PT 7212
Introduction to Neuroscience Concepts
Spring 2020

Instructor: Carolyn R. Mason, PT, PhD
Email: carolyn.mason@angelo.edu
Phone: 325-942-2794
Office: HHS 244G
Office Hours: By appointment

Course Information

Course Description
Using a combination of lecture and lab activities, students will learn basic neurologic concepts necessary to interpret the results of neurologic testing. Students will learn the gross structures and functions of the central nervous system, the blood supply, and the motor and sensory systems and be able to apply the knowledge to cases to determine location of lesions. This course provides a foundation for later neuropathology courses.

Course Credits
1-3-0

Prerequisite Courses
Successful completion of previous DPT coursework

Prerequisite Skills
Ability to access and navigate course material in Blackboard are expectations of the PT 7212.
<table>
<thead>
<tr>
<th>Student Learning Outcome</th>
<th>Assignment(s) or activity(ies) validating outcome achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify the regions and structures of the nervous system on specimens, figures, and in cases. 7A, 7B</td>
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<tr>
<td>Identify the functions of the different regions and structures of the nervous system and the possible dysfunction as a result of lesions. 7A, 7C</td>
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<tr>
<td>Examine tissue from the central nervous to identify the gray matter (neurons) and the white matter (myelinated fibers of passage) in relation to the ventricles and blood supply.</td>
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<tr>
<td>Given an MRI or CT scan, identify the major structures of the CNS and possible abnormalities. 7A, 7B</td>
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<tr>
<td>Discuss the functions of the meningeal layers. 7A</td>
<td></td>
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<tr>
<td>Describe the formation, circulation, and absorption of the cerebrospinal fluid and the cause of hydrocephalus. 7A, 7C</td>
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<tr>
<td>Diagram the sensory and motor pathways of the nervous system. 7A</td>
<td></td>
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<tr>
<td>Describe the process of neural transmission from the peripheral receptors to the CNS in words and diagrams. 7A</td>
<td></td>
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<tr>
<td>Compare acute versus chronic pain. 7C</td>
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<tr>
<td>Describe the process of neural transmission from the motor cortex to the muscles. 7A</td>
<td></td>
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<tr>
<td>Correlate the role of the major ascending and descending systems to clinical signs and symptoms. 7A</td>
<td></td>
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<tr>
<td>Describe the cellular components of the nervous system. 7A</td>
<td></td>
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<tr>
<td>Describe the communication systems of the nervous system within the nervous system and other systems in the body. 7A</td>
<td></td>
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<tr>
<td>Student Learning Outcome</td>
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<tr>
<td>Discuss the roles that the sodium, potassium, calcium, and chloride channels play in the membrane potential and the generation of the action potential. 7A</td>
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<tr>
<td>Describe how neural transmission of a single neuron becomes translated into function. 7A</td>
<td></td>
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<tr>
<td>Discuss affective disorders and psychoses. 7C</td>
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<tr>
<td>Describe the pharmacologic agents used in the management of anxiety, affective disorders and psychoses including classifications, mechanism of action and adverse reactions. 7A</td>
<td></td>
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<tr>
<td>Examine the positive and negative effects of pharmacologic agents on the nervous system based on their sites of interaction. 7C</td>
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<tr>
<td>Using clinical reasoning, determine the possible impact of neurologic diagnoses on person’s ability to participate in physical therapy. 7B</td>
<td></td>
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<td>Using clinical reasoning, determine the possible impact of pharmacologic agents on person’s ability to participate in physical therapy. 7B</td>
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</tr>
<tr>
<td>Utilizing the history and results of the six sections of the neurologic exam, determine the most likely diagnosis of the individuals in case studies.</td>
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</table>

Numbers following the objectives refer to the CAPTE Standard 7 Curriculum

**Course Delivery**

This is a face-to-face course with learning resources and supplemental materials posted in Blackboard.

**Required Texts and Materials**

Recommended Texts and Materials


Technology Requirements

To successfully complete this course, students need to access and navigate Blackboard.

Communication

Faculty will respond to email and/or telephone messages within 24 hours during working hours Monday through Friday. Weekend messages may not be returned until Monday.

**Written communication via email:** All private communication will be done exclusively through your ASU email address. Check frequently for announcements and policy changes. In your emails to faculty, include the course name and section number in your subject line.

