

Neurological Bases of Speech and Hearing (ASLP 4050, Section 001, Spring 2024)

University of North Texas

Class is held every Tuesday and Thursday, 2:00 pm - 3:20 pm

Class location: Curry Hall, 103 (CURY 103)

		Office*	E-mail**	Phone
Your professor:	Gloria Olness, Ph.D., CCC-SLP ("Dr. O.")	SPHC 217	gloria.olness@unt.edu	940-369-7455
Your TA:	Alyssa Bennett	SPHC 215	Alyssa.Bennett@unt.edu	--

* **Weekly study-help sessions held by TA:** Thursdays, 12:45-1:45 pm, SPHC 215 or on Zoom. **Professor:** Tuesdays 3:40-4:40pm (SPHC 217 or on Zoom). A combination of in-person and remote office hours are available to meet the learning support needs of all students. When regular office hours do not work in your schedule, office hours can be arranged flexibly, at a time and location mutually agreed upon by student(s) and instructor(s). **Alternate Zoom office hours can be scheduled flexibly on other days and times; see page 7 of syllabus, to see how to structure your email when requesting an alternate meeting time.**

** The most efficient way to reach us to arrange an appointment is by e-mail or through Canvas messages.

Required resource

Bhatnagar, Subhash C. (2018). *Neuroscience for the Study of Communicative Disorders*, 5th edition. Baltimore, MD: Wolters Kluwer. (ISBN-13: 978-1496331519)

- It is **required** that you obtain access to the on-line student resources associated with the 5th edition of the text, as part of your book purchase, for purposes of completing the home-work assignments. Also, page numbers mentioned within lectures and study materials are pages in the 5th edition of the book. **Contact the UNT bookstore and/or the publisher** for information on how to obtain access to the book and its on-line resources.
- Note: If you purchase a used 5th edition of the book, it may not provide access to the online resources.
- A copy of the 4th edition is also on reserve at the UNT library for your reference. Content parallels the 5th ed.

Suggested resource

Diamond, M.C., Scheibel, A.B., & Elson, L.M. (1985). *The Human Brain Coloring Book*. Oakville, CA: Collins. (ISBN: 0-06-460306-7) *Especially helpful for visual learners*

Prerequisite course

ASLP 3025: Anatomical Bases of Speech and Hearing Sciences
(prior or concurrent enrollment strongly recommended; see professor to discuss exceptions)

What you can expect to achieve in this course

This course, for advanced undergraduate students, is designed as an introduction to the structure and function of the human **central nervous system** (brain, spinal cord) and the human **peripheral nervous system**, as related to the practice of speech-language pathology and audiology. Normal neurological bases for multiple aspects of communication, swallowing, and balance are addressed, as well as neuropathology associated with disorders of communication, swallowing, and balance. There is an emphasis on the **reception and integration** of sensation (with a focus on hearing, speech and language comprehension, tactile sensation, vision, smell, and taste, proprioception, and balance); and the **integration/planning and production** of verbal and non-verbal responses speech and language production; kinesics, including gesture; writing/drawing; posture; and mastication/swallowing.

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

1. discuss the gross anatomy of the central and peripheral nervous systems;
2. discuss the neuromuscular control for normal speech, swallowing; posture, and gestural movements;
3. discuss the nervous system as it relates to normal language production, language comprehension, and cognition;
4. discuss the nervous system as it relates to hearing, balance, vision, taste, smell, and touch; and
5. apply your knowledge of neuropathology toward an understanding of the clinical-pathological method as it relates to neurogenic disorders of communication, hearing, and swallowing.

What this achievement will take on your part

Emphasis is placed on your steady progress and consistent participation in this course, through regular class attendance, regular study habits, home-works, exercises and exams.

