



CSD 4000 Anatomy & Physiology of Speech & Language

Harding University
College of Allied Health
3 Credit Hours
Class Meetings Times – T/R 1:00 – 2:15
Swaid 215

Instructor: Melanie Meeker, PhD, CCC-SLP
Phone (office): (501) 279-4633
Email: mmeeker@harding.edu

Semester/Term: Fall 2024
Office Hours: email for an appointment

Course Information

Course Description

Normal anatomy and physiology of speech and language will be presented. Specific breakdowns in anatomical and physiological functioning resulting in communication disorders will be discussed.

Prerequisite: BIOL 1200

Course Rationale

This course is designed to provide the undergraduate student in communication sciences and disorders with a functional knowledge of the anatomy and physiology of speech and language production. Attention is given to the specific structures, muscles, and function of respiration, phonation, resonance, and articulation. An overview of the central and peripheral nervous systems is provided. By the conclusion of this course students are expected to know the location and function of the primary structures and muscles of the speech/language mechanism as well as understand how these structures function to produce speech, language, cognition, and swallowing.

Course Materials

Required Materials: Seikel, J. A., Drumright, D. G. & Hudock, D.J. (2024). *Anatomy and Physiology for Speech, Language, and Hearing* (7th ed.). Plural. ISBN 978-1635506280

Ferrand, C.T. (2021). *The Speech and hearing anatomy course companion workbook*. Loveland, CO: CTF Publications.

Strongly suggested: McFarland, D. (2023). *Netter's Atlas of Anatomy for Speech, Swallowing and Hearing*. (4th Ed). Mosby/Elsevier Press. ISBN 9780323830348

Textbook Rationale

I know that textbooks represent a significant cost for the college student. In this course, you will utilize the required text heavily and it is an excellent resource for you as you enter graduate school and build a professional library. This book contains excellent photographs, illustrations, and diagrams of the human body which are very helpful in mastering this course content, which is visual in nature.

You may opt in for HU Access to the textbook for this semester only, you may purchase your book from the HU Bookstore, directly from the publisher, or from [Amazon](#). The electronic resources are very good.

Course Communication

I am here to help you. I will communicate with you via in-class announcements, Canvas announcements, and your HU e-mail (for small groups, individual messages). Students are responsible for the disbursement of information (including attachments) through these sources. Please contact me via email instead of using text messages or the comment box within an assignment. I will respond to emails within 24 hours during the typical work day (8am-5pm) Monday-Friday. Students are expected to check emails daily and a timely response from you is appreciated. Use of office hours is strongly encouraged – please send me an email and I’m glad to make an appointment with you to review any course concept, exam, or assignment.

Department Mission Statement

Our program excels in developing highly skilled and professional graduates who are ready to impact their local and global communities by improving the lives of those they serve. Christian faculty and staff are invested in providing an unparalleled experience utilizing a comprehensive curriculum, contemporary technology, and state-of-the-art facilities to engage students in reaching their full potential, both educationally and spiritually. As a result, our students exemplify ethical leadership, critical thinking, and interprofessional collaboration to support top of the license practice.

Integration of Faith and Learning Statement

There is nothing that convinces me more of God’s sovereignty over this fallen world than learning more and more about His masterpiece – the human body. You are an absolute miracle – the workmanship of His almighty hand. You are a living, breathing, walking “study aid” for this course. If you have negative preconceived notions about this course, let go of them.

Learning Objectives

University Learning Outcomes (ULOs)

Communication - ULO 2: Students will demonstrate effective communication (e.g., written, non-written, spoken).

Critical Thinking - ULO 3: Students will examine issues, ideas, artifacts, and/or events in order to formulate or assess an opinion or conclusion.

Scientific Perspective - ULO 7: Students will identify and apply the principles and processes of scientific reasoning.

Wellness Perspective - ULO 8: Students will exhibit knowledge and skills that lead to high-level personal wellness (e.g., spiritual, physical, intellectual, emotional, social).

Program Learning Outcomes (PLOs)

- PLO 1 - Demonstrate problem-solving skills using a Christian worldview and the ASHA Code of Ethics.

