

SPRING 2012 SYLLABUS

COURSE: ACN/HCS 7344-001 FUNCTIONAL HUMAN NEUROANATOMY

Instructor: Aage R. Møller PhD
E-mail: AMOLLER@UTDALLAS.EDU
Office Hours by Appointment

Class Schedule: Main Campus:
Monday-Wednesday 4:00 - 5:15 p.m., GR 4.301
January 18, 2012- April 30, 2012

Class Text:
Brodal P.: *The Central Nervous System*, 4th Edition
New York, Oxford University Press, ISBN-10: 0195381157; ISBN-13: 9780195391153
List price: \$59.49 (new); Kindle edition: \$40.66

NOTE: Handouts will be provided

Supplementary Readings:

Shepherd G.: *Neurobiology*, 3rd Ed.
Oxford Press, New York 1994 ISBN-10 0195088433; ISBN-13 9780195088434
List price: \$94.54 (new)

Atlas of Neuroanatomy, Thieme 2010
ISBN-10: 1604062908; ISBN-13: 9781604062908
List price: \$57.09 (new); Kindle edition: \$51.38

Course Purpose:

To develop an understanding of the anatomy and function of the human nervous system and to develop an understanding of some of the disorders of the central nervous system.

Course Layout:

This is a systems-oriented course that covers the anatomical organization and the physiology of the central nervous system. The course describes the anatomy and basic features of sensory and motor systems, limbic systems and the anatomical and functional basis for cognitive functions. Lectures will cover in detail the generation and processing of motor commands and sensory signals; the similarities and differences between the anatomy of the two main motor systems and the two main sensory systems; motor control connected to the roles of the basal ganglia, cerebellum, spine and reflexes; classical ascending sensory pathways, including their transformation of sensory signals occurring in their nuclei and the processing occurring at different levels of the central nervous system; pathophysiology of common motor and sensory systems disorders; and the role of neural plasticity in creating signs and symptoms of disease.

Student Learning Objectives/Outcomes:

Students will:

1. Understand the basic anatomy and function of the main structures of the human central nervous system.
2. Understand the general function of the lateral tracts of the motor system.
3. Understand the general function of the medial tracts of the motor system.
4. Understand the anatomy and the function of the basal ganglia.
5. Know the anatomy and the function of spinal reflexes.
6. Understand the role of proprioception in motor control.
7. Understand the general anatomy and function of the cranial nerves.
8. Understand the anatomy and the function of the cranial nerve reflexes, including the vestibular ocular reflex.
9. Know the anatomy of sensory organs and the differences between different senses.
10. Know the anatomy of the ascending sensory pathways.
11. Understand the differences between classical and non-classical (lemniscal and extralemniscal) ascending pathways.
12. Know the anatomy of efferent sensory systems and some of their functions.
13. Understand how sensory information can reach structures of the limbic system.
14. Understand the role of neural plasticity in motor function.
15. Understand the role of neural plasticity in sensory function.
16. Understand the pathophysiology of some common disorders that affect the function of motor systems.
17. Understand the pathophysiology of some common disorders that affect the function of the sensory systems with specific reference to pain.
18. Know the anatomy and the basic functions of the different structures of the limbic system.
19. Understand the anatomical and functional basis for cognitive functions.

Course Outline:

1. Basic building blocks of the central nervous system
2. Cerebral Cortex
3. Brainstem
4. Spinal Cord
5. Autonomic nervous system
6. Cranial nerves
7. Spinal nerves
8. Spinal reflexes
9. Central motor pathways
10. Basal ganglia
11. Cerebellum
12. Proprioception
13. Subcortical coordination of motor and sensory functions
14. Somatosensory systems
15. Balance system
16. Limbic system
17. Pain pathways
18. Central pain
19. Neural plasticity
20. Development of the nervous system
21. Aging

Requirements and Assignments:

1. Attendance

Students are expected to attend classes regularly.

NOTE: Discussions begin promptly, and lateness is rude to all. Please only enter or exit by the **rear doors** if the front doors are closed. Audio recording is at the instructor's discretion; abuse of this privilege will halt all future recording. Audio recording devices must be in place **BEFORE** the lecture starts. Late arrivals forfeit this privilege for the day. Mobile phone use is prohibited in the classroom. Web surfing, IMing, text messaging, and tweeting are not allowed.

2. Class presentation

There will be a class presentation, which will be discussed during the semester.

3. Exams

There will be two exams, but the midterm exam is not obligatory because it is a graduate class. The midterm exam will be distributed electronically on February 20th covering all course material discussed up to that date; and a final exam is due on April 30th, covering the course material discussed after the mid-term exam. These exams are both take-home exams designed to encourage deep reflection on the course material, and they will involve short essay questions. The exams **MUST** be completed on your own (not in groups). However, you may use textbooks, class handouts and your assigned reading materials to help you complete the exam. The final grade will be based on the final exam, exclusively.

NOTE: Excused absences for exams/presentations will be given **ONLY** if: (a) you are seriously ill and have verifiable documentation from a physician, or (b) you were legally detained at the exam time or (c) you made prior arrangements to attend a verifiable religious or family event [no other routine exceptions]. **In all cases** except (b) you **must notify the instructor in ADVANCE of the scheduled exam by email**. Failing to do so, you will receive a zero (0) for that exam. A **maximum** extension of one week (7 days) beyond the scheduled exam date can be granted, except for the final exam, which must be taken on the final exam date.

Student Conduct & Discipline

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). *This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.*

Email Use

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

Withdrawal from Class

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

Student Grievance Procedures

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

Incomplete Grade Policy

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of **F**.

Disability Services

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is:

The University of Texas at Dallas, SU 22

PO Box 830688

Richardson, Texas 75083-0688

(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

Religious Holy Days

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.