

College of Public Health & Health Professions
 OTH 4418 Nervous System and Disorders
 Course Syllabus
Fall 2012
PHHP.UFL.EDU/Education/Undergraduate.htm

INSTRUCTOR INFORMATION

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 Office Hours: Tuesday 3:30-5:00, or by appointment

TA Information:

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|---------------------------------|---|
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MEETING TIMES

| Class | Day / Date | Time | Section # | Room |
|----------------------|--------------|------------|-----------|--------------|
| Lecture | Monday | 1:55-3:50 | 0927 | G-301 |
| | Tuesday | 1:55-2:45 | 0927 | G-301 |
| Lab | Wednesday | 9:35-11:30 | 0934 | |
| | | 11:45-1:40 | 0935 | |
| | | 1:55-3:50 | 0937 | |
| Brain Lab | 8/29 - 10/10 | | | CG-22 (HSC) |
| Disorders Lab | 10/17 - 12/5 | | | G-201 (HPNP) |

COURSE DESCRIPTION

The course content includes basic information on neuroanatomy, neurophysiology, and disorders of the human nervous system. The course emphasizes the relationship between structure and function in the nervous system. Understanding the normal nervous system functioning is a starting point for comprehending certain disorders of the nervous system that are most commonly seen by occupational therapists and other health care professionals. Students engage in clinical problem solving, applying their knowledge of neurophysiology and neuroanatomy to case studies of neurological disorders.

COURSE OBJECTIVES:

This course partially meets two standards of the Education Standards for the American Council for the Accreditation of OT education (ACOTE). The student will:

- B.1.4 Demonstrate knowledge and understanding of the structure and function of the human body to include the biological and physical sciences. Course content must include, but is not limited to, biology, anatomy, physiology, neuroscience, and kinesiology or biomechanics.

- B.2.6 Analyze the effects of physical and mental health, heritable diseases and predisposing genetic conditions, disability, disease processes, and traumatic injury to the individual within the cultural context of family and society on occupational performance.

More specifically, based on study materials, readings, lectures, and handouts the student will:

Lecture: basic concepts, neuroanatomy, and systems (integrating structure and function).

1. Describe basic concepts, terminology and divisions of the nervous system.
2. Describe the organization, structure and function of the cerebrum, diencephalon, limbic structures, basal ganglia, cerebellum, brain stem, cranial nerves, spinal cord, and peripheral nerves.
3. Define terms and describe the cytology of the nervous system
4. Define terms and describe conduction and transmission of the nerve impulse as well as excitation and inhibition.
5. Trace the flow of blood and cerebrospinal fluid of the brain and spinal cord.
6. Define terms and describe neurodevelopment.
7. Identify structures and describe the organization and function of sensory systems including the visual, auditory, somatosensory and proprioceptive, vestibular, olfactory and gustatory systems.
8. Identify structures and describe the organization and function of the motor systems and control of posture and movement.
9. Identify structures and describe the organization and function of the autonomic nervous system and the limbic system.

Neuroanatomy lab: Identify basic structures.

10. Identify structures of the cerebrum, diencephalon, cerebellum, brain stem and cranial nerves, and spinal cord and spinal nerves.
11. Identify vascular and ventricular structures, trace the flow of blood and CSF in brain and spinal cord.

Disorders lab objectives: Understand various injuries, conditions and disorders of the nervous system.

12. Identify laboratory procedures and physician's examination used in neurodiagnosis.
13. Describe the etiology, symptoms, signs and treatment of major neurological diseases, disorders, and dysfunctions.

TEACHING METHODS:

Lecture; syllabus; course texts; audiovisual materials; lab study of neural specimen & models.

COURSE MATERIALS:

A. Required Text:

1. Class notes will be posted weekly on-line (E-learning at <https://lss.at.ufl.edu/>). Click on the first "Continue", e.g. of the Sakai System Entry.
2. Haines D.E. (2007). Neuroanatomy: An atlas of structures, sections and systems. Williams and Wilkins, Baltimore, MD.
3. You must purchase a TurningPoint RF Response Card remote (clicker). The remote is available at both the main campus and Health Science Center bookstores and costs approximately \$35. You may purchase a previously used remote, but make sure that it has working batteries. The Physics (HITT) remotes do NOT work in the HPNP building, you must use the TurningPoint remote.