1. **Consistent attendance and participation in class: every Tuesday/Thursday**
2. Regular allocation of 6 hours per week outside of class for review, reading, home-work completion, exercise completion, individual study, group study, and/or meetings with T.A. or professor, which is **standard for a 3 credit-hour course (i.e., 6 hours of work outside of class + 3 hours in class = @9 hours of work per week)**
 - i. It is important to first study the big picture before studying details. Treat this class like you would a puzzle – look at the overall picture on the front of the box before you start trying to piece it all together.
 - ii. Treat your book like an encyclopedia. Encyclopedias are not read from beginning to end. Rather, you scan across the headers and sub-headers to see the overall frame-work first, and then you dig down for the details that you need. Once you see the overall frame-work, finding and understanding detailed information becomes much easier.
3. **Accessing lectures in advance of class**, for note-taking and pre-study; lectures will be posted on Canvas at least 2 hours in advance of each lecture.
4. **Checking your UNT email and Canvas Announcements on a regular basis.** Instructors will send all class correspondences to your official UNT email address (yourname@my.unt.edu).
5. **Completion of all home-works.** All home-works need to be completed to earn full credit, but only the top five home-work scores count toward your grade; you learn the critical skill of how to figure out little puzzles, and we'll also let you know explicitly which of the home-work content is test eligible.
6. **Completion of exercises.** You earn completion credit; very helpful in support of test preparation.
7. **Preparation for and completion of five examinations.**

Remember: *Your health and safety, and that of your loved ones, come first, before school. It is okay to not be okay.*

If you are experiencing an emergency please call 911. If you are in crisis, please call the Crisis Hotline: 1-800-762-0157. Mental health resources can be accessed at <https://speakout.unt.edu/content/mental-health-resources>.

Your instructors and the Dean of Students team are also available to support you in your academic success, whatever your life situation (financial, personal, health, transportation, family-related, etc.), so please reach out to us anytime. See contact details on pages 1 and 3 of the current syllabus.

Our commitment as professor and teaching assistant

1. Careful selection of readings and materials
2. Careful preparation of lectures, in-class activities, home-works and exercises
3. Availability for discussion of course content and student progress
4. Provision of feedback on your learning, via the home-works and the five examinations; we also offer discussion of home-works and exercises outside of class (by student request).
5. Help in arranging study/discussion groups (by student request) outside of class, if this fits your learning style.

Strongly recommended participation, and associated learning goals

Class attendance: Attendance is **expected and required**. Even though attendance may not be taken and does not impact your grade, absences negatively impact your learning. For this reason, **you should attend every class session** unless you have a university excused absence such as active military service, a religious holy day, or an official university function as stated in the Student Attendance and Authorized Absences Policy:
<https://policy.unt.edu/sites/default/files/06.039%20Student%20Attendance%20and%20Authorized%20Absences.pdf>

- *If you cannot attend a class due to an emergency, please immediately contact all three of the following in the table below (e.g. in one email), so we can maximally support your overall welfare, and so we can implement course adjustments in support of your learning and success in the course.*
- *Your instructional team has great respect for students who are balancing the demands of their coursework with the responsibilities of caring for family members, and who simultaneously take on the responsibilities expected of them in the course. If you run into challenges that require you to miss class, please contact both the TA and the professor to inform them of the conflict **prior** to your absence.*

Dean of Students Office	940-565-2648	deanofstudents@unt.edu University Union, Suite 409	Dean of Students will gather and send official documentation of your need for course and deadline adjustments to the instructional team and is skilled at connecting you with support available to you through UNT, no matter what your life situation. An excellent resource!
TA, Alyssa Bennett	--	AlyssaBennett@my.unt.edu	The TA helps implement adjustments of course deadlines and make-ups, and she will also help connect you with classmates who may volunteer to provide you with notes from the day you were absent.
Professor, Dr. Olness	940-369-7455	Gloria.Olness@unt.edu	The professor plans course adjustments with you and offers overall support, working with you to map out your path to success in the course.

Based on experiences and reports of past students in this course, studying from online Power Points alone without attendance at lectures is insufficient for learning the material; physical models, explanations, demonstrations, and discussion of clinical cases cannot be included in the Power Points. Attendance at all lectures puts you at a strong learning advantage. **You are encouraged to cooperate with classmates to share and discuss notes together** as the course progresses. Later portions of course content build systematically on prior content.

Self-quizzes: Research suggests that self-quizzing optimizes learning, so from the very start, we'll guide you in how to use this learning technique to give yourself an edge.

Required participation, assessment, and associated learning goals

Home-works (top 5 of 8 home-work scores, 2% each):	10% of course grade*
Completion of 8 home-works:	5% of course grade*
Completion of at least 5 exercises (1%/exercise):	5% of course grade*
Exams (5 exams, 16% each):	80% of course grade*

Home-works: *The purpose of the home-works is to develop and assess your ability to access and use detailed information within the overall framework you are learning. This is the process used by practicing clinicians. As you engage in this process, you will also deepen your understanding of the key course concepts, since the instructor provides learning guidelines for each question.*

You should answer *all* the assigned HW questions in preparation for the exam, but you will submit only the multiple-choice HW questions for a grade.