Grading

Evaluation and Grades

Course grades will be determined as indicated in the table below.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percent/Points of Total Grade</th>
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<tbody>
<tr>
<td>Neuroanatomy Exam</td>
<td>20</td>
</tr>
<tr>
<td>Two exams (25% each)</td>
<td>50</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
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</tbody>
</table>

The neuroanatomy exam will be administered in the Anatomy Lab. Specimens, pictures, and line drawings may be used during the exam. Students will be expected to identify structures, identify function of structures, identify the blood supply to structures, or identify relationship between structures. Mock exams will be given in advance.
The exams in PT 7212 will be comprehensive and administered using Blackboard in the lockdown mode in the classroom. Please bring your technology with appropriate software. The exams will consist of multiple choice questions. The exams will be given during class time. Students are expected to take the exams at the scheduled times. Make-up exams are at the discretion of the instructor. **Mastery on each exam is not required but the student must achieve a minimal competency level of 80% by the end of the semester. No retake of exams will be given.**

Failure to achieve a minimal competency level of 80% after the completion of the first two exams and the neuroanatomy exam will result in the initiation of an Academic Probation Tracking Form (First Academic Probation) and related actions including notification of your advisor and of the Academic Committee. Failure to achieve a minimal competency level of 80% by the end of the semester will result in Second Academic Probation and the forwarding of the student records to the Academic Committee for consideration of options including Program dismissal.

**Grading System**
Course grades will be dependent upon completing course requirements and meeting the student learning outcomes.

The following grading scale is in use for this course:

- A = 90 - 100 percent
- B = 80 - 89 percent
- C = 70 - 79 percent
- F <70%

**Teaching Strategies**
Students are expected to be “active learners.” It is a basic assumption of the instructor that students will be involved (**beyond the materials and lectures presented in the course**) discovering, processing, and applying the course information using peer-review journal articles, researching additional information and examples on the Internet, and discussing course material and clinical experiences with their peers.

**General Policies Related to This Course**
All students are required to follow the policies and procedures presented in these documents:

- [Angelo State University Student Handbook](#)
- [Angelo State University Catalog](#)
Student Responsibility and Attendance

Please remember that it is extremely disruptive and unprofessional to be late for class, come to lab unprepared or be absent from class/lab, especially when group activities are scheduled.

1. Absences
   a. Students will abide by the absence policy delineated in each course instructor’s syllabus.
   b. In case of absence, the student is responsible for obtaining the skills and knowledge necessary to meet required mastery level. Faculty members are not obligated to remediate students in these circumstances.
   c. Absences without prior notification will not be tolerated during any field or clinical experience. This may result in immediate removal from the clinical experience.
   d. Student must notify their instructor(s) via email regarding their absence.

2. Tardiness

Tardiness is a disruption to the instructor and the students. A student is considered tardy when he/she arrives for class after the instructor has begun class activities. It reflects poor professional behavior and will not be tolerated. Students will abide by the tardiness policy delineated in each course instructor’s syllabus.

Repeated tardiness or absences (>2 occurrences combined or mixed) will result in the initiation of a Disciplinary Tracking Form.

Attendance and promptness to classes, meetings, and future work obligations are considered professional behaviors. As this department is preparing potential professionals in the area of physical therapy, it is part of our expectation that student presence and timeliness will be held in highest regard. Tardiness is a disruption to the instructor and fellow students. A student is considered tardy if he/she arrives for class after the instructor has begun class activities. Please see the following related to implications from excessive lateness or absences without a reasonable excuse:
   a. First offense- verbal warning
   b. Second offense- second verbal warning, initiation of Disciplinary Tracking Form
   c. Third offense- 1% off final course grade
   d. 1% off final course grade for each additional unexcused tardy or absence

Per the student handbook, 2 or more occurrences combined or mixed will result in the initiation of a Disciplinary Tracking Form. If a student has an unexcused absence during integrations it may lead to the removal of that student from that clinical environment. It is the responsibility
of the student to contact the clinical site and give notice if they are ill, or have transportation issues. If the student is unable to attend class, it is the student’s responsibility to email the course instructor(s) of the class directly. This notification should be made prior to commencement of said class.

Continued issues with tardiness/attendance across all courses will result in disciplinary probation and will be referred to the PT faculty for consideration of options, including program dismissal. The PT faculty is not oblivious to doctor’s appointments and other potential hazards and emergencies in daily life. Simply taking responsibility to notify the office or the professor if issues arise is considered professional behavior. Please do not rely on a classmate or other form of notification, as these have proven unreliable in years past.

**Cell Phone.** Students must silence cell and place them out of sight during class. Permission may be granted, at the instructor’s discretion, to have a cell phone out during class. Students seeking permission to have cell phones out during class must do so prior to the start of class. The first offense includes a verbal warning that will be documented in the behavioral tracking sheet. The second offense includes the initiation of a disciplinary tracking form. The third offense will result in the convening of a disciplinary committee to decide upon further disciplinary action.

**Academic Integrity**

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Health and Human Services adheres to the university’s Statement of Academic Integrity.

**Accommodations for Students with Disabilities**

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student’s responsibility to initiate
such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the Student Disability Services website. The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford  
Director of Student Disability Services  
Office of Student Affairs  
325-942-2047  
dallas.swafford@angelo.edu  
Houston Harte University Center, Room 112

Incomplete Grade Policy
It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.

Student Absence for Observance of Religious Holy Days
A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day for more information.