- PLO 2 - Connect the Christian worldview to the role of the CSD student in prevention, education, and advocacy while participating in service-learning experiences, community outreach activities, IPE events, and/or professional educational events.
- PLO 3 - Communicate effectively in written, oral, and non-verbal forms, including discipline specific documentation, and collaboration with team members.
- PLO 4 - Demonstrate knowledge of the normal anatomy and physiology underlying human respiratory, phonatory, articulatory, neurological, and auditory systems.
- PLO 7 - Discuss the general effects that a communication disorder may have on one's life and that of their family/caregiver.
- PLO 10 - Use appropriate resources to locate scientific information in the primary literature, and to effectively summarize/synthesize the information to learn new concepts using APA guidelines.

Course Learning Objectives (CLOs)

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

1. Use common directional terms to describe anatomical structures for speech, voice and swallowing in their relationship to each other and other parts of the body
2. Be able to list cranial nerves and describe their basic functions
3. Describe the organization and function of central and peripheral nervous systems
4. Match disorders of speech, language and cognition with corresponding sites of lesion
5. Describe origin, insertion, action and innervation of musculature for speech, voice and swallowing
6. Construct models of larynx and brain, identifying key structures and demonstrating an understanding of their role in communication
7. Describe basic physiology governing cognition, language, phonation, respiration, articulation, resonance and swallowing
8. Discuss the Bernoulli principle and Boyle's law as they relate to phonation and respiration

Module Learning Objectives (MLOs)

See the module objectives and associated readings for each of the modules in this course. (separate document)

Grading and Assignment Details

You will be given feedback during the duration of this course. Feedback will primarily be in the form of grades on quizzes, exams and projects. The intent of this feedback is to inform you of how well you met the expectations for these components and help you identify strategies for mastering the course material. Assessment of the knowledge, skills, and proficiency of each student for the purpose of assigning a letter grade at the completion of this course will be based on the following course components:

Chapter Exams -	40%
Exam #1 – Neurology & Basics of A&P	
Exam #2 – Respiration	
Exam #3 – Phonation	
Exam #4 - Articulation/Resonance	
Final Exam (Comprehensive)	20%
iRATs/tRATS	20%
Class Projects & Team Maintenance	20%
<ul style="list-style-type: none"> • Clay brain • Clay larynx • Respiration t-shirt 	

In this course, points are assigned to iRATs and tRATS according to the standard Team Based Learning framework. Any student not earning half of the points available on the iRAT will have (double) the iRAT

grade recorded for the tRAT assignment. At the end of the semester, the lowest iRAT/tRAT will be dropped. Use the Module Objectives to help you prepare for quizzes and exams.

Grade schedule: A- 90-100
 B- 80-89
 C- 70-79
 D- 60-69
 F- less than 60

Late work policy

Late work is not accepted and earns a grade of zero. Extra credit opportunities are generally not available. I do not provide any opportunities to raise your grade at the end of the semester and don't round overall course grades. Take home message: Do your best work on time.

Course Assignment Details

This course is divided into sections. Each section will cover the structure (anatomy) and function (physiology) of each body system. Specific breakdowns in anatomical and physiological functioning resulting in communication disorders will be discussed. The systems covered in this course include:

- 1) Basics of Anatomy & Physiology
- 2) Neurology
- 3) Respiration
- 4) Phonation
- 5) Articulation & Resonance

Each of the five systems above is represented by a module in Canvas. Each module contains pre-recorded Echo Lectures which you can listen to. You should also plan to read the corresponding chapters in your textbook. Each module will contain at least two quizzes and you can take them multiple times – there is no grade assigned to the quizzes.

Course Requirements- (must be completed to earn credit in this course):

1. There will be four examinations and a final. The final will be comprehensive.
2. Each student will make a three-dimensional model of a the left cerebral hemisphere and the larynx. Clay (Model Magic) is available at WalMart, Hobby Lobby, or online. Play-Dough is not recommended; it falls apart when dry and you will be sad. Your larynx model should be able to stand on its own. You'll also complete a t-shirt depicting the muscles of the respiratory system. You should plan to turn these in at class time on the day they are due. Examples of work submitted in previous semesters are available on Canvas. Rubrics for each project and "helpful hints" are available on Canvas and should be referenced prior to project completion.
3. Each chapter will have at least one accompanying quiz on Canvas. These are for your use but don't count toward your grade at all. Quizzes are also available through the text's online resources. They are great practice!

