

DPT 654

**UTICA COLLEGE
GRADUATE PROGRAM IN PHYSICAL THERAPY**

DPT 654 – Neuroanatomy – Summer 2021

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Course Description: Conceptual framework for a student's lifetime pursuit of understanding the nervous system. Clinical significance of structures related to physical therapy practice, approached through regional and systemic perspectives. (5 credits)

Required Texts:

Title: *Neuroscience*, Sixth Edition

Authors: Purves, Augustine, Fitzpatrick, Hall, LaMantia, and White

Publisher: Sinauer

ISBN: 9781605353807

Title: *Netter's Neuroscience Coloring Book*

Authors: Felton and Maida

Publisher: Elsevier

ISBN: 9780323509596

DPT654 Course Learning Outcomes (CLO)

1. Explain appropriate terminology related to neuroanatomy and neural function to effectively communicate information.
2. Using anatomical specimens, histological sections, models, and neuroimaging results, recognize neuroanatomical structures, explain their functions, and explain how anatomical form and function are influenced by neural development.
3. Recognize and explain the principles of neuroanatomical form and function as identified using pathological lesions as a method for identifying anatomical locations using case study.
4. Distinguish features of neuroanatomical structures and function and discuss physiological consequences of impairments.
5. Describe, compare, and contrast neuroimaging procedures used to examine anatomical structures and evaluate physiological functions of the nervous system for pathological diagnosis or research study.
6. Interpret graphs of neuroanatomical and neurophysiological data.
7. Approach and examine issues related to neuroanatomy and neurophysiology from an evidence-based perspective.
8. Communicate clearly and in a manner that reflects knowledge and understanding of the human body and demonstrates the ability to adapt information to different audiences and applications.

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Assignments:

Quizzes

Many of the expected course learning outcomes require you to eventually take the neuroanatomical and neurophysiologic principles and apply that knowledge to neurologic function and disease process. In order for you to know that your content knowledge is progressing and that you correctly understand the principles, there will be a series of online, 5-point quizzes every week. For every content area there will be at least 3 formative quizzes so you can gauge your understanding and identify areas where you may need more study. In order for you to focus more on the content of the quizzes than the points, only your top 10 scores will count even though there may be 30 quizzes by the end of the semester.

Wiki Participation

For the concepts and principles you learn in lab, many of the expected course learning outcomes require building collaborative problem-solving skills. Each week, you will work with other students in the course to develop tools to help with your collaborative and problem-solving skills by completing tasks in the course wiki page. A wiki is a shared tool where a group of people build an understanding of various topics. Each week you will be assigned a primary topic that you will be responsible for on the class wiki. Additionally, you will be responsible for helping to maintain the overall quality of information on the class wiki. A rubric for scoring wiki entries can be found on the course wiki.

Case Studies

In order to demonstrate that you can apply what you are learning in this course, you will be required to evaluate clinical case studies. Each week, there will be three clinical cases that you will complete as part of the lab. These are formative assignments that are meant to help you develop your clinical skills. Only five case studies will count towards your final grade, but each one will be graded so that you receive feedback about your progress.

Exams and Lab Practicals

The exams and lab practicals will serve as a more summative experience to demonstrate the content, principles, and skills you have developed in the course. Each exam and lab practical will include short answer, case-based analysis of neurophysiologic (exams) and neuroanatomic (lab practical) understanding.

Case Analysis Project

For a final project for this course, you will receive a clinical case study with an initial imaging study. This project is a cumulative study for this course, so it will assess all of the Course Learning Outcomes. In addition to developing a response for the case, you will be expected to search the database of clinical case histories and show previous examples and use research to generate a neuro-rehab plan for the patient in your case study. The output for this project is a presentation in class.

Course Policies:

Academic Honesty

Summary: students must do their own work on all tests and assignments. Any quoted or paraphrased phrases or sentences from published materials, internet sources, or other individuals' work must be correctly referenced. If you are confused by the expectations you must consult with the instructor and related resources (e. g., librarian, Writing Center) prior to the submission of an assignment, as violations will result in a course grade of "F."

Academic Accommodations

Any student who has need of special accommodations in this class due to a documented disability should speak with me as soon as possible, preferably within the first two weeks of class.

ATTENDANCE/PARTICIPATION POLICY:

Attendance **AND** participation in your section is mandatory. If you will miss a class, please make arrangements with the instructor to plan make-up for your work.

