</u> 9/2, 9/9, 9/16, 9/23, 9/30, 10/7, 10/14, 10/21, 10/28, 11/4, 11/11, 11/18, [No class 11/25 – Thanksgiving], 12/2, 12/9	
<ul style="list-style-type: none"> <li>• Exam 1: Take-home during the week of 10/26</li> <li>• Exam 2: Take-home during finals week</li> </ul>	

Date	Topics Covered	Readings
Anytime in first 4 weeks of semester	Between Sound and Silence: <a href="https://www.nytimes.com/2018/08/07/opinion/deafness-cochlear-implants.html">https://www.nytimes.com/2018/08/07/opinion/deafness-cochlear-implants.html</a>	Assignment: Write a ~2 page essay. Are the patients in the movie deaf, hearing impaired, or neither? Thoughts about treatment with CIs, future possibilities.
9/2	- Impact of deafness on the auditory system - Overview of CIs - Hair Cell Regeneration	Wolfe (2020), Ch. 1 Butler and Lomber (2013) Svirsky (2017) article in Physics Today Rubel et al. (2013) Kral et al. (2016) Review Wolfe Ch. 3 for anatomy refresher
9/9	- History of CIs - Electrical stimulation - complications - Basics in CIs	Wilson and Dorman (2008) Jeppesen and Faber (2013) **Wolfe (2020), Ch. 1-2 for background; Ch. 8 for coding strategies
9/16	- BAHA, Middle ear implants, - SSD, EAS (also on 9/30) - Auditory Brainstem Implants	Wolfe, Ch. 25, 26, 27, 28
9/23	- Candidacy and Outcomes - Objective	<i>Niparko et al. 2013</i> (Eisenberg et. al.)

		Holden et al (2013), outcome adults Gaylor (2013) JAMA Meta analysis
9/30	Bimodal fittings Sara Misurelli, PhD, AuD	Wolfe, Ch. 24 Lenarz et al (2014) Hybrid Gantz et al. (2016) Hybrid
	In preparation for upcoming presentations by CI company reps and clinicians, please read the Gifford book and select chapters from the Wolfe book.	Wolfe ch. 7: terminology & fitting Wolfe ch. 14: programming
10/7	Presentation by Advanced Bionics rep. Erin Nelson	Wolfe Ch. 9 & 15
10/14	Presentation on surgical approaches & temporal bone virtual lab Joseph Roche, MD	<i>Chapter by Francis on 'Anatomy of the temporal bone'</i>
10/21	Presentation by Cochlear rep. Courtney Wallace	Wolfe Ch. 10 & 16
10/28	Presentation by Med-El rep. Susan Trouba	Wolfe Ch. 11 & 17
11/4	Presentation on candidacy, evaluation and programming of older adults. Jennifer Ploch, AuD CCC –	Wolfe Ch. 5, 20 & Gifford book
11/11	Presentation on pediatric evaluation, candidacy and mapping. Melanie Buhr-Lawler, AuD CCC  Discussion with parents of children with CIs	Wolfe Ch. 6, 20 & Gifford book
11/18	Student Presentations	See Canvas
11/25	No Class –	See Canvas
12/2	Student Presentations	See Canvas
12/9	Student Presentations	See Canvas

## **CFCC 2020 Standards**

The following CFCC standards are completed in this course.

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

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

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

A15. Client-centered, behavioral, cognitive, and integrative theories and methods of counseling and their relevance in audiologic rehabilitation.

A16. Principles and practices of client/patient/person/family-centered care, including the role and value of clients'/patients' narratives, clinician empathy, and shared decision making regarding treatment options and goals.

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

B10. Identifying persons at risk for speech-language and/or cognitive disorders that may interfere with communication, health, education, and/or psychosocial function.

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

C2. Obtaining a case history and client/patient narrative

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

C5. Providing assessments of tinnitus severity and its impact on patients' activities of daily living and quality of life.

D3. Facilitating and enhancing clients'/patients' and their families' understanding of, acceptance of, and adjustment to auditory and vestibular disorders.

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

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

E27. Providing intervention for central and peripheral vestibular deficits

E28. Ensuring treatment benefit and satisfaction by monitoring progress and assessing treatment outcome