Home-works are based on the course readings, via on-line resources associated with your book. Details of home-work assignments, including the home-work due dates, will be posted to Canvas. You will earn up to **2% for each of the top 5 out of 8 home-works**--grades of three lowest home-works are dropped--**for a max of 10% of your final course grade.**

Completion of home-works: **Completion of all home-works (HWs) is worth 5% of your final course grade.** A "completed HW" is defined as a HW for which *all the MC questions have been answered* and have been *turned in on-time* on Canvas. HW due dates will be specified when the home-work is assigned.

- Complete **all eight** home-works: **Earns the maximum 5%** (five percentage points)
- Complete **seven** home-works: **Earns 3%** (three percentage points)
- Complete **six** home-works: **Earns 1%** (one percentage points)
- Complete **five or fewer** home-works: **Earns 0%** (zero percentage points)

Note: *Collaborative completion of home-works* with classmates and with support of the instructional team is *encouraged*, under the strong assumption that the learner contributes actively to the home-work completion in support of his or her learning.

Completion of exercises: **A set of exercises based on the lecture content** will be distributed to the class via Canvas. Exercises are *designed to help you more deeply learn the lecture content* and the clinical applications of that content, **to prepare for the exams.** Completing 5 or more exercises will earn you **5% of credit toward the course grade; five or more exercises must be completed to earn this credit.** (Completing more than five exercises will not earn extra credit, but is still encouraged in support of your learning.) Use exercises to guide your question-asking in study/help sessions, where we can also discuss answers to exercise questions.

Exams: Exams are *designed to assess*: (1) learning of lecture content, as bolstered by your engagement with the exercises; (2) learning of home-work content that is explicitly noted in the guidelines as exam eligible; (3) your ability to apply this learning to clinical scenarios. For many students, learning of this content is further enhanced by reviewing exams after they are graded; all students are welcome to arrange this through individual appointments with the TA.

You will earn up to **16% for each of 5 exams, for a max of 80% of your final course grade.** See the grade calculation spreadsheet on Canvas, and the example of grade calculation found at the end of this syllabus.

Exams are to be completed by each student independently, to assess each student's learning individually. Study-help sessions with the instructional team to support studying of exam-related material can be held during *prior* to exam distribution but cannot be held after the exam is distributed. The process for arranging these meetings is described on syllabus p. 7.

More about grade calculation and posting

Raw grades on home-works and exams will be posted throughout the semester on Canvas. To access Canvas, go to <https://unt.instructure.com/login/ldap> and login with your EUID and password.

Assignment of final course grade:

A: 90-100%
B: 80-89%
C: 70-79%
D: 60-69%
F: <60%

For purposes of final grade assignment, percentages are rounded up to the nearest whole-number percentage. For instance, a final course percentage of 79.1% would round up to 80%, which would earn a 'B' in the course. See the last page of this syllabus and the grading calculation spreadsheet on Canvas for guidance on how to calculate your final course grade. ***Ignore Canvas course grade calculations; they are grossly inaccurate.***

Important details about the home-works

For each homework, answer each of the questions specified in the homework assignment/guidelines that you will find on Canvas. You will need access to Canvas and to the online resources associated with your text to complete the home-works. *You should complete the whole homework, but only the multiple-choice items will be submitted and graded.* The home-works will be found through the text's website at <http://thePoint.lww.com>. Once you are logged into the site, select "Classroom Handouts" under Student Resources. You will find Student Workbooks, divided by chapter. Your home-works are these Student Workbooks.

You are welcome to work on take-home home-works with peers. However, it is to your learning advantage to be actively involved in the thinking and rationale behind your final responses to the home-work questions. It is strongly advised that you do NOT simply copy the correct (or incorrect!) answers of your peers.

Important details about the exercises

Exercises will be posted for you on Canvas. Completing exercises supports your understanding of the lecture content and how that content is clinically applied, in preparation for exams. Completed exercises that are submitted on the day of the posting of the examination guidelines earn completion credit (up to a maximum of 5% credit) as described elsewhere in the syllabus.

