Neurological Bases of Speech and Hearing (ASLP 4050, Fall 2020)
University of North Texas
Tuesday/Thursday, 3:30 – 4:50, Zoom in Canvas

Your professor: Gloria Streit Olness, Ph.D., CCC-SLP
Office*  E-mail**  Phone
Zoom  Gloria.Olness@unt.edu  940-369-7455

Your TA: Rebecca Campbell
Zoom  rebecca.campbell@unt.edu  --

Your SI: Brynn Weber
--  brynnweber@my.unt.edu  --

* Office hours are arranged flexibly, at a time and location mutually agreed upon by student(s) and instructor(s). See page 6 of the syllabus for important information on how best to contact us and make appointments using structured emails. The Zoom platform will be used for holding office hours.
** The most efficient way to reach us is by e-mail, but you can also send a message through Canvas as a backup.

Required resource

• It is essential 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.
• A copy of the 4th edition is also on reserve at the UNT library for your reference. Content parallels the 5th ed.

Suggested resource

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 to provide 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 and swallowing are addressed, as well as neuropathology associated with disorders of communication and swallowing. 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 and proprioception), 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 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, 3:30 – 4:50
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., SI, or professor, which is standard for a 3 credit-hour course (i.e., 2 hours of out-of-class work for every hour in class)
   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, though: Your health and safety, and that of your loved ones, comes first, before school. If you are experiencing an emergency please call 911. If you are in crisis, please call the Crisis Hotline: 1-800-762-0157. Contact your instructors; we will support you in your academic success, whatever your life situation. Also, here is a link to additional mental health resources: https://speakout.unt.edu/content/mental-health-resources

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 not recorded and does not contribute to calculation of your final course grade. However, attendance is very strongly encouraged. Studying from online Power Points alone without attendance at lectures is typically 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-quizing 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 up to 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, 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: Some 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. Completed exercises are submitted for a completion credit, up to 5% of the course grade. 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 provided, as well as the last page 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. 6.
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 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, 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 prior to the posting of the examination earn completion credit.

Important details about the examinations

Exams will be posted on Canvas with extended time provided for all students, and exams are also open-book/open-note, to accommodate the on-line testing format.

Examinations cover all course content up to and including the class day prior to the exam. 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, although the focus of each exam will be placed on the material taught most recently, since the previous exam. The format of the examinations will include primarily multiple-choice questions and matching; labeling, short answer, and short essay may be included occasionally. Question format is tailored to the nature of the content being assessed.
**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, and formal documentation 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.

**Exercises.** Completed exercises must be submitted on the day prior to the posting of the associated exam to earn completion credit.

**Exams.** Exams 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-book/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. The **scheduled five examination dates** found in this syllabus are **fixed, and will not change**:

<table>
<thead>
<tr>
<th>Sept 10 posted</th>
<th>Oct 8 posted</th>
<th>Nov 3 posted</th>
<th>Nov 17 posted</th>
<th>Dec 3 posted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 17 due on Canvas</td>
<td>Oct 15 due on Canvas</td>
<td>Nov 10 due on Canvas</td>
<td>Nov 24 due on Canvas</td>
<td>Dec 8 due on Canvas</td>
</tr>
</tbody>
</table>

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 extended-time and open-note, but must be completed independently by each student. (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 http://www.unt.edu/oda. You may also contact them by phone at 940.565.4323.”
Academic Integrity
Academic integrity is expected of all students at all times. Issues related to cheating, plagiarism, copying/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. (Refer to UNT Policy on Student Academic Integrity). Please note that it is the instructor’s belief that cheating by students can be a gateway to unethical professional behavior. As a result, such behavior will always be addressed by the instructor. Visit https://policy.unt.edu/sites/default/files/06.003.pdf for more information.

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’m so excited to work with you all this semester! I know this class has a reputation of being challenging, but so long as you’re willing to reach out when you need help I have faith that it’s doable! Dr. Olness is an amazing professor so I’m sure you’ll get a lot out of the course with her instruction, but I’m also available to help support your learning in any way I can!

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. These sessions will be held by Zoom. This includes questions about the course, wanting to review past exams, study help, guidance with the home-works, or any other topic you wish.

When you want to meet with the professor or with the TA or with both for this study-help session, your first step is to prepare an email to Rebecca, your TA. Her contact can be found at the top of this syllabus (Rebecca.Campbell@unt.edu). 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.