Participation/Attendance

Full participation in each class meeting is required for the success of the entire class. True exchange of academic ideas can only be achieved with everyone actively participating. Attendance at each class meeting is expected. The most successful students come to class having read the material, viewed the accompanying Echo Lectures and have clarifying questions ready. Anatomy involves some complex concepts and large amounts of material that is probably new to you. I truly want you to be successful in mastering this course material but cannot answer questions that you don't ask. In my classroom, there are no "dumb" questions. I will always respect your willingness to seek a greater depth of knowledge and

promise to never knowingly make a student feel “silly” for asking a question in class – it’s a safe place to pursue knowledge. Please make sure that you maintain that sense of safety by honoring your classmates’ pursuit of knowledge.

Should you need to miss class for any reason, please communicate with me prior to class time via email. Attendance will be taken at each class meeting. Any student who misses more than 2 class meetings will have the final grade lowered by one letter for each subsequent absence.

A grade of 0 will be recorded for any missed iRAT/tRAT. Their nature makes them impossible to make up. If you anticipate repeated absences from class that may make this problematic for you, please let me know. At the end of the semester, I will drop the lowest iRAT/tRAT so you get one “free pass.”

Additional Course Policies:

- Please use my university email (above) rather than Canvas email. I do not regularly check Canvas mail and information there is easily missed. Comments made in Canvas are also easily missed.
- Students are expected to read assigned material prior to class and be prepared to participate in class discussions. Students who miss class are responsible for content.
- Please do not text, IM, or surf the web during class. If there is an emergency, you may leave the classroom to take care of the matter.
- Lectures, slides and test questions are considered to be intellectual property and some course components are protected by an additional copyright. For these reasons, students may not record any portions of a class or photograph slides without the express permission of the course instructor.
- Written work must be correct in mechanics (e.g. grammar, punctuation, etc.). Points will be deducted for inadequate work.
- It is expected that students will adhere to assignment due dates. Late work will **not be accepted** and a zero will be given for the assignment. However, I ask that you communicate with me if you are ill or have an emergency.
- Submitting work taken directly from another source will be considered plagiarism and no credit will be given on the assignment. Cheating in all its forms is inconsistent with the Christian faith and practice and will result in sanctions up to and including dismissal from the class with a failing grade. Obtaining information from students taking this course during a previous semester or giving information to students in subsequent semesters is considered Academic Dishonesty. Please see the [University Catalog](#) for information related to this topic. You might be surprised at what’s considered cheating.
- If you are unable to take an examination due to illness, an alternate form of the exam may be substituted for the missed exam. In order to be allowed the opportunity to make up the exam you must contact me prior to the scheduled exam.
- Students are encouraged to review each exam with the course instructor. Students are expected to take ownership and responsibility of their course grades.

Submitting Assignments

Please use Canvas for submitting assignments; each assignment has a correlating spot for submission. Name your file in a way that identifies you and the project you’re submitting. An example might be Meeker Larynx or Meeker Brain. (Use your name, not mine.) If your file is too large to upload to Canvas, use Google Drive. Please follow up on your submission with an email to me, alerting me to look for it. Look for specific information about assignment submissions in Canvas – I’ve tried to leave very clear directions there.

University Assessment

Harding University, since its charter in 1924, has been strongly committed to providing the best resources and environment for the teaching-learning process. The board, administration, faculty, and staff are wholeheartedly committed to full compliance with all Criteria of Accreditation of the Higher Learning Commission as well as standards of many discipline-specific specialty accrediting agencies. The university values continuous, rigorous assessment at every level for its potential to improve student learning and achievement and for its centrality in fulfilling the stated mission of Harding. Thus, a comprehensive assessment program has been developed that includes both the academic units and the administrative and educational support units. Course-specific student learning outcomes contribute to student achievement of program-specific learning outcomes that support student achievement of holistic university learning outcomes. All academic units design annual assessment plans centered on measuring student achievement of program learning outcomes used to sequentially improve teaching and learning processes. Additionally, a holistic assessment of student achievement of university learning outcomes is coordinated by the University Director of Assessment used to spur continuous improvement of teaching and learning.