Important details about the examinations

Exams will be posted on Canvas with **extended time** provided for all students, and exams are also **open-note** (in Canvas using Lockdown Browser + Respondus Monitor), to accommodate the on-line testing format.

Examinations cover course content up to and including the class day prior to the exam; **exam guidelines will be posted one week in advance of the test date.** Emphasis is based on frameworks, concepts, and content taught in lectures and reinforced by the readings and the associated home-works and exercises. Home-work content that may appear on the test will be so indicated on the home-work assignment sheet. Exercise content will give you practice in clinical application of course content, in preparation for related questions on the exam.

An understanding of content early in the course is essential for the learning of content in later portions of the course, so it is important to learn and retain content from each unit across the term. However, the focus of each exam will be placed on the material taught most recently, since the previous exam. Each exam will be comprised of a set of **multiple-choice questions combined with a short-answer justification** of the multiple-choice response (MC-with-justification), as well as **one verbal response to one question** (verbal-short-answer). The written portion of each exam will be conducted remotely, using Canvas Lockdown Browser + Respondus Monitor (MC-with-justification), and the verbal portion of each exam will be conducted on Zoom (two-minute verbal response to one question). **Study guidelines will be provided one week in advance of the test date.**

Make-up policy

In fairness to all students in the course, each student is held to the same standards for course grading and course deadlines; no exceptions. Course deadlines can be adjusted only in extreme emergencies with advance notification (as defined on page 3 of the syllabus) and formal documentation received through the Dean of Students Office will be required.

Home-works. There is no late submission of home-works, although early turn-in of home-works is allowed. Answers to all the multiple-choice home-work questions must be turned in by the specified due date and due time. Home-works turned in late or not turned in will earn a zero for that home-work, and will reduce the home-work completion portion of your grade. See Canvas for details of home-work deadlines.

Exercises. Exercises associated with any given exam must be submitted *prior* to the posting of the associated exam to earn completion credit. See Canvas for details of exercise submission deadlines.

Exams. The *written portion* of each exam must be completed on Canvas within the allotted amount of time, which will be an extended amount of time for all students (to be announced in class), and open-note, to accommodate the online testing format. Students may sit for the exam on Canvas within any time block that they can flexibly decide is best for them, between the time of exam posting and the time that the exam is due. Students will sign up for their 2-minute *verbal portion* of the exam in advance, then appear for the verbal at their scheduled time. The **scheduled five examination dates found in this syllabus are fixed, and will not change. Please plan accordingly.**

Jan 30 guidelines posted Feb 5 verbal (2 min) Feb 6 written submission due	Feb 20 guidelines posted Feb 26 verbal (2 min) Feb 27 written submission due	Mar 26 guidelines posted Apr 1 verbal (2 min) Apr 2 written submission due	Apr 16 guidelines posted Apr 22 verbal (2 min) Apr 23 written submission due	Apr 30 guidelines posted May 9 verbal (2 min) May 9 written submission due
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Alternate examination arrangements will be allowed only for sufficient reason and must be requested *prior to the time of the scheduled exam posting, with the associated documentation*, through the TA. Students who miss examinations will earn a zero. Please note the dates of all exams.

All exams are open-note, but must be completed independently by each student. Students will sign a statement of academic integrity prior to answering the first question and after answering the last question of each exam, and student test-taking will also be proctored on-line using Lockdown Browser + Respondus Monitor in Canvas. (See Academic Integrity below.)

Office of Disability Access

The Department of Audiology & Speech-Language Pathology cooperates with the Office of Disability Access (ODA) to make reasonable accommodations for qualified students with disabilities. If you experience any problems in arranging reasonable accommodation with the ODA, please contact the departmental chair or the ODA directly. *"The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the Office of Disability Accommodation website at <https://studentaffairs.unt.edu/office-disability-access>. You may also contact them by phone at 940.565.4323."*

Students can connect with the [Office of Disability Access](https://studentaffairs.unt.edu/office-disability-access) to begin the registration process through this link: <https://studentaffairs.unt.edu/office-disability-access>

Academic Integrity

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. Academic integrity is expected of all students at all times. Issues related to cheating, plagiarism, copying or distribution of assessment questions or home-work materials, or other behaviors inconsistent with the UNT student code of conduct will be dealt with according to university guidelines.

