

**COMMUNICATION SCIENCES AND DISORDERS 863:
Implantable Auditory Prostheses
Fall 2016**

Instructor: Sara Misurelli, PhD

Office hours: Wednesday 2:30-4:30pm or by appt (Rm 347 Goodnight Hall)
*also available by phone or Skype

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Class location: 10:20-12:00 Monday, Rm 412 Goodnight Hall

Textbooks:

1. Wolfe, J., & Schafer, E. (2014). *Programming cochlear implants*. Plural Publishing.
 2. Hughes, M. (2012). *Objective measures in cochlear implants*. Plural Publishing.
- *Additional readings will be posted to Learn@UW

Web Page: Learn@UW (make sure to check frequently)

Course Description: Communication Sciences and Disorders 863 is a 2 credit graduate level course, which is offered by the Department of Communication Sciences and Disorders as part of the Doctor of Audiology, PhD in any area, or Masters in Speech & Language Pathology. It is a required course for the Doctor of Audiology. Students will learn about osseointegrated, middle-ear, cochlear, and auditory brainstem implantable devices. The **purpose** of the course is to provide an understanding of the history of each device, technology and processing of sound through each device, evaluation and candidacy for implantation of each device, and to address post-implantation expected outcomes. Future directions and current research related to implantable auditory prostheses will also be addressed.

Course Objectives:

- To provide an understanding of the history and current technology of auditory implantable prostheses through scientific literature.
- To review anatomy regarding implantation of the auditory prostheses.
- To provide an understanding of candidacy (anatomical, audiological) criteria for auditory implantable devices.
- To provide basic understanding of surgical risk factors and procedures for auditory implantable devices.
- To provide the basic knowledge of fitting and programming software and concepts through hands-on lab projects.

- To provide understanding of the basic speech processing strategies used in cochlear implant devices.
- To provide knowledge of objective and subjective post-operative audiological measures.

Grading: Grading is based on performance on weekly writing activities, weekly online quizzes, one lab assignment, a presentation, and a final paper.

All grades will be awarded based upon the percentage score earned. Because UW–Madison and UW–Stevens Point have different grading scales, grades will be assigned based upon the home campus of the student using the table below:

UWSP Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Percentage	100-92	91.9-90	89.9-88	87.9-82	81.9-80	79.9-78	77.9-72	71.9-70	69.9-68	67.9-60	<60
UW – Madison Letter Grade	A	A-B		B	B-C		C	C-D		D	F

Course Format: Lectures, demonstrations, in-class writing activities, presentations, guest speakers, videos. You are encouraged to **ask questions** and **participate in class discussion**.
**Attendance is mandatory, please notify the instructor ahead of time if you must miss class.*

There are a total of 292 possible points in this class (see details below)

- ✓ **Weekly writing activities** will be worth 22 pts total (2 pts/weekly lecture)
 - Students will complete an individual or group writing activity during most lectures throughout the course of the semester. Specific writing activities will vary each week. Every student will turn-in the writing activity for points via Learn@UW dropbox.
- ✓ **Weekly on-line quizzes** will be worth 90 points total (10 pts/quiz)
 - There will be a total of 9 on-line quizzes
 - Each quiz will consist of 10 questions (e.g. multiple choice, matching, short answer, fill-in-the blank, labeling).
 - Quizzes will be posted and completed via Learn@UW.
 - You will have one week to take the quiz (see Learn@UW for specific dates).
NOTE: All quizzes will be timed. Once the quiz is started you will only have 20 minutes to complete and submit the quiz.
- ✓ **Lab assignment** will be worth 30 points
 - The cochlear implant lab is to be completed on the clinic computers at UW-Madison or UW-SP. Students are to complete the hands-on portion of the lab individually or in small groups. Each student must turn-in their own written lab report answering specific

questions. The written portion of the lab will be graded (due to the dropbox on Learn@UW by **12/19 by 11:00 pm**).