B. Recommended (optional):

1. Noback CR, Strominger NL, Dmarest RJ, Ruggiero DA (2005). The human nervous system: structure and function. 6th Edition. Totowa, NJ: Humana Press
2. Lundy-Ekman, L. (Newest Edition). Neuroscience: Fundamentals for Rehabilitation. Philadelphia: W.B. Saunders Co.

COURSE POLICIES AND PROCEDURES:

A. University Honesty Policy:

Academic Integrity – Students are expected to act in accordance with the University of Florida policy on academic integrity See Student Conduct Code and honor code at this web site for more details: <http://www.dso.ufl.edu/sccr/currentstudents.php>

Cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

The Honor Code: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

B. Policy Related to Class Attendance:

- Students are expected to attend lecture. Professional points (15) are given based on attendance and professional behavior. Attendance will be taken by using the data from the TurningPoint remotes on 8 randomly selected dates. Missing a class without prior arrangements (see definition of “prior” below) will result in subtracting 2 points per missed lecture. However, you are allowed to miss 1 of the 8 attendance checks without consequences. Personal issues with respect to class attendance or fulfillment of course requirements will be handled on an individual basis.
- Lab attendance is mandatory. Lab attendance will be taken weekly. Missing a lab without prior arrangements will result in subtracting 5 points per missed lab.
- Personal issues with respect to class and lab attendance or fulfillment of course requirements will be handled on an individual basis.

C. Policy Related to Make-up Exams or Other Work

Makeup exams will not be given without prior arrangements with the Course Instructor. “Prior” means at least one day in advance. Failure to do this will result in a zero grade for that test or assignment. Emergencies have to be documented (such as a medical exemption). Undocumented absence from an exam or an assignment will result in a score of “0” on that assignment. Makeup exams that are given due to authorized absence may be oral exams.

D. Accommodations for students with disabilities

If you require classroom accommodation because of a disability, you must first register with the Dean of Students Office (<http://dso.ufl.edu/drc>). The Dean of Students Office will provide documentation to you, which you then give to the instructor when requesting accommodation. The College is committed to providing reasonable

accommodations to assist students in their coursework.

E. Professional work habits and Class Demeanor:

1. **Preparation for class:** To maximize the use of class time, you are expected to:
 - a. Look at E-learning for notes and announcements prior to **each** class
 - b. Read and study assigned readings prior to class
 - c. Quizzes will be given at the beginning of every lab to ensure that the student is prepared. Being late to lab will result in a grade of 0 on the quiz. Lecture quizzes will be given occasionally either on-line or in the classroom.

2. **General Class behavior:** You are also expected to:
 - a. Be on time for class
 - b. Stay until class is dismissed
 - c. Turn off your cellular phone
 - d. Be courteous by refraining from chatter and other distracting behaviors
 - e. Not read other material during class (newspaper, crossword puzzles, etc.)
 - f. Get your work in on time
 - g. Arrange with the instructor in advance if you cannot attend class so you can get pertinent handouts and announcements

3. **Specific Behavior in Lab:**
 - 1) **Brain Lab:**
 - a. Lab attire: For brain lab only: Students should wear a lab coat or scrubs and wear close toed shoes (no sandals). Students must bring gloves to lab (nitrile, vinyl or latex). Wooden probes will be provided.
 - b. Use of laboratory materials: Neural specimens are very fragile and must be handled with care. Specimen must not be allowed to dry out. Do not use water!! Only use the Biostat fluid. Wet a paper towel to cover parts of specimen when out of the buckets for an extended period of time. *Do not poke the specimen with a pencil or pen!* *Gently* probe with a wooden probe.
 - c. Lab clean-up: Students are expected to clean up after themselves in the lab and classroom and return all lab materials to their proper place. *Students are not to remove atlases, models, specimen or other lab materials from the classroom.*

 - 2) **Disorders Lab:**
 - a. Independence in study of disorders: Students will show independence in the study of CNS disorders. The disorders material will be posted on E-learning and will not be covered formally in lecture. Instead, students are expected to be independent in studying the disorders material: to prepare by reading the assigned materials (there will be a 5-10 question quiz at the beginning of each lab) and to participate in "identify the lesion" lab exercise to supplement syllabus information.
 - b. Group presentation: students are expected to participate fully and act professionally in the group presentation project (details elsewhere).