Please note that it is the instructor's belief that violations of academic integrity can be a gateway to unethical professional behavior. As a result, such behavior will always be addressed by the instructor.

Use of Artificial Intelligence (AI) for assignments is not authorized. According to the UNT Academic Integrity Policy ([UNT Policy 6.003](#)), any form of "unauthorized assistance" constitutes cheating. As a result, use of any artificial intelligence is not authorized for any assignments or examinations in this course.

UNT Academic Dates

Students are responsible for verifying the university deadlines such as census date, last day for auto W, last day to drop, beginning date to request an incomplete, last day to withdraw from the university, and last class day.

For official dates and a complete schedule, refer to Registrar's website <http://registrar.unt.edu/registration/spring-registration-guide>

Note from TA

I took this class through Texas Tech, and I enjoyed the course and found it incredibly beneficial and interesting along my learning journey. Although some of the material is complex, Dr. Olness is an amazing professor, and you will learn so much throughout this course that you will take into your further education and/or career. Remember the instructional team is here to help you succeed, so please don't be afraid to reach out to me and Dr. Olness if you have ANY questions at all!

How do students set up study-help sessions and meetings with the instructional team?

Everyone in this class is welcome to arrange for study-help sessions, in support of your learning. This includes questions about the course, wanting to review past exams, study help, guidance with the home-works, or any other topic you wish. These sessions will be held as a mixture of in-person and Zoom sessions.

The TA and professor each offer regular, weekly study-help sessions as listed at the top of the syllabus. *To arrange a session with TA or professor for an alternate day/time, your first step is to prepare an email to the person you wish to meet with (professor or TA or both).* Here's what you must include in this email:

- In the subject line of the email, you must write **"Request for study-help session (YourLastName)"**
 - For example: **Request for study-help session (Smith)**
- Next, in the body of the email:
 - Specify who you would like to meet with (professor, TA, or both)
 - Specify the group size you are seeking:
 - An individual session (one-on-one)
 - A small-group session (e.g. a meeting of your small study group with the professor or TA)
 - An open-group session (a study-help session that would be open to any/all class members)
 - List all days and the range of time blocks when you could be available for the study-help session
 - The TA and professor will compare your schedule of availability to their schedule of availability and finalize a time accordingly
 - Specify your goals and purpose for this study-help session, so we can make this the best session possible in support of your learning.

Can I contact the professor directly?

Yes, absolutely. Please contact the professor anytime to set up a meeting. *Connect with her through email or Canvas messaging to set up a meeting and/or by attending office hours. During busy times, her inbox becomes rather full, so if you contact her to set up a meeting and do not receive a response within two business days, please send a follow up email. A gentle nudge is always appreciated.* Meetings can be one-on-one or in groups, whatever is best for you. Meetings outside of her regular office hours can be held by Zoom or in person by advance appointment.

Closely approximated chronology of course content, punctuated with fixed exam dates

Week	Date	Lecture topics	Readings associated with lecture topics, in support of your learning	Due dates
1	Jan 16	Syllabus review, and approaches to learning and studying in this course Introduction to basic terms and concepts	Ch 1, pp. 19-20	
	Jan 18	Relationship between neurosciences + speech/language/hearing/swallowing sciences	Ch 1: pp. 1-6	
2	Jan 23	Why we study neurosciences in our professions Clinical-pathological method and critical thinking Principles governing the human brain and its functional organization	Ch 1: pp. 21-27 Ch 1: Tables 1-2 and 1-3 Ch, pp. 6-8	
	Jan 25	Gross anatomy of nervous system, including introduction to functions	Ch 2: Scan to find parallels with lecture content Ch 18: Scan for main points and headers on axial-limbic system (ANS, pp. 401-408; limbic system, pp. 408-411; hypothalamus, pp. 412-416; reticular formation, pp. 416-423)	
3	Jan 30	Terms for directions, sections/planes & movement (<i>key guest lecture</i>)	Ch 1: pp. 8-12	Exam 1 guidelines posted
	Feb 1	"	"	HW(s) and exercise(s) associated with the exam are due <u>Friday</u> of this week at 11:59pm; check Canvas for specifics
4	Feb 6	Basic cellular anatomy (structure) and physiology (function) Gray matter vs. white matter distinction	Ch 1: pp. 12-13	Exam 1 two-minute verbal will be taken on <u>Monday</u> , and written is due <u>Tuesday</u>
	Feb 8	Functional organization of the cerebral hemispheres	Ch 19: Scan section on localization of function in the brain (pp. 428-430) and start looking at the types of aphasia (pp. 431-434)	
5	Feb 13	"	"	
	Feb 15	"	"	
6	Feb 20	Cerebrovascular system, stroke, and relationship to clinical-pathological method	Chapter 7	Exam 2 guidelines posted