Students with Disabilities Accommodations

It is the policy for Harding University to accommodate students with disabilities, pursuant to federal and state law. Therefore, any student with a *documented disability* condition (e.g. physical, learning, or psychological) who needs to arrange reasonable accommodations must contact the instructor and the Office of Disability Services and Educational Access at the *beginning* of each semester. If the diagnosis of the disability occurs during the academic year, the student must self-identify with the Office of Disability Services and Educational Access *as soon as possible* in order to get academic accommodations in place for the remainder of the semester. The Office of Disability Services and Educational Access is located in Room 226 in the Student Center, telephone, (501) 279-4019.

Code of Academic Conduct

Honesty and integrity are characteristics that should describe each one of us as servants of Jesus Christ. As your instructor, I pledge that I will strive for honesty and integrity in how I handle the content of this course and in how I interact with each of you. I ask that you join me in pledging to do the same. Academic dishonesty will result in penalties up to and including dismissal from the class with a failing grade and will be reported to the Associate Provost. All instances of dishonesty will be handled according to the procedures delineated in the Harding University catalog.

All acts of dishonesty in any academic work constitute academic misconduct. As a student of Harding University, you should avoid all cases that will be construed as academic misconduct. This includes, but is not necessarily limited to, the following:

1. *Cheating*: Use or attempted use of unauthorized materials, information, or study aids in any academic exercise.
2. *Plagiarism*: Representing the words, ideas, or data of another as your own in any academic exercise.
3. *Fabrication*: Falsification or unauthorized invention of any information or citation in an academic exercise.
4. *Aiding and Abetting Academic Dishonesty*: Intentionally helping or attempting to help another student commit an act of academic dishonesty.
5. *Conduct unbecoming a professional while participating in a practicum, internship, field experience, or any similar academic experience*: Conduct unbecoming a professional includes, but is not limited to, standards of conduct stated in any [Harding University student handbooks](#) as well as standards and codes of conduct associated with professional organizations related to the student's academic discipline.
6. *Respect*: Students are expected to respect other classmates' opinions and ideas at all times.

Chapter quizzes in Canvas will benefit you most if they're done independently, although comparing answers with a peer after you've taken the quiz is acceptable. It's acceptable to work alongside a peer

when completing projects, although each student should complete his/her own project. Examinations should be done individually and not discussed with peers afterwards.

Special Note on the use of AI such as ChatGPT

The use of generative AI tools is not permitted for any assigned work in this class and constitutes a violation of Harding's Academic Integrity Policy. It is my sincere hope that you understand the connections between reading, writing, and learning. Writing about something helps build neural pathways that aid you in connecting your new knowledge within the context of knowledge you've already learned. Skipping this step and using something written by AI or by another person means you are cheating yourself out of learning. Please be responsible and ethical in your coursework, and please submit your own writing.

Course Recordings

Canvas content and class recordings (e.g., Echo360) are protected by copyright. Without written permission from the instructor, content (written, audio, video) may not be downloaded or shared with anyone. Most content and recordings will indicate copyright by the symbol ©. However, a symbol is not required to protect copyrights, so unless you have permission to download or share recordings or content, you should not do so. Doing so violates Academic Integrity Policies and may result in disciplinary actions.

Referencing Information

As the accepted writing style of business, psychology, education, and social science programs across the globe, the American Psychological Association publication format (otherwise known as APA Style) is the required writing style for this course. Learning to conduct scholarly research is a natural part of academic work, and will help you succeed at Harding University. Conducting scholarly, professional and industry research is required for this course.

