

Spring 2012

Course Number & Name: CP6542; Clinical Neurology in (Department of Diagnosis)

Course Hours: 90 total; 4hrs lecture per week, 2hrs lab per week

Course Credits: 5

Contact Information:

Course Instructor: Associate Professor **Kenneth K. Tyer Jr. D.C., C.C.C.N., D.A.C.N.B.**

Office number : 311 Iwama Building

Office Hours: Monday 1-4pm..

Wednesday 11am-1pm, & Friday 10-11pm.

Moody Health Center: Wednesday 2-4 pm & Thursday 1-5 pm.

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Class Meets: Monday 10 am -12pm, Wednesday 12-1pm, Thursday 11-12pm, and Friday 12-2pm. See Schedule for room numbers.

Texts:

Required; Neuroanatomy through Clinical Cases, Blumenfeld, H., by Sinauer Assoc., Inc., 2002.

A textbook of Neuroanatomy, Patestas, M., & Gartner, L., by Blackwell Publishing, 2006.

Recommended; Functional Neurology for Practitioners of Manual Therapy, Beck, R., Churchill Livingstone, Elsevier, 2008.

Textbook of Clinical Neurology, Goetz, C., & Pappert, J., by W.B. Saunders Company, 2007.

Neurology for the Non-Neurologist, Weiner, W., Goetz, C., Shin, R., Lewis, S., by Lippincott Williams & Wilkins, 2010.

Edvance 360 Address: <http://edvance360.com/txchiro>

Course Packs/ Notes: all available on Edvance 360

Course Description: This course offers a didactic and practical approach to the study of the central and peripheral nervous system with emphasis on the applied anatomy, physiology and symptomology of the various pathologic states. The students will need to recognize common neurological presentations, formulate differential diagnosis, a final diagnosis, and determine viable methods for management. Cases will be presented in the course as a way to make these correlations. Standardized patients will be used to assess the students' progress.

Prerequisites: Human Neuroanatomy
GE, GU, Endocrine and Neurophysiology
Systems Pathology I

Corequisites: Orthopedics I

Students should be able to:

1. Diagram and explain the neuroanatomical and neurophysiology of the central, peripheral and autonomic nervous system.
2. Integrate clinically the function of the neurologic tracts.
3. Diagram and explain the monosynaptic reflex and integrate its neurological significance.
4. Explain and classify nerve fiber types.
5. Describe, recognize, and differentiate the difference between upper and lower motor neuron dysfunction.
6. Explain the location and interpret the function of the cranial nerves.
7. Explain the function of the cerebellum and formulate the subjective and objective findings within the patient's neuraxis.
8. Explain & interpret the function and operation (neuronal firing patterns) on the basal ganglionic loops.
9. Describe and interpret the functions of the autonomic nervous system.

Competencies: CCE and TCC

- Neuromusculoskeletal Examination
- History Taking
- Communication
- Diagnosis
- Recordkeeping
- Chiropractic Manipulation

Learning Outcomes: The Student will:

- a. Incorporate relevant basic science knowledge to formulate a diagnosis based on patient information.
- b. Recognize the relevant aspects of a patient's clinical presentation that influence the differential diagnosis list.
- c. Select and demonstrate appropriate neurological examination procedures based upon the patient's history and presentation.

- d. Perform a patient interview and physical examination that elicits the necessary information to develop a probable list of differential diagnoses.
- e. Correlate findings from the neurological examination with the patient's history, physical exam, orthopedic exam, and diagnostic studies to formulate a diagnosis.
- f. Incorporate analytic processes and non-analytic resources when solving clinical problems.
- g. Apply epidemiologic knowledge, clinical experience, knowledge of test capabilities, and decision aids within the patient's clinical context to select the most appropriate diagnostic investigations.
- h. Identify common errors in clinical reasoning and provide strategies to avoid them.
- i. Demonstrate the ability to manage uncertainty in the clinical decision-making process.
- j. Integrate information from the patient's history, physical, orthopedic, neurological examinations and diagnostic studies to determine an appropriate treatment plan.

