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 INSTRUCTOR: Carolyn R. Mason, PT, PhD
Professor
Office: HHS 224G
325-942-2794
carolyn.mason@angelo.edu

OFFICE HOURS: By appointment

LOCATION: Health and Human Services (HHS), Room 216 and Science Building III, Rooms 211 and 213

CLASS SCHEDULE: Monday through Friday 1:30 pm – 4:00 pm

CLOCK HOURS: 16 Lecture Hours; 48 Lab Hours

COURSE PREREQUISITES: Successful completion of previous DPT coursework

COURSE OBJECTIVES: At the end of this course, the students will have demonstrated mastery of the subject by being able to:

1. Identify the regions and structures of the nervous system on specimens, figures, and in cases. 7A, 7B
2. Describe processes involved with higher cerebral function. 7A
3. Identify the functions of the different regions and structures of the nervous system and the possible dysfunction as a result of lesions. 7A, 7C
4. Given an MRI or CT scan, identify the major structures of the CNS and possible abnormalities. 7A, 7B
5. Discuss the functions of the meningeal layers. 7A
6. Describe the formation, circulation, and absorption of the cerebrospinal fluid and the cause of hydrocephalus. 7A, 7C
7. Diagram the sensory and motor pathways of the nervous system. 7A
8. Describe the process of neural transmission from the peripheral receptors to the CNS in words and diagrams. 7A
9. Compare acute versus chronic pain. 7C
10. Describe the process of neural transmission from the motor cortex to the muscles. 7A
11. Correlate the role of the major ascending and descending systems to clinical signs and symptoms. 7A
12. List the clinical symptoms of selected disorders of the nervous system and relate them to the nature and control of movement. 7B, 7C
13. Compare and contrast the blood supply of the various regions of the nervous system. 7A
14. Interpret basic neurological assessments to include the following: subjective assessment, myotomes, dermatomes, reflexes, proprioception, kinesthesia, stereognosis, and vital signs. 7B
15. Describe the cellular components of the nervous system. 7A
16. Describe the communication systems of the nervous system within the nervous system and other systems in the body. 7A
17. Discuss the roles that the sodium, potassium, calcium, and chloride channels play in the membrane potential and the generation of the action potential. 7A
18. Describe how neural transmission of a single neuron becomes translated into function. 7A
19. Discuss affective disorders and psychoses. 7C
20. Describe the pharmacologic agents used in the management of anxiety, affective disorders and
psychoses including classifications, mechanism of action and adverse reactions. 7A
21. Describe the pharmacologic agents used in the management of acute pain including classifications,
mechanism of action and adverse reactions. 7B, 7C
22. Examine the positive and negative effects of pharmacologic agents on the nervous system based on
their sites of interaction. 7C
23. Using clinical reasoning, determine the possible impact of neurologic diagnoses on person’s ability to
participate in physical therapy. 7B
24. Using clinical reasoning, determine the possible impact of pharmacologic agents on person’s ability to
participate in physical therapy. 7B

TEACHING METHODS/PHILOSOPHY: Teaching methods include lecture, small group work, group
presentations, and discussion of directed case studies, laboratory study of CNS specimens, lab activities,
reading assignments, and class handouts. Audiovisuals, and computer-assisted instruction as appropriate will
be included in learning activities. Blackboard will be used to disseminate information and test administration.
Attendance and participation in class activities are essential to the learning process. Students are expected to
be adults learners and take responsibility for their learning seeking assistance as needed.

TENTATIVE SCHEDULE: See attached.

REQUIRED TEXTS:
Inc. 2010.
3. Goodman CC, Fuller KS. Pathology: Implications for the Physical Therapist, 4th ed. St. Louis, MO:
Saunders, 2015.

SUPPLEMENTAL TEXTS:
Lippincott, Williams, and Wilkins, Any edition. Copies will be available.
Williams and Wilkins, 2010. (Used in PT 7710).

GRADING/EVALUATIVE PROCEDURES:
<table>
<thead>
<tr>
<th>Neuroanatomy Exam</th>
<th>20%</th>
<th>20%</th>
<th>A = 100 - 90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Written Exams</td>
<td>40% each</td>
<td>80%</td>
<td>B = 89 – 80%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td></td>
<td>C = 79-70%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F &lt; 70%</td>
</tr>
</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
Testing Center. 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 exam and
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.