If a source is questionable, e.g., Wikipedia, other wikis, ask.com, answers.yahoo.com, etc., please contact your professor for clarity and permission before using a source that falls outside the scope of traditional academic standards. It is also important that you show how these references assisted your academic work; so make sure you reference your sources in every assignment you submit, no matter how mundane the assignment may be. Failure to properly and completely cite your sources may constitute plagiarism or cheating, as delineated in the Academic Code of Conduct. Bottom line, remember these two simple rules: 1) give credit where credit is due, and 2) if it isn't your words, ideas or thoughts, it is someone else's and needs to be cited.

- [APA Resources](#)
- [Purdue Online Writing Lab](#)

The Harding University Writing Center is also available to provide help with planning, writing, organizing, or revising an essay as well as with using MLA, Chicago, or APA formats. You can schedule an appointment with the Writing Center at harding.mywconline.com or ask questions via email at HardingUniversityWritingCenter@gmail.com.

Academic Grievance Policy

If a student believes that he or she has reason to question the decision of a faculty member with regard to the final grade received in a course or the denial of academic progression, a procedure has been established to resolve the grievance.

The student must initiate the written Academic Grievance Appeal within five business days after notification of the final grade in Pipeline or notification of denial of academic progression. In cases of both course grade and academic progression appeals, students are encouraged to first engage the involved faculty member in a good faith discussion (in person or via telephone or email) as the first step in resolving any concerns. If resolution is not achieved, a student may submit a written academic grievance

by following the policy set forth in the Harding University catalog. All students should be familiar with this policy.

Time Management Expectations

For every course credit hour, the typical student should expect to spend at least forty-five clock hours of concentrated attention on course-related work, including but not limited to time attending class, as well as out-of-class time spent reading, reviewing, organizing notes, preparing for upcoming quizzes/exams, problem solving, developing and completing projects, and other activities that enhance learning. **Thus, for a three-hour course, a typical student should expect to spend at least one hundred thirty-five hours dedicated to the course.**

Inclement Weather

If inclement weather prohibits your participation in any element of this course, prompt communication with me is expected. Your personal safety is my primary concern. We will handle any instances that arise on a case by case basis.

Academic Support Services

Harding offers a wide variety of academic support services. While this list is not all-inclusive, the following links may be useful to students (some services may not be applicable for graduate or professional students):

- [Library](#)
- [Testing](#)
- [Tutoring](#)
- [Writing Center](#)

Student Support Services

Harding offers a wide variety of student support services. While this list is not all-inclusive, the following links may be useful to students (some services may not be applicable for graduate or professional students):

- [Advising](#)
- [Registration](#)
- [Financial Aid](#)
- [Student Life](#)
- [Counseling](#)
- [Career Services](#)

Additional Information

There is a tremendous amount of information in your text – we can't possibly master ALL of it in 16 weeks. Pay attention to the quizzes – they will help guide you toward the information that I consider important in this course.

This course is additive in nature meaning that your understanding of future concepts is built upon understanding of earlier concepts. If you fall behind, catch up! If you're lost, ask yourself if you are dedicating enough time to the material. If you are reading your textbook, watching the Echo lectures, spending adequate time with the material (according to the time expectations) and are still lost, see me (earlier rather than later). I want to help you be successful in this class.

In this course, spelling counts. Take the time to learn the correct spelling of each term – if it's spelled wrong, it will be counted wrong. Basic anatomical terms and names of structures do not require capitalization (e.g. esophagus, neurons, larynx, palatoglossus). Structures/diseases named for people (e.g. Broca's area, Parkinson disease, Alzheimer's disease, circle of Willis) are capitalized.

Do yourself a favor and "crack the code" of anatomy early in this course. Learn the basic anatomical terms presented in the first chapter and you'll have an easier time later. The first anatomists were Greeks, thus many Greek (and Latin) terms form the basis for anatomical terminology. Your book does a great job of highlighting this in the margins – pay attention.

I am a firm believer that excellent treatment is built on a solid diagnostic foundation which is built on a

clear understanding of what's "normal." You can't reasonably expect to improve your patient's function if you can't identify the problem. Please view this course as foundational (not optional) for your skills as a diagnostician and clinician.