	Feb 22	“	“	HW(s) and exercise(s) associated with the exam are due <u>Friday</u> of this week at 11:59pm; check Canvas for specifics
7	Feb 27	Protective envelope around the brain (bone and meninges), ventricular system, cerebrospinal fluid (CSF)	Ch 8 (Chapter 2: pp. 65 - 68 and 75 - 80 re-read for review of ventricles and meninges)	Exam 2 two-minute verbal will be taken on <u>Monday</u>, and written is due <u>Tuesday</u>
	Feb 29	Nerve cell (neuron) physiology Overview of sensory and motor systems Start of spinal cord content	Chapter 5 Chapter 13	
8	Mar 5	“	“	
	Mar 7	Spinal cord and spinal cord reflexes+	“	
9	March 11-17: Spring Break (no class)			
10	Mar 19	Somatosensory systems Diencephalon: Thalamus and associated structures	Chapter 11 Chapter 6	
	Mar 21	“	“	
11	Mar 26	Motor systems <ul style="list-style-type: none"> motor cortex + descending motor (direct activation) pathways + indirect activation pathways Cerebellar and basal ganglia functions and feedback loops 	Chapter 16 Chapters 14 and 15	Exam 3 guidelines posted
	Mar 28	“	“	HW(s) and exercise(s) associated with the exam are due <u>Friday</u> of this week at 11:59pm; check Canvas for specifics
12	Apr 2	Cranial Nerves, Introduction; names and identification; sensory and motor; location	Chapter 17: pp.350-359 and assoc figures/tables (Chapter 2: pp. 80 - 82 re-read for review of the cranial nerves)	Exam 3 two-minute verbal will be taken on <u>Monday</u>, and written is due <u>Tuesday</u>
	Apr 4	Cranial nerve of smell + limbic system Intro to visual system	Chapter 17: pp. 359 - 360 and associated figures/tables (Chapter 18: pp. 408 - 411 re-read for review of the limbic system)	
13	Apr 9	Cranial nerves of vision and visual system	Chapter 17: pp. 360-371, 390-391 and associated figures/tables Chapter 12	
	Apr 11	Cranial nerves of hearing and balance Auditory system and vestibular system	Chapter 17: pp. 380 - 381 and associated figures/tables; Chapter 9 (auditory system) Chapter 10 (vestibular system)	
14	Apr 16	Cranial nerves of face, tongue, jaw movement, soft palate, pharynx, larynx, head turning and shrugging; manifestations of dysarthria types across structures	Chapter 17: pp. 371 - 380, 381 - 390, 391 - 392 and associated figures/tables	Exam 4 guidelines posted
	Apr 18	“	“	HW(s) and exercise(s) associated with the exam are due <u>Friday</u> of this week at 11:59pm; check Canvas for specifics

15	Apr 23	Summary lecture on dysarthria, cranial nerve syndromes, and clinical correlates of motor systems	Chapter 17: pp. 392 - 397 (Chapter 14: pp. 314 - 317 re-read for cerebellar clinical correlates) (Chapter 15: pp. 327-335 re-read for basal ganglia clinical correlates) (Chapter 16: pp. 342-348 re-read for UPN and LMN clinical correlates)	Exam 4 two-minute verbal will be taken on <u>Monday</u>, and written is due <u>Tuesday</u>
	Apr 25	Cerebral cortex: Higher mental functions (right hemisphere syndrome, apraxia of speech and apraxia, aphasia, alexia, agraphia, agnosia, dementia, traumatic brain injury)	Chapter 19	
16	Apr 30	Development of the nervous system	Chapter 4	Exam 5 guidelines posted HW(s) and exercise(s) associated with the exam are due Tuesday of this week at 11:59pm; check Canvas for specifics
	May 2	Special topic presentation (TBD)	Pre-final day; last day of class	
FINALS WEEK	May 9 (Thurs)	Exam 5 two-minute verbal short answer portion of test will be taken within the official university final exam time, between 1:30p and 3:30p on May 9 Exam 5 written MC-with-justification portion of the test will be posted on Wednesday May 8, 8:00am and will be due Thursday May 9, by 11:59 pm		