F. Counseling and Student Health

Students may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the University of Florida Counseling Center, 352-392-1575. Visit their web site for more information:

<http://www.counseling.ufl.edu/>

The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services, including primary care, women's health care, immunizations, mental health care, and pharmacy services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: www.health.ufl.edu/shcc

Crisis intervention is always available 24/7 from Alachua County Crisis Center: (352) 264-6789.

BUT – Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

COURSE REQUIREMENTS AND PERCENTAGE OF GRADES:

| Test | Date of Test | Number of questions | Points per Question | Points per Test | % Grade |
|----------------------------|-------------------------|---------------------|---------------------|-----------------|---------|
| Test 1: Written | 10/02 | 60 | 3 | 180 | 18 % |
| Test 2: Lab | 10/10 | 50 | 1 | 50 | 5% |
| Test 3: Systems | 11/13 | 60 | 3 | 180 | 18% |
| Test 4: Disorders | 12/05 | 70 | 2 | 140 | 14% |
| Test 5: Final (cumulative) | 12/11 | 100 | 3 | 300 | 30% |
| Lecture quizzes | Instructor's discretion | | | 60 | 6% |
| Brain Lab quizzes | Every lab | | | 25 | 2.5% |
| Disorder Lab quizzes | Every lab | | | 30 | 3.0% |
| Disorder lab presentation | | | | 20 | 2.0% |
| Professional Behavior | | | | 15 | 1.5% |
| Total Points | | | | 1000 | 100% |

- * Unexcused absence from any lab (brain or disorders lab) will result in subtracting 5 points per missed lab.
- * Lab quizzes will be given at the beginning of lab. If you're late for lab you will NOT be able to make up the quiz.
- * Missing lecture without prior arrangements will result in subtracting 2 points per missed lecture. Attendance will be randomly taken by using the data from the TurningPoint remotes (clickers).

GRADING:

| GRADE | PERCENT | Point Range | |
|-----------|---------|-------------|-------|
| A | 93-100 | 930 | -1000 |
| A- | 90-92 | 900 | -929 |
| B+ | 87-89 | 870 | -899 |
| B | 83-86 | 830 | -869 |
| B- | 80-82 | 800 | -829 |
| C+ | 77-79 | 770 | -799 |

| GRADE | PERCENT | Point Range | |
|-----------|---------|-------------|------|
| C | 70-76 | 700 | -769 |
| D+ | 67-69 | 670 | -699 |
| D | 63-66 | 630 | -669 |
| D- | 60-62 | 600 | -629 |
| E | 0-59 | 0 | -599 |
| | | | |

***** For Pre-OT students A grade of "C" (730 points) is required to pass this course!*****

SCHEDULE - Fall, 2012

*This is a tentative schedule; content may be subject to change!

Lectures: Mondays: 1:55-3:50; Tuesdays: 1:55-2:45 (rm. G-301)

Labs: Brain Lab: Wednesdays, 8/29 - 10/10 (CG-22)

Disorders Lab: Wednesdays, 10/17 – 12/5 (G-201)

* TB = TextBook (Noback)