ACADEMIC HONESTY:

Academic honesty policies and procedures are reinforced throughout all aspects of the professional program. Faculty and students should familiarize themselves with the Angelo State University Code of Student Conduct found in the ASU Student Handbook available on the ASU website (http://www.angelo.edu/student-handbook/). This document, in addition to the information listed below, will be utilized to identify and address academic dishonesty within the program. The Department of Physical Therapy bases student conduct on the APTA Code of Ethics, Guide for Professional Conduct and Standards of Practice (http://www.apta.org/) (Appendix 8), in addition to Professional Behaviors. Specifically, the Department of Physical Therapy aligns itself with Angelo State University procedures under the Code of Conduct located at http://www.angelo.edu/student-handbook/code-of-student-conduct/, and the Community Policies located at http://www.angelo.edu/student-handbook/community-policies/.

ATTENDANCE/TARDINESS POLICY:

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

e. 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 either call the PT office at 942-2545 or the office of the professor 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.

ATTENDANCE AT ALL SCHEDULED EXAMINATIONS IS MANDATORY. Any unexcused absence from an examination will automatically result in a score of ZERO for that examination. Any student absent from examinations due to illness or injury must have a written justification from their physician. Absence from an examination for any other reason must be excused before the time of the scheduled examination or
brought about by a very serious circumstance. For excused absences only, make-up examinations must be
taken no later than one week after the student returns to class. Extended absences must be approved by the
Program Director of Physical Therapy.

ACCIDENT/INCIDENT REPORTING:

Any student involved in a safety incident on ASU property or at an ASU related educational activity (e.g.
accidental needle stick, fall, etc.) must immediately notify the course coordinator, clinical instructor and/or
department chair. If the incident occurs after hours, all incidents must be reported to the University Police at
942-2071. A student Accident/Incident Report must be completed no matter how insignificant the incident may
appear. [See Appendix 15 of the Student Handbook for the form.]

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 at www.angelo.edu/ADA. 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

When a student states he or she could meet the program's technical standards with accommodation(s), the
Office of Student Affairs will confirm that the stated condition qualifies as a disability under applicable laws. If the
condition qualifies as a disability, the University will determine if it agrees that the student can meet the
technical standards with reasonable accommodation; this includes a review of whether or not the
accommodation requested is reasonable, taking into account whether or not the accommodation would
jeopardize clinician/patient safety or the educational process of the student or the institution, including all course
work, clinical educational experiences and internships deemed essential to graduation. Students are required to
read and sign the DPT program’s technical standards (DPT Program Student Handbook Appendix I) form and to
update their responses on this form if their health status changes.

A student who requires accommodation to meet the technical standards must obtain verification by the Office of
Student Affairs that proper reasonable accommodation is available for the student to meet the standard. The
program will not provide accommodation without such written verification.
**DATE** | **CLASS TYPE** | **TOPIC** | **READING**
--- | --- | --- | ---
**Week 1**

May 20
1:30 – 4:00 pm
HHS 216

| 2 hrs lec | Introduction to Neuroscience/Neuropathology series |
| 0.5 hr lab | Overview of the Nervous System |
|  | Mental Status Exam |
|  | Introduction to Clinical Neuroradiology |

Blumenfeld, Chapter 2
Goodman and Fuller, Chap 32
Blumenfeld pp. 52-58
Blumenfeld, Chapter 4

May 21
1:30 – 4:00 pm
HHS 216

| 2.5 hrs lec | Excitable Cells |

Optional: Lundy-Ekman, Chap. 2-3

May 22
1:30 – 4:00 pm
HHS 216

| 2 hrs lec | Corticospinal Pathway and other motor tracts |
| 0.5 hr. lab | Motor Exam |

Blumenfeld, Chap. 6

May 23
1:30 – 4:00 pm
SIII, Rm 211/213

| 2.5 hrs lab | Neuroanatomy Lab – Surface Anatomy, Lobes and Functional Areas |
|  | Spinal Cord |

Blumenfeld, Pp. 24, 26-27,43, 882
Handout on Blackboard

May 24
1:30 – 4:00 pm
HHS 216

| 1.5 hrs lec | Somatosensory Pathways |
| 1.0 hr lab | Sensory Testing |

Blumenfeld, Chap 7

**Week 2**

May 27

|  | No class – Memorial Day |

May 28
1:30 – 4:00 pm
HHS 216

| 1.0 hrs lec | Spinal nerve roots |
| 1.5 hr lab | Major Plexus and peripheral nerves Cases |

