

## ***Course Syllabus***

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### ***Neuroanatomy*** NSC 4366

Fall 2016

FN 2.102

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*Office hours: M,W noon-12:50 and other times by agreement*

#### **Course Pre-requisites**

Willingness to learn. NSC 3361 (*Behavioral Neuroscience*) very helpful.

Grad TA:

Student TAs:

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#### ***Course Description***

Functional Human Neuroanatomy (3 hours). Function of each major brain system as related to the organization of their principal nuclei. Function of each system related to the neurological disorders associated with disease specific locations.

This course will introduce students to the anatomical organization and basic functional principles of the major systems that work together in the human brain: sensory, motor, cortical and modulatory. This course will prepare students with the medical terminology and neurological concepts for a general understanding of the human brain and its functions in relation to disease and behavior. It has a more clinical orientation than some Neuroanatomy courses. The overall objective of the course will be a three-dimensional understanding of nervous system structure and organization, based upon anatomical connections, system functions, and diseases that affect the brain.

**Learning Objectives:** After completing the course, students should be able to:

1.1 Describe the historical development of neuroscience as a cross-disciplinary science. 1.2 Describe and analyze the contributions of anatomical, physiological, behavioral, pharmacological, developmental, and cell and molecular biological studies to the bases of neuroscience, and: b) describe the basic morphology and functions of neurons and glia, d) describe neural mechanisms of (1) motor control, (2) sensory processing, (3) homeostatic maintenance, and (4) higher cognitive functions (including learning, memory and emotions), e) define and appropriately use anatomical terminology, f) locate and identify major brain structures on brain atlas plates, MRI, CAT, and PET scans, g) describe the anatomical and functional organization of the autonomic nervous system and neuroendocrine systems. 1.3 Integrate pathological findings from psychology, psychiatry, physiology, and clinical neurology with basic scientific work in the neurosciences.

2.1 Identify and explain why research questions rather than methods ideally drive advances in neuroscience. 2.2 Describe how current methods sometimes limit our understanding of the nervous system, and drive innovation to develop new and better techniques. 2.3 Describe why multiple research techniques and multiple levels of analysis (systems, network, cellular, synaptic, etc.) are preferred to address basic questions in the neurosciences, rather than reliance on a single technique or level.

3.1 Compare textbook, popular and peer-reviewed scholarly reports in the neurosciences. 3.3 Use critical thinking to analyze and critique the literature.

4.2 Demonstrate effective oral communication skills in various contexts (e.g., group discussion, brief oral presentation) and for various purposes (e.g., informing, teaching, explaining, defending, persuading, deconstructing).

5.2 Identify appropriate applications of neuroscientific knowledge in health, service, education, or business professions.

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### *Required Textbook*

Required readings are the appropriate chapter for the lecture from:

**Essential Clinical Neuroanatomy**

Thomas Champney

ISBN : 978-1-118-43993-7

320 pages

August 2015

**Or the E-book:**

Essential Clinical Neuroanatomy

ISBN : 978-1-118-43997-5

320 pages

June 2015

## *Suggested Course Materials*

*Clinical Neuroanatomy*, 26th Edition or newer [Paperback and Kindle Editions] Stephen G. Waxman, Publisher: McGraw-Hill Medical; ISBN-10: 0071603999 ISBN-13: 978-0071603997

For consultation as needed for the clinical aspects of this course:

*Fundamentals of neurologic disease: an introductory text* / Davis, Larry E., Demos Medical Pub., 2005. Available as eBook through the library web site and at library.

## **Grading Policy**

**Exams:** There will be four exams during the course. Each exam will be worth 20% of your final grade. Material covered on the exams will be taken from the assigned readings and class lectures, mostly the lectures. These will focus on the location and clinical significance of relevant anatomical structures. The exams will be multiple choice questions. Bring scantron 229630 and your lucky pencil with you.

There will be four practica, “point-outs” requiring students to identify structures and their connections or function on projected slides of human brain sections or drawings. Each practicum counts 5% of the final grade. Many practicum questions will be derived from the book. There is no final exam. I strongly encourage you to form study groups to prepare for the point-outs portion of the exam - quiz each other. Practice teaching it to others; that is the best way to learn anything. Bring scantron 229630 and your lucky pencil with you.

## **Turning Point Clickers**

This course suggests but does not require the use of a clicker. This allows you to provide real-time feedback to me during class. Class summary results are displayed graphically, providing students and me a gauge as to how well the class is grasping the material, and it periodically derails monotonous lecturing. You can purchase (and sell back) your clicker at the UTD Bookstore.

Extra-credit: Clicker grading; You receive 2 points for every correct clicker question answer, and 1 point for every incorrect answer. For the final clicker grade computation, I will average the top three students’ total clicker points and set that as 100%. So, if the top three students earned 130, 129 and 128 points, 100% is the average of these: 129. If you scored 112 total points, then your grade for the clickers is  $112/129 = 87\%$ , and you receive  $5 \times .87 = 4.5$  points added to your final course grade.

Recall the wisdom of Woody Allen: “Ninety percent of life is just showing up”.

**Final Grades:** A final grade will be submitted: A+: 97-100%, A: 93-96.9%, A-: 90-92.9%, B+:87-89.9%, B: 83-86.9%, B-: 80-82.9%, C+: 77-79.9%, C:73-76%, C-: 70-72.9%, D: 50-69.9%, F < 50.

## **Course & Instructor Policies:**

### **Missed exams:**

Make-up exams will be given only if: (a) you were seriously ill and have verifiable documentation from a physician, or (b) you were detained the day and time of the exam, or (c) you made arrangements prior to the exam to attend an urgent affair. In any case, you must notify me in advance of the scheduled time of the exam via email. Otherwise, you will receive a 0.

### **Attendance:**

Your performance and grade in this course will be greatly influenced by your attendance. A lot of material covered in lecture is not covered in the textbook.

## UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus <http://go.utdallas.edu/syllabus-policies>

## Assignments & Academic Calendar

<u>Class Topic</u>	<u>Champney chapter</u>	<u>Lab topic</u>
1 Introduction / Overview	1	
2 Neurologic thinking	none	How to beat this course
3 Imaging	18	
4 Coverings / Ventricles	2	Imaging, cover/vents
5 Spinal Cord	4	
6 Spinal Cord	4	Spinal cord
<b>7 Practicum 1 (9/13)</b>		
<b>8 Test 1 (9/15)</b>		Test 1 review
9 Cranial nerves	5,6,7	
10 Brainstem	5,6,7	Cranial nerves
11 Brainstem	5,6,7	
12 Brainstem	5,6,7	Brainstem
13 Blood supply	2	
<b>14 Practicum 2 (10/6)</b>		Blood supply
<b>15 Test 2 (10/11)</b>		
16 Motor system - Cerebellum	10	Test 2 review
17 Motor systems	15	
18 Motor systems	15	Cerebellum Basal ganglia
19 Hypothalamus	9	
20 Thalamus	9	Thalamus
<b>21 Practicum 3 (11/1)</b>		
<b>22 Test 3 (11/3)</b>		Test 3 review
23 Visual system	12	
24 Limbic system	16	Vision Limbic system
25 Cerebrum	9,17	
26 Cerebrum	9,17	Cortex
27 Cerebrum	9,17	
<b>28 Practicum 4 (12/1)</b>		Cortex
<b>29 Test 4 (12/6)</b>		

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