Learning Objectives:

The student will be able to:

1. Perform MSR's and interpret normal, pathological, & superficial reflexes.
2. Describe and interpret peripheral nerve injury classifications by Sunderland and Seddon.
3. Distinguish between patient presentations as it relates to cortical, cerebellar, brainstem, & spinal cord lesions.
4. Differentiate between normal and abnormal neurological findings from an examination.
5. Use neurological instruments and tests to assess the patient's condition.
6. Explain & interpret the operation of the cerebellum as it relates to neuronal firing patterns & surround inhibition.
7. Test, evaluate and analyze cranial nerves, vestibular, and cerebellar function.
8. Utilize Moody Health Care Clinic Forms in lab to demonstrate recordkeeping.
9. Utilize history taking, and a neurological examination in order to assess, correlate findings and formulate a diagnosis of the patient's condition utilizing SP's .
10. Detect and diagnosis degenerative diseases, disc protrusions, entrapment neuropathies, and plexus lesions.
11. Recognize and describe different types of polyneuropathies, and demyelinating disorders.
12. Distinguish between normal and abnormal autonomic nervous system function.
13. Describe & explain the neurobiological basis for Chiropractic care.
14. Determine when to refer and/or co-manage the patients'

- clinical condition.
15. Formulate the plan for manipulation according to the patients' condition.
 16. Recognize common errors in clinical reasoning, such as disregarding secondary complaints that may or may not be connected with the primary condition.
 17. Demonstrate strategies to avoid clinical errors by reviewing proper forms, organizing the history & examination to exclude mistakes.
 18. Demonstrate the ability to manage uncertainty in the clinical decision-making process by methodically assessing the longitudinal level of the lesion.

Teaching Methodology: A didactic format will include lectures, case-based learning with i-clicker format, power point presentations, and video cases (if available). Additionally, assigned readings will be made to further illustrate course materials. Lab will include practicing the history, neurological exam and diagnosis of cases presented. Case-based learning utilizing standardized patients (SP's) clinical presentations related primarily to conditions likely to present in a chiropractor's office.

Student Responsibilities: Attendance is required on a regular basis (see attendance section). Participation in lab and lecture is encouraged. Reading the assigned chapters before lecture will be beneficial in the student's ability to retain and comprehend the material. Behavior of a professional doctor is expected.

TENTATIVE COURSE OUTLINE:

Week 1 Central Nervous System (Lecture); Setting i-clickers & case format, History & MSR; (Lab)

Week 2 Nervous System, Monosynaptic reflex, Descending Motor Pathways (Lecture); Cases, History, MSR & Muscle testing (Lab)

Week 3 Ascending Sensory Pathways, Peripheral Nerve Injury Classifications (Lecture); Cases, History, MSR's, Muscle & Sensory testing (Lab)

Week 4 Spinal Cord Lesions, Cases/quizzes with i-clicker (Lecture); Cases, History, MSR's, Muscle testing, and Sensory testing continued (Lab)

Week 5 Review Questions (**Test #1 on Friday**) **First Lab Practical covering History, MSR's, Muscle Testing, and Sensory Testing with SP's on Monday.**

(Test 1): Lecture Covers:

Blumenfeld; Chapter 2 (Neuroanatomy Overview and Basic Definitions), Chapter 6 (Corticospinal Tract and Other Motor Pathways), Chapter 7 (Somatosensory pathways)
Power point presentations CN1, CN2, & CN3

Patestas & Gartner:

Chapter 1 Introduction to the Nervous System

Chapter 5 Spinal Cord

Chapter 10 Ascending Sensory Pathways

Chapter 11 Motor Cortex & Descending Motor Pathways

Lab test covers: Blumenfield; Chapter 1 (Introduction to Clinical Case Presentation), & Chapter 3 (The Neurologic Exam as a Lesson in Neuroanatomy)

Week 6 Gaits:

Coordination (Lecture & Video); **Lab covering History, Cranial Nerves, Vestibular, & Cerebellar testing**

Week 7 Cranial Nerves 1,2,3,4 & 6 (Lecture); Cases, History & Examination of CN's covered in class (Lab)

Week 8 Cranial Nerves 5, 7, 8, 9, 10, 11 & 12 (Lecture) ; Cases, History & Examination of CN's covered in class (Lab)