What if I want to meet directly with the professor? Can I contact the professor directly?
Yes, absolutely. Please contact the professor anytime to set up a meeting. The best way to reach her is through email or Canvas messaging. Meetings can be one-on-one or in groups, whatever is best for you. Meetings will be held via Zoom by advance appointment.
### Closely approximated chronology of course content, punctuated with fixed exam dates

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lecture topics</th>
<th>Readings associated with lecture topics, in support of your learning</th>
<th>Due dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug 25</td>
<td>Syllabus review, and approaches to learning and studying in this course</td>
<td>Ch 1, pp. 19-20</td>
<td></td>
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<tr>
<td></td>
<td>Aug 27</td>
<td>Relationship between neurosciences + speech/language/hearing/swallowing sciences</td>
<td>Ch 1: pp. 1-6</td>
<td></td>
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<tr>
<td>2</td>
<td>Sept 1</td>
<td>Why we study neurosciences in our professions</td>
<td>Ch 1: pp. 21-27</td>
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<tr>
<td></td>
<td></td>
<td>Clinical-pathological method and critical thinking</td>
<td>Ch 1: Tables 1-2 and 1-3</td>
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<tr>
<td></td>
<td></td>
<td>Principles governing the human brain and its functional organization</td>
<td>Ch, pp. 6-8</td>
<td></td>
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<tr>
<td></td>
<td>Sept 3</td>
<td>Gross anatomy of nervous system, including introduction to functions</td>
<td>Ch 18: Scan to find parallels with lecture content</td>
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<td></td>
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<td></td>
<td>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)</td>
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<tr>
<td>3</td>
<td>Sept 8</td>
<td>Terms for directions, sections/planes &amp; movement</td>
<td>Ch 1: pp. 8-12</td>
<td>Estimated date for HW 1 due</td>
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<td></td>
<td>Sept 10</td>
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<td>EXAM 1 posted</td>
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<tr>
<td></td>
<td>Sept 15</td>
<td>Basic cellular anatomy (structure) and physiology (function)</td>
<td>Ch 1: pp. 12-13</td>
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<tr>
<td></td>
<td>Sept 17</td>
<td>Functional organization of the cerebral hemispheres</td>
<td>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)</td>
<td>EXAM 1 due</td>
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<td>4</td>
<td>Sept 22</td>
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<td>Sept 24</td>
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<tr>
<td>5</td>
<td>Sept 29</td>
<td>Cerebrovascular system, stroke, and relationship to clinical-pathological method</td>
<td>Chapter 7</td>
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<td></td>
<td>Oct 1</td>
<td>“</td>
<td>“</td>
<td>(material for Exam 2 ends here)</td>
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<tr>
<td></td>
<td>Oct 6</td>
<td>Protective envelope around the brain (bone and meninges), ventricular system, cerebrospinal fluid (CSF)</td>
<td>Ch 8 (Chapter 2: pp. 65 - 68 and 75 - 80 re-read for review of ventricles and meninges)</td>
<td>EXAM 2 posted</td>
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<tr>
<td></td>
<td>Oct 8</td>
<td>Nerve cell (neuron) physiology</td>
<td>Chapter 5</td>
<td></td>
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<td></td>
<td></td>
<td>Overview of sensory and motor systems</td>
<td>Chapter 13</td>
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<td></td>
<td>Oct 13</td>
<td>“</td>
<td>“</td>
<td>Oct 12 estimated date for HW 2 due</td>
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<tr>
<td></td>
<td>Oct 15</td>
<td>Spinal cord and spinal cord reflexes+</td>
<td>“</td>
<td>EXAM 2 due</td>
</tr>
<tr>
<td>Week</td>
<td>Date</td>
<td>Lecture topics</td>
<td>Readings associated with lecture topics, in support of your learning</td>
<td>Due dates</td>
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<tr>
<td>9</td>
<td>Oct 20</td>
<td>Somatosensory systems Diencephalon: Thalamus and associated structures</td>
<td>Chapter 11&lt;br&gt;Chapter 6</td>
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<tr>
<td></td>
<td>Oct 22</td>
<td>“</td>
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<tr>
<td>10</td>
<td>Oct 27</td>
<td>Motor systems&lt;br&gt;- motor cortex + descending motor (direct activation) pathways + indirect activation pathways&lt;br&gt;- Cerebellar and basal ganglia functions and feedback loops Cranial Nerves, Introduction; names and identification; sensory and motor; location</td>
<td>Chapter 16&lt;br&gt;Chapters 14 and 15&lt;br&gt;Chapter 17: pp.350-359 and assoc figures/tables (Chapter 2: pp. 80 - 82 re-read for review of the cranial nerves)</td>
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<td>Oct 29</td>
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<td>11</td>
<td>Nov 3</td>
<td>Cranial nerve of smell + limbic system Intro to visual system</td>
<td>Chapter 17: pp. 359 - 360 and associated figures/tables&lt;br&gt;(Chapter 18: pp. 408 - 411 re-read for review of the limbic system)</td>
<td>Exam 3 posted</td>
</tr>
<tr>
<td></td>
<td>Nov 5</td>
<td>Cranial nerves of vision and visual system</td>
<td>Chapter 17: pp. 360-371, 390-391 and associated figures/tables&lt;br&gt;Chapter 12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nov 10</td>
<td>Cranial nerves of hearing and balance Auditory system and vestibular system</td>
<td>Chapter 17: pp. 380 - 381 and associated figures/tables; Chapter 9 (auditory system)&lt;br&gt;Chapter 10 (vestibular system)</td>
<td>Exam 3 due</td>
</tr>
<tr>
<td></td>
<td>Nov 12</td>
<td>Cranial nerves of face, tongue, jaw movement, soft palate, pharynx, larynx, head turning and shuffling; manifestations of dystarthria types across structures</td>
<td>Chapter 17: pp. 371 - 380, 381 - 390, 391 - 392 and associated figures/tables</td>
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</tr>
<tr>
<td>12</td>
<td>Nov 17</td>
<td>Summary lecture on dysarthria, cranial nerve syndromes, and clinical correlates of motor systems</td>
<td>Chapter 17: pp. 392 - 397&lt;br&gt;(Chapter 14: pp. 314 - 317 re-read for cerebellar clinical correlates)&lt;br&gt;(Chapter 15: pp. 327-335 re-read for basal ganglia clinical correlates)&lt;br&gt;(Chapter 16: pp. 342-348 re-read for UPN and LMN clinical correlates)</td>
<td>Estimated date for HW 6 due&lt;br&gt;Exam 4 posted</td>
</tr>
<tr>
<td></td>
<td>Nov 19</td>
<td>Cerebral cortex: Higher mental functions (right hemisphere syndrome, apraxia of speech and apraxia, aphasia, alexia, agraphia, agnosia, dementia, traumatic brain injury)</td>
<td>Chapter 19</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Nov 24</td>
<td>“</td>
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<td>Exam 4 due</td>
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<tr>
<td></td>
<td>Nov 26</td>
<td>THANKSGIVING BREAK</td>
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<tr>
<td></td>
<td>Dec 1</td>
<td>Development of the nervous system</td>
<td>Chapter 4</td>
<td>Estimated date for HW 7 due&lt;br&gt;HW 8 due</td>
</tr>
<tr>
<td></td>
<td>Dec 3</td>
<td>Special topic presentation (TBD)</td>
<td>Last Day of Class</td>
<td>Exam 5 posted</td>
</tr>
<tr>
<td>15</td>
<td>Dec 8</td>
<td>Tuesday, Dec 8, 3:30 p.m. (the end of the university-designated “final exam” time)</td>
<td>Exam 5 due by the end of the university-designated “final exam” time</td>
<td>EXAM 5 due</td>
</tr>
</tbody>
</table>
Class recordings are reserved for use only by students in this class for educational purposes. The recordings should not be shared outside the class in any form. Failing to follow this restriction is a violation of the UNT Code of Student Conduct and could lead to disciplinary action.