- ✓ **Review Paper** will be worth 75 points
 - Each student will choose a topic related to implantable auditory prostheses. The student will engage in research of the instructor approved topic and complete a 10-page written review paper on this topic. The review papers must be turned-in to the Learn@UW dropbox by **11pm on December 12**. Please see separate document regarding specific instructions and guidelines for the review paper.

- ✓ **Oral Presentation** will be worth 75 points
 - Each student will give a brief presentation to the class at the end of the semester presenting their research findings. Students will be assigned to one of three dates (11/28, 12/5, 12/12). Please see separate document regarding specific instructions and guidelines for the presentation.

Special Accommodations: Please let me know within the first two weeks of class if you need any special accommodations in the curriculum, instruction, or assessments of this course to enable you to fully participate.

Office of Equity and Diversity
<http://www.oed.wisc.edu/disability/>

Facilities Access
<https://fpm-www3.fpm.wisc.edu/ada/Default.aspx>

McBurney Disability Resource Center
<http://www.mcburney.wisc.edu/>

Academic Honesty: All students are urged to read the UW-Madison Misconduct Guidelines. It is your responsibility to read and understand these guidelines.
<http://www.students.wisc.edu/doso/academic-integrity/>

Religious Observances
<http://www.secfac.wisc.edu/governance/ReligiousObservancesMemo.htm>

Students who require special accommodation due to religious observance are also asked to let me know within first week of the beginning of the semester of any conflicts.

Additional Resources:
Pubmed
<http://www.ncbi.nlm.nih.gov/pubmed/>

Writing Center
<http://www.wisc.edu/writing/index.html>

Date	Topic	Assignments	Reminders
September 12	<ul style="list-style-type: none"> • Welcome • Beginning of course overview • Auditory Brainstem Implants • <i>Guest lecture: Erin Nelson (4th year AuD LEND extern)</i> 	<ul style="list-style-type: none"> • <i>Readings: posted under course content for today</i> • Email preferred presentation/paper topic & date to instructor 	<ul style="list-style-type: none"> • Email instructor preferred presentation date and paper topic by Saturday September 17 at 11pm
September 19	<ul style="list-style-type: none"> • Osseointegrated Protheses • <i>Continued course overview</i> 	<ul style="list-style-type: none"> • <i>Readings: posted under course content for today</i> • In-class weekly writing activity • Quiz 1: Osseointegrated Protheses & ABI opens at 4pm 	<ul style="list-style-type: none"> • Quiz 1 due Sunday, September 25 at 11pm • Presentation Topics and Assigned dates posted on Learn@UW by Sunday September 25 at 11pm
September 26	<ul style="list-style-type: none"> • Middle Ear Implants 	<ul style="list-style-type: none"> • <i>Readings: posted under course content for today</i> • In-class weekly writing activity • Quiz 2: Middle Ear Implants opens at 4pm 	<ul style="list-style-type: none"> • Quiz 2 due Sunday, October 2 at 11pm
October 3	<ul style="list-style-type: none"> • Cochlear Implants 1 -History -Device Overview & Basics of Terminology -Candidacy 	<ul style="list-style-type: none"> • <i>Readings:</i> -<i>Hughes: pgs.3-12, 27-29</i> -<i>Wolfe & Schafer: pgs.1-6</i> -<i>additional candidacy readings posted on Learn@UW</i> • In-class weekly writing activity 	
October 10	<ul style="list-style-type: none"> • Cochlear Implants 2 -Overview of the 3 FDA approved manufacturer devices 	<ul style="list-style-type: none"> • <i>Readings:</i> -<i>Wolfe & Schafer: pgs. 7-59</i> -<i>Hughes: pgs. 12-26</i> • In-class weekly 	<ul style="list-style-type: none"> • Quiz 3 due Sunday, October 16 at 11pm