Tutoring is available in the Center for Student Success – it is a wonderful resource and totally free. Please use it, even if you don't think you need it. Many students find it helpful just to talk with another CSD student about the material in the class.

Please take advantage of Office Hours. Office Hours represent time that I dedicate to you, my student, to support you in this class. My schedule varies significantly over the course of the week and from one week to the next, but any time you want to connect with me about course content outside of class time, just let me know.

Changes to Syllabus Notice

The instructor reserves the right to modify and update any part of the syllabus where necessary. You can expect that these changes will be for your perceived benefit and will be communicated in Canvas. It is your responsibility to stay up to date with any changes communicated by the professor.

Week	Date	Topic	Reading	Due	Class Activity
1	Aug 20	Course Overview/Intro to TBL	Syllabus		Form teams, intro to TBL and course; syllabus quiz
1	Aug 22	Basic Elements	1	Workbook pp 5-8	iRAT/tRAT #1 application activity: using directional terms and creating novel terms
2	Aug 27	Neuroanatomy	11		iRAT/tRAT #2 application activity – swimming cap (major landmarks)
2	Aug 29	Neuroanatomy		Workbook pages 19, 21, 26, 30 & 32	Application activity – neural pathways
3	Sept 3	Neuroanatomy			iRAT/tRAT #3 Application activity – Kahoot review
3	Sept 5	Neuroanatomy			iRAT/tRAT #4 Application Activity – Kahoot review - CNs
4	Sept 10	Neurophysiology	12		iRAT/tRAT #5 Application activity - localization of function “hat”
4	Sept 12	Neurophysiology		Clay Brains due	Application activity – putting the puzzle together
5	Sept 17	Neurophysiology			Application activity – CN Bingo
5	Sept 19	Neurophysiology			Class time for Q & A – Kahoot review Exam #1 9/22 (Friday)
6	Sept 24	Respiration	2/3		iRAT/tRAT #6 Application activity – skeletal framework
6	Sept 26	Respiration		Workbook pages 69, 75 & 76	Application activity – muscles of respiration (anatomy)
7	Oct 1	Respiration		Workbook pages 80-85	iRAT/tRAT #7 Application activity – muscles of respiration
7	Oct 3	Respiration		Workbook pages 86-89	Class time for Q & A – Kahoot review

				Tracheostomy lab with Nursing – 3:00 – 4:00 (Freeman Center)	
8	Oct 8	Respiration		Midterm Week; Respiration t-shirt due	iRAT/tRAT #8 application activity – respiratory physiology
8	Oct 10	Respiration			Class time for Q & A – Kahoot review Exam #2 on Friday – 10/11
9	Oct 15	Phonation	4/5		iRAT/tRAT #9
9	Oct 17	Phonation		Workbook pages 98-100	application activity – build larynx
10	Oct 22	Phonation		Workbook pages 103, 106-107, 109, 111	Application activity – muscle classification
10	Oct 24	Phonation		workbook pages 125, 129, 131	Application activity – endoscopy demonstration
11	Oct 29	Phonation		Monday October 28 – tracheostomy class w/Nursing Swaid 233/234 3:00 – 5:00	Clay larynx due – see Canvas
11	Oct 31	Phonation			Application activity – phonatory physiology
12	Nov 5	Phonation	6/7	Workbook pages 134-149	Exam #3 11/8
12	Nov 7	Artic/Resonance			Phonation Kahoot and pathologies
13	Nov 12	Artic/Resonance		Workbook pages 153, 157, 165, 167	iRAT/tRAT #10
13	Nov 14	Artic/Resonance			Application activity: facial musculature
14	Nov 19	Artic/Resonance		Workbook pages 169, 173, 176, 181, 210-211	Application activity – synthesize phonemes, muscles & nerves
14	Nov 21	Artic/Resonance			Malocclusions, artic development, motor control of tongue Exam #4 12/2
15	Dec 3	Course Review		Workbook pages 187, 189, 193	Donor lab visit

15	Dec 5	Course Review		Workbook pages 194-209	Course Review Kahoot
	Dec 9-13	Final Exam Week		Final Exam given Wednesday 10:30 – 12:30	