**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.

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

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

Helpful resources in support of your learning (cont.)

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](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://www.youtube.com/watch?v=zIo_500V1LM&index=2&list=PLNZqyJnsvdMqFNFyHvMFrFnlXLoswwB&t=0s

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
   a. Nervous System Questions
   b. Structure of the nervous system
   c. Functions of the nervous system
   d. Motor unit
   e. Peripheral somatosensation
   f. Muscle stretch reflex
   g. Autonomic nervous system
   h. Gray and white matter
   i. Upper motor neurons
   j. Somatosensory tracts
   k. Cerebellum
   l. Brainstem
   m. Subcortical cortex
   n. Neurotransmitter anatomy
   o. Early methods of studying the brain
   p. Lesion studies and experimental ablation
   q. Modern ways of studying the brain

II. Neural Cells
   a. Neural cells questions
   b. Introduction to neural cell types
   c. Overview of neuron structure
   d. Overview of neuron function
   e. Astrocytes
   f. Microglia
   g. Ependymal cells
   h. Oligodendrocytes
   i. Schwann cells

III. Neuron membrane potentials
   a. Neuron membrane potentials questions
   b. Neuron membrane potentials questions 2
   c. Neuron action potentials: The creation of a brain signal
      i. Concentration gradients
      ii. Resting membrane potential
      iii. How action potentials work
      iv. Refractory periods
   d. Action potential velocity
      i. Some signals are very fast
      ii. Size
      iii. Sheath
      iv. Consider the following
   e. Neuron graded potential description
   f. Neuron resting potential description
   g. Neuron resting potential mechanism
   h. Neuron graded potential mechanism
   i. Neuron action potential description
   j. Neuron action potential mechanism
   k. Effects of axon diameter and myelination
   l. Action potential patterns

IV. Neuronal synapses
   a. Neuronal synapses questions
   b. Signal propagation: The movement of signals between neurons
      i. How does information travel
      ii. The synapse
      iii. The Pre-Synaptic Cell
      iv. Neurotransmitters
      v. Post-Synaptic Cell
      vi. Consider the following
   c. Synapse structure
   d. Neurotransmitter removal
   e. 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%
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% = 12.6%

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

12.6% + 4% = 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%  15.04 + 13.12 + 14.40 + 12.16 + 14.08 = 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 = 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.