		<p>writing activity</p> <ul style="list-style-type: none"> • Quiz 3: Cochlear Implants 1 & 2 opens at 4pm 	
October 17	<ul style="list-style-type: none"> • Speech Processing Strategies • <i>Guest Lecture: Alan Kan, PhD (Assistant Scientist, University of Wisconsin-Madison, Waisman Center)</i> 	<ul style="list-style-type: none"> • <i>Readings: TBD</i> • Quiz 4: Speech Processing Strategies opens at 4pm 	<ul style="list-style-type: none"> • Quiz 4 due Sunday, October 23 at 11pm • Optional review paper feedback—draft due (via email) by Friday October 21st at 11pm
October 24	<ul style="list-style-type: none"> • Surgical Perspectives • <i>Guest Lecture: Joe Rouche, MD (Assistant Professor, University of Wisconsin-Madison, Department of Surgery-Division of Otolaryngology)</i> 	<ul style="list-style-type: none"> • <i>Readings: TBD</i> • Quiz 5: Surgical Perspectives opens at 4pm 	<ul style="list-style-type: none"> • Quiz 5 due Sunday, October 30 at 11pm • Optional meetings with instructor to review paper drafts
October 31	<ul style="list-style-type: none"> • Objective Measures 	<ul style="list-style-type: none"> • <i>Readings:</i> -Wolfe & Schafer: pgs. 249-257 -Hughes: pgs. 49-54; 62-64 • <i>Additional suggested readings: Hughes book</i> • In-class weekly writing activity • Quiz 6: Objective Measures opens at 4pm 	<ul style="list-style-type: none"> • Quiz 6 due Sunday, November 6 at 11pm • Optional meetings with instructor to review paper drafts
November 7	<ul style="list-style-type: none"> • Mapping/Programming Cochlear Implants 	<ul style="list-style-type: none"> • <i>Readings:</i> -Wolfe & Schafer: pgs: 93-128 • <i>Additional suggested readings:</i> -Wolfe & Schafer: Chapter 4 (Programming AB devices); Chapter 5 (Programming Cochlear devices); Chapter 6 	<ul style="list-style-type: none"> • Quiz 7 due Sunday, November 13 at 11pm

		<p><i>(Programming Med-El devices)</i></p> <ul style="list-style-type: none"> In-class weekly writing activity Quiz 7: Mapping-Programming Cochlear Implants opens at 4pm 	
November 14	<ul style="list-style-type: none"> Speech Perception Measures Post-operative Management Expected Outcomes 	<ul style="list-style-type: none"> <i>Readings: -Wolfe & Schafer: Chapter 8</i> In-class weekly writing activity Quiz 8: Speech Perception Measures – Postop Management – Expected Outcomes opens at 4pm 	<ul style="list-style-type: none"> Quiz 8 due Sunday, November 20 at 11pm
November 21	<ul style="list-style-type: none"> Future Advancements/Hot Topics related to Implantable Auditory Prostheses 	<ul style="list-style-type: none"> <i>Readings: posted under course content for today</i> In-class weekly writing activity Quiz 9: Future Advancements – Hot Topics Related to Implantable Auditory Prostheses opens at 4pm 	<ul style="list-style-type: none"> Quiz 9 due Sunday, November 27 at 11pm
November 28	<ul style="list-style-type: none"> Student Presentations 	<ul style="list-style-type: none"> In-class weekly writing activity 	
December 5	<ul style="list-style-type: none"> Student Presentations 	<ul style="list-style-type: none"> In-class weekly writing activity 	
December 12 (last day of class)	<ul style="list-style-type: none"> Student Presentations 	<ul style="list-style-type: none"> In-class weekly writing activity On-line weekly writing activity for December 19 opens at 4pm 	<ul style="list-style-type: none"> Review paper Due at 11pm (turn-in on Learn@UW dropbox)

December 19			<ul style="list-style-type: none">• Cochlear Implant Lab Due at 11pm (turn-in on Learn@UW dropbox)• On-line weekly writing activity due at 11pm (post on Learn@uW discussion board)
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