Week 9 Cranial Nerves Review Questions, **2nd Lab Practical covering history & neurological examination, & diagnosis with SP's on Monday**
(Test # 2 on Friday of the 10th Week)

(Test 2): Lecture Covers: Comprehensive (Some topic questions from 1st exam)

Blumenfield: Chapter 12 (Brainstem 1: Surface Anatomy and Cranial Nerves), Chapter 13 (Brainstem II: Eye Movements and Pupillary Control), Chapter 15 (Cerebellum)
Power Point Presentations CN4, CN5

Patestas & Gartner: Chapter 13(Cerebellum), Chapter 15 (Cranial Nerves), Chapter 16 (Visual System), Chapter 18 (Vestibular System)

Lab test #2 covers material as presented in class.

Week 10 Disc Prolapse & Spondylosis, Plexus syndromes & Mononeuropathies (Lecture) **(Test #2 Friday)**

Week 11 Polyneuropathies & Demyelinating Disorders (Lecture); Cases, Peripheral nerve entrapment sites, History & examination procedures (Lab)

Week 12 Clinical Syndromes (Lecture); Cases, History & examination procedures (Lab)

Week 13 Autonomic Nervous System (Lecture); **3rd Lab Practical covering history, neurological examination, & diagnosis with SP's on Monday**

Weeks 14 and 15 Final exams

Final (Comprehensive): Also Covers

Power Point Presentations CN 6, CN 7, CN 8, CN 9

Blumenfeld:

Chapter 8 Spinal Nerve Roots

Chapter 9 Major Plexuses and Peripheral Nerves

Patestas & Gartner: Chapter 9 Autonomic Nervous System

Section IV D: (Autonomic Nervous System) Pg. 444-447

Section IV E: (Muscular Dystrophies) Pg. 450-455

Other material will be announced

Grading Scale: The following grading scale will be used for interim exams, final exams and also in consideration the final course grade:

A=90+%

B=80-89%

C=70-79%

F=69.9% & BELOW

Competency Assessment: Competency will be assessed through a series of 3 written examinations conducted in this class. These exams are structured in the form of multiple choice, matching, extended matching, brief and comprehensive clinical cases. Daily case/quizzes taken by i-clicker format and three lab practical's with SP's , will be utilized.

Examinations: The 3 written examinations consist of two interim examinations and a final examination for determination of objective assessment. Each examination will be cumulative and results of each will be weighted, as listed below, in consideration of the final course grade.

The quizzes (**Case Studies answered by I-Clickers**) and three lab practical's covering history, neurological assessment skills and case-based learning with SP's (**scheduled in the assessment center**) will equal 30% of the final grade to be averaged in with the other

three written examinations. Examination papers may be reviewed by appointment within the period of 10 working days following the posting of the scores for that examination. Lab test videos are released for viewing by the assessment center for a period determined by Dr. Foster.

Test 1 = 23%
Test 2 = 23%
Final = 24%
Lab = 30%
Total = 100%

Make-Up Exams: Students must notify faculty before missing any examination. If an examination is missed for good and sufficient reason and the student has notified the faculty member in advance, a make-up examination may be given subject to a fee of \$40.00. The fee for the make up examination is a minimum of \$75.00 if a standardized patient is required for the exam. Additional required standardized patient hours may increase this \$75.00 minimum fee. All intra-term examinations must be made up prior to final examinations. Missed final examinations must be made up within the first week of the next trimester. A student may be allowed a maximum of two missed examination dates for good and sufficient reason per trimester. These two missed examination dates are for all enrolled courses in a trimester, not for each individual course. Any request for additional make up examinations will require documentation substantiating the absence and must be approved by the Dean of Academic Affairs.

“For specific procedures on how each policy is enforced see the Student Handbook.”

Attendance: Attendance will be taken in keeping with TCC policy and prompt, regular attendance is mandatory for successful completion of this course. Absences exceeding 10% of the 13 week class time may result in a lowering of the course grade by one level. Absences exceeding 20% will result in dismissal from the class with a failing grade.

THE INSTRUCTOR RESERVES THE RIGHT TO MAKE ANY CHANGES/ALTERATIONS OF THIS SYLLABUS WITH NOTICE IN CLASS AND/OR ON Edvance 360!