Blumenfeld Chap. 8
Blumenfeld, Chap. 9

May 29
1:30 – 4:00 pm
HHS 216

| 1.5 hrs lec | Cerebral Hemispheres and Vascular Supply Cases |

Blumenfeld, Chapter 10
<table>
<thead>
<tr>
<th>Mutually convenient times</th>
<th>45 to 60 minutes</th>
<th>Small group (2 to 3 students) will meet with Dr. Mason between May 30 and June 7 to work through cases.</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 30</td>
<td>2.5 hrs lab</td>
<td>Deep structures of the brain: Coronal and Horizontal Slices of Cerebral Hemispheres The Brainstem Surface Anatomy and Cranial Nerves</td>
</tr>
<tr>
<td>1:30 – 4:00 pm</td>
<td></td>
<td>Blumenfeld, Chapter 12, 496-497.</td>
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<tr>
<td>SIII 211/213</td>
<td></td>
<td></td>
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<tr>
<td>May 31</td>
<td>1.0 hr. lec</td>
<td>Cases</td>
</tr>
<tr>
<td>1:30 – 4:00 pm</td>
<td>1.5 hrs. lab</td>
<td></td>
</tr>
<tr>
<td>HHS 216</td>
<td></td>
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</tr>
</tbody>
</table>

**Week 3**

| June 3                   | 2 hr lec         | The Visual System Visual exam, visual illusions,                                                 |
| 1:30 – 4:00 pm           | 0.5 hr lab       | Blumenfeld, Chapter 11                                                                           |
| HHS 216                  |                  |                                                                                                  |
| June 4                   | 1.5 hrs lec      | Brainstem I                                                                                      |
| 1:30 – 4:00 pm           | 1 hr lab         | Blumenfeld, Chap. 12                                                                             |
| June 5                   | 1.5 hrs lec      | Brainstem II                                                                                     |
| 1:30 – 4:00 pm           | 1 hr lab         | Blumenfeld, Chap. 13                                                                             |
| HHS 216                  |                  |                                                                                                  |
| June 6                   | 2.5 hrs lab      | Cerebellum and Neuroanatomy Review                                                                |
| 1:30 – 4:00 pm           |                  | Handout on Blackboard                                                                           |
| SIII 211/213             |                  |                                                                                                  |
| June 7                   | 1.5 hrs lec      | **Exam 1 through the Visual System –**                                                            |
| 1:30 – 3:00 pm           |                  |                                                                                                  |
| HHS Testing Center       |                  |                                                                                                  |

**Week 4**

<p>| June 10                  | 1.5 hr lec       | Brainstem III                                                                                    |
| 1:30 – 4:00 pm           | 1 hr lab         | Blumenfeld, 14 Ciccone, Chapter 4                                                                |
| HHS 216                  |                  |                                                                                                  |
| June 11                  | 1.5 hr lab       | <strong>Neuroanatomy Lab Exam</strong>                                                                         |
| 1:30 – 3:00 pm           |                  |                                                                                                  |
| SIII 211/213             |                  |                                                                                                  |
| June 12                  | 2.5 hrs lec      | Sedative/Hypnotic and Antianxiety Agents Depression and Bipolar Syndrome                           |
| 1:30 – 4:00 pm           |                  | Ciccone, Chapters 6 and 7                                                                          |
| HHS 216                  |                  |                                                                                                  |
| June 13                  | 1.5 hrs lec      | Depression and Bipolar Syndrome Psychosis                                                         |
| 1:30 – 4:00 pm           | 1 hr lab         | Ciccone, Chapters 7 and 8                                                                          |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Duration</th>
<th>Topic</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 14</td>
<td>1:30 – 4:00 pm</td>
<td>HHS 216</td>
<td>1.5 hrs lec 1 hr lab</td>
<td>Pain and Pain Management, Part 1</td>
<td>Ciccone, Chapters 11, 12, 14, 15, and 17</td>
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<tr>
<td>Week 5</td>
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<tr>
<td>June 17</td>
<td>1:30 – 4:00 pm</td>
<td>HHS 216</td>
<td>1.5 hrs lec 1 hr lab</td>
<td>Pain and Pain Management, Part 2 Cases</td>
<td>Ciccone, Chapters 14, 15, and 17</td>
</tr>
<tr>
<td>June 18</td>
<td>1:30 – 4:00 pm</td>
<td>HHS 216</td>
<td>1.5 hrs lec 1 hr lab</td>
<td>Higher Order Cerebral Function</td>
<td>Blumenfeld, Chap. 19</td>
</tr>
<tr>
<td>June 19</td>
<td>1:30 – 4:00 pm</td>
<td>HHS 216</td>
<td>2.5 hrs lab</td>
<td>The Neurologic Exam in the conscious and unconscious person</td>
<td>Blumenfeld, Chap. 3</td>
</tr>
<tr>
<td>June 20</td>
<td>1:30 – 4:00 pm</td>
<td>HHS 216</td>
<td>2.5 hrs lab</td>
<td>Cases and Review</td>
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</tr>
<tr>
<td>June 21</td>
<td>1:30 – 3:30 pm</td>
<td>HHS Testing Center</td>
<td></td>
<td>Final Exam</td>
<td></td>
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