| DATE | TOPIC | READING |
|---|---|---------------------------------------|
| WEEK 1 | | |
| Wednesday, 8/22/12 Lecture | 1. Introduction to the course 2. Basic concepts | Notes: Ch 1, 2,3 TB: Ch.1, 2, 3 |
| WEEK 2 | | |
| Monday, 8/27/12 | 1. Cerebrum 2. Cytology and Nerve Conduction | Notes: Ch 2,3 TB: Ch. 2, 3, 15 |
| Tuesday, 8/28/12 | 1. Coronal sections | Notes: Ch 4 Haines: Ch. 2,3,4 |
| Wednesday, 8/29/12 Brain Lab 1 | Cerebrum: Lateral, medial, & ventral aspects | Notes: Ch 2 Haines: Ch. 1,2 |
| WEEK 3 | | |
| Monday, 9/3/12 | Labor Day – No Class | |
| Tuesday, 9/4/12 | 1. Diencephalon and limbic (self study) 2. Basal Ganglia | Notes Ch 6 Notes: Ch 7; TB:Ch.1,24 |
| Wednesday, 9/5/12 Brain Lab 2 | Coronal sections | Notes: Ch 4 Haines: Ch. 2,3,4 |
| WEEK 4 | | |
| Monday, 9/10/12 | 1. Meninges, ventricles and CSF 2. Cerebral blood supply | Notes: Ch. 5 TB: Ch. 4,5 |
| Tuesday, 9/11/12 | 1. Cerebral blood supply | Notes: Ch. 5; TB: Ch.4,5 |
| Wednesday, 9/12/12 Brain Lab 3 | 1. Ventricular system 2. Meninges 3. Arteries 4. Sinuses | Notes: Ch. 5 Haines: Ch. 2,3,4 |
| WEEK 5 | | |
| Monday, 9/17/12 | 1. Brain stem and cranial nerves | Notes: Ch 8; TB: Ch13,14,18 |
| Tuesday, 9/18/12 | 1. Brain stem and cranial nerves | Notes: Ch 8 |
| Wednesday, 9/19/12 Brain Lab 4 | 1. Brain stem 2. Cranial Nerves | Notes: Ch. 8 Haines: Ch. 2,3,4 |
| WEEK 6 | | |
| Monday, 9/24/12 | 1. Cerebellum | Notes: Ch9; TB: Ch18 |
| Tuesday, 9/25/12 1:45-3:00 PM | EXAM 1: WRITTEN; 1:45-3:00 PM Room CG-28 (Computer Testing Ctr.) | |
| Wednesday, 9/26/12 Brain Lab 5 | 1. Cerebellum | Notes: Ch. 9 Haines: Ch. 2 |

| DATE | TOPIC | READING |
|---|--|---|
| WEEK 7 | | |
| Monday, 10/1/12 | 1. Cerebellum (cont.) | Notes: Ch9; TB: Ch18 |
| Tuesday, 10/2/12 | 1. Spinal cord | Notes: Ch.10; TB:Ch.7 |
| Wednesday,10/3/12 Brain Lab 6 | 1. Spinal cord 2. Brain Lab Exam Review 3. Introduction to disorders lab 4. Neurodiagnosis – assignment | Notes: Ch.10 |
| WEEK 8 | | |
| Monday, 10/8/12 | 1. Spinal cord | Notes: Ch.10; TB:Ch.7 |
| Tuesday, 10/9/12 | 1. Spinal cord 2. Neurodevelopment | Notes: Ch.10; TB:Ch.7 Notes: Ch.12; TB: Ch.6 |
| Wednesday, 10/10/12 Brain Lab 7 | EXAM 2: LAB (Room CG-22) | |
| WEEK 9 | | |
| Monday, 10/15/12 | 1. Spinal cord reflexes | Notes: Ch11; TB: Ch8 |
| Tuesday, 10/16/12 | 1. Spinal cord reflexes | Notes: Ch11; TB: Ch 8 |
| Wednesday, 10/17/12 Disorders Lab 1 | Tumors and Infections | Notes: Ch 2a+b |
| WEEK 10 | | |
| Monday, 10/22/12 | 1. Spinal reflexes | Notes: Ch.11; TB: Ch.8 |
| Tuesday, 10/23/12 | 1. Motor System | Notes:Ch.13; TB:Ch.11 |
| Wednesday, 10/24/12 Disorders Lab 2 | Congenital disorders | Notes: Ch. 3 |
| WEEK 11 | | |
| Monday, 10/29/12 | 1. Motor system | Notes:Ch.13; TB:Ch.11 |
| Tuesday, 10/30/12 | 1. Motor system | Notes: 14; TB: Ch. 15 |
| Wednesday, 10/31/12 Disorders Lab 3 | Cerebellar and Degenerative disorders | Notes: Ch 4a+b |
| WEEK 12 | | |
| Monday, 11/5/12 | 1. Somatosensory system | Notes: 14; TB: Ch. 15 |
| Tuesday, 11/6/12 | 1. Somatosensory system | |
| Wednesday, 11/7/12 Disorders Lab 4 | Peripheral and Cranial Nerve Injuries | Notes: Ch 5a+b |
| WEEK 13 | | |
| Monday, 11/12/12 | Veteran's Day – No Class | Notes: Ch.15; TB:Ch.16 |
| Tuesday, 11/13/11 1:45-3:00 PM | EXAM 3: SYSTEMS (NO disorders) 1:45-3:00 Room CG-28 | |
| Wednesday, 11/14/11 Disorders Lab 5 | Spinal cord injury | Notes: Ch. 6 |

