



The Florida State University
College of Medicine

**Clinical
Neuroscience**

BMS 6706C

Fall 2010

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Instructors

Course Director

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Course Overview

Course Goals

This course is designed to provide students with a fundamental understanding of clinical neuroscience. Students who complete this course will understand the normal anatomy and physiology of the nervous system and will recognize important symptoms and signs associated with neurological disease. In addition, students will understand the functional and clinical significance of the three-dimensional organization of anatomical structures, and the interconnections and spatial relationships that bind structures together in the nervous system. Mastery of these concepts will enable students to localize lesions in the central nervous system and predict the neurological deficits associated with lesions. Our goal is to achieve long-term acquisition of neuroscience concepts such that students perform well in the neuroscience/neurology area as clinicians long after the course has been completed.

Learning Objectives

Knowledge

1. Develop a three-dimensional image of the brain and spinal cord.
2. Understand the relationship between lesion location and functional deficits.
3. Acquire a working knowledge of the functional anatomy of neuronal pathways
4. Acquire the basic concepts necessary for further study in other courses and clinical situations, especially those involving neurology.
5. Develop an understanding of neurological changes associated with aging, such as Alzheimer's disease and other dementias.
6. Develop an understanding of how neuroscience information is used by clinicians in medical diagnosis.

8. Understand the cell biology of neurons, muscle cells and neurosecretory cells as well as the biophysical and physical chemical principles that underlie their function.
9. Understand the physiology and biochemistry of neurotransmission and other types of inter- and intra-cellular communication, including short and long-term modification.
10. Understand the neurophysiological mechanisms controlling movement, sensation and overall integration of visceral function.
11. Understand current physiological concepts related to higher brain functions such as cortical integration, learning and memory.
12. Understand the relationships and interdependency of the nervous system and the endocrine system.

Skills

1. Demonstrate a logical problem-solving approach to clinical neurological cases.
2. Demonstrate familiarity using informatics to find information relevant to neuroscience.
3. Demonstrate ability to apply neuroanatomical knowledge to radiological images.

Attitudes

1. Demonstrate professional behavior in interacting with each other, with guest patients, and with faculty.

Course Format

Neuroscience laboratory and clinical discussions

The laboratory sessions are designed for active “adult” learning. Students will work as independent groups in the lab where they will be given a clinical problem and asked to photograph the site(s) involved with pathology. These photos, plus medical images or illustrations that extend and clarify the photos, will be placed in a PowerPoint presentation which will be given to the class and stored in a blackboard portfolio that will be graded.

Lectures

A lecture format that invites discussion and student participation will be used. Students should come to class with a good familiarity of the lecture material, facilitating discussion and active learning during lectures.

Team-based learning (TBL) sessions

In the main classroom, students will take a “readiness quiz” on a reading assignment and then break up into small groups. The students will then re-take the same quiz, but this time they will agree on the answers as groups. The groups are then presented with a clinical case to analyze and the group answers a written quiz that tests their progress in understanding the material. This is followed by a wrap-up session during which misconceptions are dispelled and valid concepts reinforced.

Peer evaluation

Midway and at the end of the course, students will evaluate the other group members anonymously. These evaluations will be shared with the students and serve as a guide to how others see them. Lack of participation in group efforts will result in loss of points from those efforts.

Competencies

| FSUCOM – Competencies –Clinical Neuroscience BMS 6706C | | |
|--|------------------------------------|--|
| Competency Domains | Competencies Covered in the Course | Methods of Assessment |
| Patient Care | X * | |
| Medical Knowledge | X | Internal exams and NBME subject exam, classroom presentations, TBL quizzes |
| Practice-based Learning | X * | |
| Communication Skills | X | Faculty and TA observation; Peer and self evaluation within the assigned teams and during course activities. |
| Professionalism | X | Faculty observation; Peer and self evaluation within the assigned teams and during course activities. |
| System-based Practice | | |
| NOTES: * Students observe physician-patient encounters when patients are presented to the class and in films of patient/physician encounters. Students are also encouraged to ask their own when patients are being interviewed in front of the class. | | |

Policies

Americans with Disabilities Act

Candidates for the M.D. degree must be able to fully and promptly perform the essential functions in each of the following categories: Observation, Communication, Motor, Intellectual, and Behavioral/Social. However, it is recognized that degrees of ability vary widely between individuals. Individuals are encouraged to discuss their disabilities with the College of Medicine's [Director of Student Counseling Services](#) and the FSU Student Disability Resource Center to determine whether they might be eligible to receive accommodations needed in order to train and function effectively as a physician. The Florida State University College of Medicine is committed to enabling its students by any reasonable means or accommodations to complete the course of study leading to the medical degree.