LABORATORY SUPPLIES:

You should wear a lab coat to protect your clothing. A dull probe is a useful tool for examining specimens in the lab. Colored pencils for drawing observations are also suggested. Your laboratory work and your Netter's Book should be brought to every lab session. You need to read the pertinent sections of your lab before coming to lab since this will greatly reduce the amount of time required to finish the laboratory exercise.

LECTURES:	Gordon 167	M, T, TR, F 11:30-1:30
LABORATORIES:	(Romano 302) M,	
Sec A	T, Th, F	8:30- 11:30 pm
Sec B	M, T, Th, F	1:30- 4:30 pm

SUMMARY OF GRADING:

Exam 1:	60 Points
Exam 2:	60 Points
Final Exam:	60 Points
Mid-Term Lab Practical:	40 Points
Final Lab Practical:	40 Points
Lab Wiki Participation:	20 Points
Case Study Submissions (Top 5)	50 Points
Online Lecture quizzes (Top 10)	50 Points
Case Analysis Project (due June 18)	<u>20 Points</u>
	400 Points

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Letter Grade equivalents:

380 – 400 = A

360 – 379.9 = A-

348 – 359.9 = B+

332 – 347.9 = B

320 – 331.9 = B

308 – 319.9 = C+

292 – 307.9 = C

280 – 292.9 = C-

Below 280 = F

How can I be successful in this course?

1. Come see me during my office hours or send me an email. Can't make it to see me? Send an email that you want to connect with me before or after class – I don't bite, really! But I do write all of the assessments in this course, so I might be a better source of information than your friend's older brother who took this class or who's friend's girlfriend or uncle took this class, like 10 years ago!
2. Use your lab instructor as a resource. They also don't bite! And may be able to answer your lab questions better than I can.
3. Learning is easier when you study all along instead of trying to learn everything in last minute. Pace yourself! Find a friend in class; someone who can be a study buddy or at least someone you can try ideas and practice questions with when you are studying.
4. Don't wait, if you get behind, get help immediately! The Learning Commons staff, tutors, lab instructors and I are all waiting to hear from you!

DPT654 - TENTATIVE SCHEDULE

Dates	Content Schedule	Assessments
Week 1	Introduction to Neuroanatomy	Due by Tuesday of the Next Week
	Introduction to the Cells and Development in the Nervous System Basic Orientation of the Human Central Nervous System (Appendix) Develop Case Study Framework Methods of Neuroimaging	<i>Online Quizzes on Content Information</i> <i>Online Quizzes on Content Information</i> <i>Introductory Case Study Presentation</i> <i>Develop Neuroimaging Wiki</i>
Week 2	Signaling and Plasticity	
	Principles of Neural Signaling Neuroplasticity Anatomy of the Spinal Cord Blood Vessels in the CNS	<i>Online Quizzes on Content Information</i> <i>Online Quizzes on Content Information</i> <i>Case Study Presentations</i> <i>Develop Blood Supply Wiki</i>
	<u>Exam 1 Online</u>	
Week 3	Cranial Nerves	
	Brainstem and Cranial Nerve Anatomy and Function Cranial Nerve Testing	<i>Online Quizzes on Content Information</i> <i>Case Study Presentations</i> <i>Develop Cranial Nerve Wiki</i>
	<u>Lab Exam 1</u>	
Week 4	Sensory Systems	
June	Sensory Anatomy and Physiology <ol style="list-style-type: none"> 1. Somatic Sensation 2. Pain and temperature 3. Vision 4. Audition 5. Vestibulation Sensory Pathways	<i>Online Quizzes on Content Information</i> <i>Case Study Presentations</i> <i>Develop Sensory Pathways Wiki</i>
	<u>Exam 2 Online</u>	

Week 5	Motor Systems	
	<p>Motor System Anatomy and Physiology</p> <ol style="list-style-type: none"> 1. Lower Motor Neurons 2. Upper Motor Neurons 3. Modulation of Movement <p>Differentiation of Motor Impairments</p>	<p><i>Online Quizzes on Content Information</i></p> <p><i>Case Study Presentations</i> <i>Develop Motor Pathways Wiki</i></p>
Week 6	Cognition	
	<p>Neural Principles of Cognition</p> <ol style="list-style-type: none"> 1. Association Cortex 2. Emotion 	<p><i>Online Quizzes on Content Information</i></p> <p><i>Case Study Presentations</i> <i>Develop Sensory Pathways Wiki</i> <i>Project Presentations</i></p>
	<u><i>Lab Exam 2</i></u>	
	<u><i>Final Exam</i></u>	