Helpful resources in support of your learning

A guide to some helpful pages in the coloring book. Some of the pages listed below may be more detailed than what is necessary for this class, but still may be beneficial to your learning, especially if you are a visual learner. Use this as a supplemental resource to the class lectures, readings, and exercises.

TOPICS	COLORING BOOK PAGE
Nature of communication and swallowing Basic principles, structures, and terms in neuroscience	1-1
Gross anatomy, terms of direction and sections/planes	1-5, 1-6
Major divisions and surface anatomy	1-2, 1-3, 1-4, 5-1, 5-2, 5-15, 5-44, 5-30
Anatomy at neuronal level	2-1, 2-2, 2-3, 7-2
Anatomy & physiology at neuronal level; Meninges; Ventricular system	2-4, 2-5, 2-6, 2-7, 2-8 9-8, 9-9, 9-10, 9-11, 9-12
Blood supply	9-1, 9-2, 9-3, 9-4, 9-5, 9-6, 9-7
Spinal cord	4-1, 4-2
Simple reflex arc	4-3
Somato-sensory systems and tracts	2-9, 2-10, 4-4, 4-5, 4-6, 4-7, 4-8, 4-13
Motor systems and tracts, including upper and lower motor neurons and basal ganglia	2-12, 4-9, 4-13
Peripheral nervous system	7-1, 7-4, 8-2
Cranial Nerves, Introduction; names and identification; sensory and motor	6-1, 6-2
Cranial nerves of smell/taste + limbic system	6-5, 5-26
Cranial nerves of vision and visual system	6-6, 6-7, 6-8
Cranial nerves of hearing and balance Auditory system	6-17, 6-18
Cranial nerves of face Cranial nerves of tongue Cranial nerves of jaw movement	6-11, 6-14, 6-15, 6-16 6-26, 6-21 6-13
Cranial nerves of soft palate and pharynx Cranial nerves of larynx, head turning and shrugging	6-21, 6-22, 6-23, 6-24, 6-25
Neurogenic speech production disorders	
Neurology of speech perception and language comprehension	5-29
Neurogenic language & cognitive-communicative disorders	5-29
Embryonic development of nervous system	3-1 through 3-11

UNT provides access to the 3D anatomy resource, **Primal Pictures**, which may support your learning:

- <https://libproxy.library.unt.edu/login?url=https://www.anatomy.tv>

A free **3D Brain app** from Cold Spring Harbor Laboratory is available online at this link. This is especially helpful for learning brain anatomy and the anatomical relationships between and among brain structures.

- <https://www.dnalc.org/resources/3dbrain.html>

Many students enjoy learning specific neurology topics discussed on the **Crash Course video series** by the Green brothers. **Here is a link to the Crash Course video playlist.**

- <https://www.youtube.com/playlist?list=PLNuqetWsrYrpv0HEwgWFZPPQVz7MFdECH>

Here is a link to the 2-Minute Neuroscience video playlist. Videos like these are helpful for many learners.

- <https://neuroscientificallychallenged.com/videos>

Here is a guide to some helpful videos available online from Khan Academy. Although the content of these videos does not supplant the learning benefits you will derive from your ASLP 4050 course lectures, readings, home-works, and exercises, you may find that selected content from the Khan Academy site may support your learning.