[The Office of Student Counseling Services](#)

Medical Science Research Building
G146

Phone: (850) 645-8256 Fax: (850) 645-9452

This syllabus and other class materials are available in alternative format upon request. For more information about services available to FSU students with disabilities, contact the:

Student Disability Resource Center

97 Woodward Avenue, South

Florida State University

Tallahassee, FL 32306-4167

Voice: (850) 644-9566

TDD: (850) 644-8504

sdrc@admin.fsu.edu

<http://www.fsu.edu/~staffair/dean/StudentDisability>

Academic Honor Code

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. (Florida State University Academic Honor Policy, found at <http://www.fsu.edu/~dof/honorpolicy.htm>.)

Attendance Policy

The College of Medicine has detailed attendance policies as they relate to each cohort and events that conflict with course

schedules. See pages 27-29 of [FSUCOM Student Handbook](#) for details of attendance policy, notice of absences and remediation.

Required Materials

1. The Human Brain, 5th (or newest) edition, Nolte, ISBN 0-323-01320-1.
2. Neuroanatomy, an atlas of structures, sections and systems, 4th (or latest) edition, Duane Haines, ISBN 0-683-03817-6
3. Physiology, L. Costanzo, 3rd edition.
4. Clinical Neuroanatomy made ridiculously simple, S. Goldberg.

Suggested Materials

Neuroanatomy Through Clinical Cases, H. Blumenfeld, 2002 or latest edition, Sinauer Associates, Inc., ISBN 0-87893-060-4 This text has great case histories and is the course director's favorite.

Basic Clinical Neuroanatomy, Young and Young.

Kandel ER.; Schwartz JH.; Jessel T. "Principles of Neural Science", 4th Ed. McGraw-Hill 2000.

Squire, L.R. "Fundamental Neuroscience" Academic Press 1998.

Useful Web sites:

<http://www.medlina.com/neuroanatomy.htm> General neurology web sites

<http://www.vh.org/adult/provider/anatomy/BrainAnatomy/BrainAnatomy.html> Brain atlases

<http://www.med.harvard.edu/AANLIB/home.html> The Harvard brain atlas

Grading

Assignments and weights

Grades will reflect the proportion of course objectives that have been mastered and the following scale will be used:

| Grade | Percentage |
|--------------|-----------------------|
| A | > 90.0 % correct |
| B | 87.0 – 89.9 % correct |
| B+ | 80.0 – 86.9 % correct |
| C+ | 77.0 – 79.9 % correct |
| C | 70.0 – 76.9 % correct |
| D | 65.0 – 69.9 % correct |
| F | < 64.9 % correct |

Student performance on all activities will result in an accumulation of points which will determine the student's status for the course and grades will be presented as A, B+, B, C+, C, D+, D, or failure. There are five major cumulative exams and each uses "board-type" questions that emphasize problem solving rather than rote memory. Four of the exams, counting for 70% of the final grade, cover material presented in lecture, small groups, labs, and clinical demonstrations. The first 3 exams will count for 15% each and the final will count for 25%. A "board" subject exam will be given at the end of the course and this exam will count for 10 percent of the grade. With the exception of the subject exam, students will not be graded on a curve. Thus, there is no reason for students to feel competitive with each other. On the contrary, higher grades are achieved when students work cooperatively. All exams will be graded according to criterion teaching philosophy in which exam questions test the students' acquisition of specific ideas (criteria) rather than attempting to rank order the students.

Team-based learning exercises will count for 10% of the final grade. Laboratory portfolios will count for the remaining 10% of the grade. Students receiving peer evaluations consistent with poor participation will lose points in either or both of these two categories.