Copyright Policy
Students officially enrolled in this course should make only one printed copy of the given articles and/or chapters. You are expressly prohibited from distributing or reproducing any portion of course readings in printed or electronic form without written permission from the copyright holders or publishers.

Syllabus Changes
The faculty member reserves the option to make changes as necessary to this syllabus and the course content. If changes become necessary during this course, the faculty will notify students of such changes by email, course announcements and/or via a discussion board announcement. It is the student’s responsibility to look for such communications about the course on a daily basis.

Title IX at Angelo State University
Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex
discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Boone, J.D. You may submit reports in the following manner:

Online: www.angelo.edu/incident-form
Face to face: Mayer Administration Building, Room 210
Phone: 325-942-2022
Email: michelle.boone@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center (325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).

For more information about resources related to sexual misconduct, Title IX, or Angelo State’s policy please visit: www.angelo.edu/title-ix.
## Course Schedule

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<thead>
<tr>
<th>Week/Date</th>
<th>Topics</th>
<th>Reading</th>
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| Week 1: January 17 | • Introduction to Neuroscience  
                     • Mini-Mental Status Exam versus Mental Status Exam portion of neurologic exam  
                     • Neuroanatomy Lab: Overview of Nervous System  
                     • Clinical Neuroradiology | Blumenfeld, Chapter 2, pp. 52-58, Chapter 4  
Optional: G&F, Chapter 32 |
| Week 2: January 24 | • Brain and Environ (including Headaches, Masses, and Herniations)  
                     • Cerebral Hemispheres and Vascular Supply  
                     • Neuroanatomy Lab: Skulls, Meninges, and Medial Brain and Spinal Cord | Blumenfeld, Chapters 5 and 10 |
| Week 3: January 31 | • Excitable Cells  
                     • Corticospinal Tract and Other Motor Pathways  
                     • Neuroanatomy Lab: Internal Structures | Optional: Lundy-Ekman, Chapter 2-3  
Required: Ciccone, Chapter 4  
Blumenfeld, Chapter 6 |
| Week 4: February 7 | • Somatosensory Pathways  
                     • Motor and Somatosensory Exam portion of Neurologic Exam  
                     • Cases  
Students are responsible for reviewing spinal nerve roots, major plexuses and peripheral nerves learned in PT 7710 (Blumenfeld Chapters 8 and 9). | Blumenfeld, Chapter 7, pp. 63-68 |
| Week 5: February 14 | • Cases  
                     • Neuroanatomy Lab: Cerebellum and Brainstem | |
| Week 6: February 21 | • Exam 1 – Please bring your technology with appropriate software.  
                     • Visual System | Blumenfeld, Chapter 11 |
| Week 7: February 28 | • Brainstem I  
                     • Cranial nerve exam portion of Neurologic Exam  
                     • Cases | Blumenfeld, Chapter 12 |
| Week 8: March 6 | • Neuroanatomy Exam  
                     • Brainstem II  
                     • Cases | Blumenfeld, Chapter 13 |
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<tbody>
<tr>
<td>Spring Break</td>
<td></td>
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</table>
| Week 9: March 20 | • Brainstem III  
                 • Cases                                                           | Blumenfeld, Chapter 14       |
| Week 10: March 27 | • Cases  
                 • Sedative/Hypnotics and Antianxiety Agents                     | Ciccone, Chapter 6           |
| Week 11: April 3  | • Exam 2 (through Brainstem III) – Bring technology to class  
                 • Drugs to treat Affective Disorders: Depression and Bipolar Syndrome  
                 • Antipsychotic drugs                                         | Ciccone, Chapters 7 and 8    |
| Week 12: April 10  | Spring Holiday                                                        |                              |
| Week 13: April 17  | • Pain and Pain Management                                           | Ciccone, Chapters 11, 12, 14, 15, 17 |
| Week 14: April 24  | • Brief introduction to cerebellum and basal ganglia  
                 • Higher Order Cerebral Function                                 | TBA, Blumenfeld, Chapter 19  |
| Week 15: May 1    | • Cases  
                 • Review                                                          |                              |
| Week 16: May 8   | • Final Exam - Bring technology to class                              |                              |

**Student Evaluation of Faculty and Course**

Students in all programs are given the opportunity to evaluate their courses and the faculty who teach them. Evaluations are most helpful when they are honest, fair, constructive, and pertinent to the class, clinical experience, or course. Faculty value student evaluations, and use student suggestions in making modifications in courses, labs and clinical experiences. Angelo State University uses the IDEA (Individual Development and Educational Assessment) system administered through Kansas State University for all course evaluations. The Office of
Institutional Research and Assessment administers IDEA for the entire university, online and has established a policy whereby students can complete course evaluations free from coercion.

End of Syllabus

1 https://www.angelo.edu/student-handbook/
2 https://www.angelo.edu/catalogs/
3 https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
4 https://www.angelo.edu/services/disability-services/
5 https://www.angelo.edu/content/files/14197-op-1011-grading-procedures
6 https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of