| DATE | TOPIC | READING |
|---|---|---|
| WEEK 14 | | |
| Monday, 11/19/12 | 1. Vestibular system 2. Auditory system | Notes: Ch.15; TB:Ch.16 Notes:Ch.16; TB:Ch.16 |
| Tuesday, 11/20/12 | 1. Visual system | Notes:Ch.17;TB: Ch.19 |
| Wednesday, 11/21/12 | No Class - Happy Thanksgiving | |
| WEEK 15 | | |
| Monday, 11/26/12 | 1. Visual system | Notes:Ch.17;TB: Ch.19 |
| Tuesday, 11/27/12; Lecture | 1. Visual system 2. Limbic system | Notes:Ch17;TB:Ch.19 Notes:Ch.19;TB:Ch.20 Notes: Ch. 7a, 7b |
| Wednesday, 11/28/12 Disorders Lab 6 | CVA and TBI | Notes: Ch. 7a+b |
| WEEK 16 | | |
| Monday, 12/3/12 | 1. Autonomic system 2. Cortical Functions | Notes:Ch.20;TB:Ch.22 |
| Tuesday, 12/4/12 | 1. Cortical Functions | Notes:Ch.21; TB:Ch.25 |
| Wed. 12/5/12; Lecture Disorders Lab Exam 2:00-4:00 PM | EXAM 4: DISORDERS (only) Room CG-28 (Computer Testing Ctr.) 2:00-4:00 PM | Includes: disorders labs and neurodiagnosis |
| WEEK 17 | | |
| Monday, 12/10/12 Final Exam: 8:00-10:45 am | EXAM 5: FINAL EXAM (cumulative!) Room CG-28 | ** Lecture Quiz 9 is due in class! Hand it before sitting for the final exam |

HSC 4418: Nervous System and Disorders
Lab schedule – Fall, 2012

NEUROANATOMY LABS: Room CG-22

8/29: Cerebrum: (Quiz – 10 points)

1. Lateral aspect
2. Medial aspect
3. Ventral aspect

9/5: Cerebrum: (Quiz – 10 points)

1. Review lateral, medial, & ventral aspect
2. Coronal sections

9/12: Ventricular system & cerebral blood flow: (Quiz – 10 points)

1. Ventricular system: models, medial aspect, coronal sections
2. Meninges: dura mater, arachnoid, Pia mater, falx cerebri, falx cerebelli, tentorium cerebelli
3. Arteries
4. Sinuses

9/19: Cranial nerves: (Quiz – 10 points)

1. Review blood flow
2. Cranial nerves: model, ventral aspect, medial aspect

9/26: Cerebellum: (Quiz – 10 points)

1. Cerebellum: model, whole cerebellum, coronal sections, lateral, medial & ventral aspects.

10/3: Spinal cord, Test Review, Disorders lab preparation and assignment

1. Spinal Cord
2. Review for Lab exam and Practice Test
3. Introduction to disorders lab
4. Review of the requirements for the group presentations
5. Neurodiagnosis - assignment

10/10: Lab Exam

| | | | |
|-------------|--------------|-------------|-------------|
| • Lab Test: | <u>Group</u> | <u>Time</u> | <u>Room</u> |
| | Group 1 | 10:20-11:20 | CG-22 |
| | Group 2 | 11:30-12:30 | CG-22 |
| | Group 3 | 1:55-2:55 | CG-22 |

DISORDERS LABS: (Room G-201)

10/17: Tumors and Infections (Quiz – 10 questions)

10/24: Congenital Disorders (Quiz – 5 questions)

10/31: Cerebellar and Degenerative Disorders (Quiz – 10 questions)

11/7: Peripheral Nerve Injuries and Cranial Nerve Injuries (Quiz – 10 questions)

11/14: Spinal Cord Injuries (Quiz – 5 questions)

11/28: CVA and TBI (Quiz – 10 questions)

12/05: **Disorders Exam (Exam 4)** room CG28 (Computer Testing Ctr.)