- <https://www.khanacademy.org/test-prep/mcat/organ-systems>

I. Biological basis of behavior: The nervous system

- Nervous System Questions
- Structure of the nervous system
- Functions of the nervous system
- Motor unit
- Peripheral somatosensation
- Muscle stretch reflex
- Autonomic nervous system
- Gray and white matter
- Upper motor neurons
- Somatosensory tracts
- Cerebellum
- Brainstem
- Subcortical cortex
- Neurotransmitter anatomy
- Early methods of studying the brain
- Lesion studies and experimental ablation
- Modern ways of studying the brain

II. Neural Cells

- Neural cells questions
- Introduction to neural cell types
- Overview of neuron structure
- Overview of neuron function
- Astrocytes
- Microglia
- Ependymal cells
- Oligodendrocytes
- Schwann cells

III. Neuron membrane potentials

- Neuron membrane potentials questions
- Neuron membrane potentials questions 2
- Neuron action potentials: The creation of a brain signal
 - Concentration gradients
 - Resting membrane potential
 - How action potentials work
 - Refractory periods
- Action potential velocity
 - Some signals are very fast
 - Size
 - Sheath
 - Consider the following
- Neuron graded potential description
- Neuron resting potential description
- Neuron resting potential mechanism
- Neuron graded potential mechanism
- Neuron action potential description
- Neuron action potential mechanism
- Effects of axon diameter and myelination
- Action potential patterns

IV. Neuronal synapses

- Neuronal synapses questions
- Signal propagation: The movement of signals between neurons
 - How does information travel
 - The synapse
 - The Pre-Synaptic Cell
 - Neurotransmitters
 - Post-Synaptic Cell
 - Consider the following
- Synapse structure
- Neurotransmitter removal
- Neuroplasticity

Guidance for students in the course grade calculation process

Your professor and TA have provided an automated Excel file on Canvas, to assist you in calculating your final course grade; you'll find this Excel file alongside the syllabus on Canvas. You can also run the calculations by hand, if you'd like, using the "John Doe" guidelines below.

Course grades on each assignment will be posted by the instructional team as percentage scores; the grading and posting process may take up to a week's time. Only the *individual assignment grades* posted as percentage scores on Canvas by the instructional team are accurate. ***You must IGNORE the automated course grade calculation function performed by Canvas, in the far-right columns, as it does not allow for accurate weighting of scores and will be grossly inaccurate.***

John Doe turned in 7/8 home-works. His scores were 85, 96, 73, 89, 95, 100, 100, and 0 (this is the home-work that was not turned in). He completed and submitted 4/5 exercises. On his five exams, he scored 94, 82, 90, 76, and 88.

To calculate John's final grade, first calculate how much of the 10% points he earned for the home-work grade. Drop the three lowest scores (0, 73, and 85). Multiply the remaining 5 highest home-work scores each by .02 and then add up all of the results.

$$96 * .02 = 1.92\%$$

$$89 * .02 = 1.78\%$$

$$95 * .02 = 1.9\% \quad 1.92 + 1.78 + 1.9 + 2 + 2 = \mathbf{9.6\%}$$

$$100 * .02 = 2\%$$

$$100 * .02 = 2\%$$

This means John earned 9.6% of the maximum 10% he could earn for his home-work grade.

Next, we will calculate his home-work completion grade. He turned in 7 out of 8 of the home-works. Looking up the percentage points earned for 7 home-works turned in (found on page 3 of the syllabus), John earned 3% of the 5% he could have earned. Add this 3% to his home-work percentage.

$$9.6\% + 3\% = \mathbf{12.6\%}$$

Next, we will calculate his exercise completion grade. He turned in 4 exercises. Looking up the percentage points earned for 4 exercises turned in (found on page 3 of the syllabus), John earned 4% of the 5% he could have earned. Add this 4% to the sum of his homework percentage and his home-work completion percentage.

$$12.6\% + 4\% = \mathbf{16.6\%}$$

The only part left to calculate is the percentage he earned on his five exams. Multiply each of the exam grades by .16 and then add up all of the results.

$$94 * .16 = 15.04\%$$

$$82 * .16 = 13.12\%$$

$$90 * .16 = 14.40\% \quad 15.04 + 13.12 + 14.40 + 12.16 + 14.08 = \mathbf{68.8\%}$$

$$76 * .16 = 12.16\%$$

$$88 * .16 = 14.08\%$$

Lastly, just add the percentage calculated earlier (the sum of the home-work grade percentages, and the home-work and exercise completions credits) to the exams percentage that you just found.

$$16.6 + 68.8 = \mathbf{85.4\%}$$

Thus, John Doe earned an 85.4% for his final course grade. This rounds up to 86%, and he earns a 'B' in the course.

Note:

- If there are any policy changes (i.e. grading, attendance) during the semester, a new/revised syllabus will be issued and given to all students. The course syllabus is on file in the ASLP departmental office.