

SYLLABUS

Name of Course:	Neuromuscular Physiopathology I – PHPA-131
Length of Course:	3.5 units, 55 hours, (5 hours lecture/week)
Course Description:	This is a course that provides students with an understanding of the functional role of the nervous system in providing for the integration of the cells, tissues and organs of the body, and its relationship to the clinical science of chiropractic. The course covers the types of bioelectric potentials produced by neurons and muscles, the diversity of synaptic junctions used and the major pathways of sensation and movement. The role of the neuromuscular system in health and disease is explored. This course provides content in physiology and pathology.
Prerequisites:	ANAT-114, ANAT-126, PATH-120
Course Offered by:	Basic Sciences Department
Required Text:	Fitzgerald, <i>Clinical Neuroanatomy and Neuroscience</i> , 6 th ed. 2011 Neuromuscular Physiopathology 1 Class Notes
Recommended Text:	Guyton and Hall. <i>Textbook of Medical Physiology</i> . 12 th ed. Kandel and Schwartz. <i>Principles of Neural Science</i> . 5 th ed. 2013 Purves <i>Neuroscience</i> . 5 th ed. 2012 Blumenfeld <i>Neuroanatomy through Clinical Cases</i> , 2 nd ed. 2010 Waxman S. <i>Clinical Neuroanatomy</i> . 27 th ed. 2013
Method of Instruction:	Lectures, videos, handouts, reading assignments, case studies.

Grades and the Grading System Final Grades are available online through the CAMS student portal. If there are any questions on grading procedures, computation of grade point average, or the accuracy of the grade report, please contact the Registrar's Office or the Office of Academic Affairs. Grades will be reported and evaluation will be based on the Academic Policies, Procedures, & Services. Please refer to Evaluation Policy (**Policy ID: OAA.0007**)

In order to maintain **Satisfactory Academic Progress**, a student must maintain a 2.0 or better in each and every course. **Any grade less than a C must be remedied by repeating the class.** Please refer to Satisfactory Academic Progress (**Policy ID: OAA.0006**)

Attendance: Please refer to Attendance Policy (**Policy ID: OAA.0002**)

Conduct and Responsibilities: Please refer to the Personal Conduct, Responsibility and Academic Responsibility Policy (**Policy ID: OAA.0003**)

Make-up Exams: Please refer to Make-up Assessment Policy (**Policy ID: OAA.0001**)

Request for Special Testing: Please refer to Request for Special Testing (**Policy ID: OAA.0004**)

Accommodation for Students with Disabilities:

If you have approved accommodations, please make an appointment to meet with your instructor as soon as possible. If you believe you require an accommodation, but do not have an approved accommodation letter, please see the Academic Counselor Lori Pino in the Office of Academic Affairs. Contact info: Lpino@lifewest.edu or 510-780-4500 ext. 2061. Please refer to Service for Students with Disabilities Policy (**Policy ID: OAA.0005**)

Electronic Course Management:

Canvas is LCCW's Learning Management System (LMS). Canvas will be used throughout the quarter during this course. Lectures, reminders, and messages will be posted. In addition, documents such as the course syllabus and helpful information about the class project will be posted. Students are expected to check Canvas at least once a week in order to keep updated. The website address for Canvas is <https://lifewest.instructure.com/login/canvas> Please refer to the Educational Technologies Policy (**Policy ID: OAA.0009**)

Evaluation/Grading Criteria:	Exams	Points	Date
	Tests (4)	60	Biweekly
	Final	30	Final Exam Week
	Homework	10	Week 10

GRADES WILL BE ASSIGNED ACCORDING TO THE FOLLOWING SCALE:

- A - 4.0 100 - 90%
- B - 3.0 89 - 80%
- C - 2.0 79 - 70%
- F - 0.0 69% or below. Must repeat the course

Any student receiving less than 70% in any mid-term is

encouraged to sign up for tutoring through the Office of Academic Affairs.

Course Goals: This course provides students with an understanding of the functional role of the nervous system in providing for the integration of the cells, tissues and organs of the body, and its relationship to the clinical science of chiropractic.

Course Outline:

- Week 1:** Structural and functional divisions of the nervous system, the neuron, neuroglia, etc.
- Week 2:** Membrane transport and the resting membrane potential, TEST #1
- Week 3:** Synaptic transmission,
- Week 4:** Action Potentials and Neurochemicals. TEST #2
- Week 5:** The Neuromuscular Junction
- Week 6:** Skeletal muscle contraction TEST #3
- Week 7:** Discussion of mechanoreceptors as they relate to Proprioception
- Week 8:** Spinal cord reflex activity and pathways for proprioception, TEST #4
- Week 9:** Afferent and Efferent spinal cord pathways
- Week 10:** Motor system pathologies: Discussion of upper and lower motor neuron lesions. Review.

Homework and Review
- Week 11:** Final Exam

Student Learning Outcomes 1. The student will be able to identify and explain the various components of the CNS related to the neuromuscular process. [PLO: 1,3,4,8]

2. The student will be able to compare and contrast the resting membrane potential with the local membrane potential and the action potential. [PLO: 1,4,8]
3. The student will be able to describe the structure and function of the neuromuscular junction and outline the various components of synaptic transmission. [PLO: 1,4,8]
4. The student will be able to identify and illustrate the structure and function of skeletal muscle contraction as well distinguish between skeletal, cardiac and smooth muscle. [PLO: 1,3,4,8]
5. The student will be able to describe the afferent and efferent tracts in the spinal cord and the brainstem as they relate to general sensory and motor functions. [PLO: 1,3,4,6,8]
6. The student will be able to compare and contrast the patient presentation between an upper motor neuron lesion and a lower motor neuron lesion. [PLO: 1,3,4,6,8]

Program Learning Outcomes (PLO): Students graduating with a Doctor of Chiropractic degree will be proficient in the following:

1. **ASSESSMENT AND DIAGNOSIS:** An assessment and diagnosis requires developed clinical reasoning skills. Clinical reasoning consists of data gathering and interpretation, hypothesis generation and testing, and critical evaluation of diagnostic strategies. It is a dynamic process that occurs before, during, and after the collection of data through history, physical examination, imaging, laboratory tests and case-related clinical services.
2. **MANAGEMENT PLAN:** Management involves the development, implementation and documentation of a patient care plan for positively impacting a patient's health and well-being, including specific therapeutic goals and prognoses. It may include case follow-up, referral, and/or collaborative care.
3. **HEALTH PROMOTION AND DISEASE PREVENTION:** Health promotion and disease prevention requires an understanding and application of epidemiological principles regarding the nature and identification of health issues in diverse populations and recognizes the impact of biological, chemical, behavioral, structural, psychosocial and environmental factors on general health.
4. **COMMUNICATION AND RECORD KEEPING:** Effective communication includes oral, written and nonverbal skills with appropriate sensitivity, clarity and control for a wide range of healthcare related activities, to include patient care, professional communication, health education, and record keeping and reporting.
5. **PROFESSIONAL ETHICS AND JURISPRUDENCE:** Professionals comply with the law and exhibit ethical behavior.
6. **INFORMATION AND TECHNOLOGY LITERACY:** Information literacy is a set of abilities, including the use of technology, to locate, evaluate and integrate research

and other types of evidence to manage patient care.

- 7. CHIROPRACTIC ADJUSTMENT/MANIPULATION:** Doctors of chiropractic employ the adjustment/manipulation to address joint and neurophysiologic dysfunction. The adjustment/manipulation is a precise procedure requiring the discrimination and identification of dysfunction, interpretation and application of clinical knowledge; and, the use of cognitive and psychomotor skills.
- 8. INTERPROFESSIONAL EDUCATION:** Students have the knowledge, skills and values necessary to function as part of an inter-professional team to provide patient-centered collaborative care. Inter-professional teamwork may be demonstrated in didactic, clinical or simulated learning environments.
- 9. BUSINESS:** Assessing personal skills and attributes, developing leadership skills, leveraging talents and strengths that provide an achievable expectation for graduate success. Adopting a systems-based approach to business operations. Networking with practitioners in associated fields with chiropractic, alternative medicine and allopathic medicine. Experiencing and acquiring the hard business skills required to open and operate an on-going business concern. Participating in practical, real time events that promote business building and quantifiable marketing research outcomes
- 10. PHILOSOPHY:** Demonstrates an ability to incorporate a philosophically based Chiropractic paradigm in approach to patient care. Demonstrates an understanding of both traditional and contemporary Chiropractic philosophic concepts and principles. Demonstrates an understanding of the concepts of philosophy, science, and art in chiropractic principles and their importance to chiropractic practice.