

SYLLABUS

Name of Course: General Pathology - PATH 120

Length of Course: 3 units, 44 hours, (4 hours lecture/week)

Course Description: This course deals with the investigation of those pathological mechanisms common to all tissue-cell pathology. Attention is paid to the processes of cellular adaptation, inflammation, repair, immunology, cellular accumulation, and neoplasia.

Prerequisites: ANAT-110, PHYS-115

Course Offered By: Basic Science Department

Required Text: Course Notes

Recommended Text: *Introduction to Anatomy and Physiology* – Marieb (current edition)

Reid R Pathology *Illustrated*. 6th ed. 2005

Reference Text: Kumar V. *Robbins and Cotran Pathologic Basis of Disease*. 8th ed. 2010 or
Rubin E. *Rubin's Pathology*. 5th ed.

Materials: Slides from Robbin's Pathology and Rubin's Pathology are presented in class. Class notes with visual aids are available in the bookstore, and sample test questions are available on CANVAS or at the library reference desk.

Method of Instruction: Lecture will attempt first to familiarize the student with our basic layers of defense. Next those vocabulary terms and concepts relevant to the disease process will be introduced. The terminology employed is both medical and chiropractic. Processes and concepts will be developed with the aid of a visual presenter and slide projector. The student will have text, verbal, and visual input. An interactive format is employed in which the instructor poses questions to enable the student to self-test their knowledge prior to exams and develop skills in communicating these basic pathological concepts to others.

Grades and Method of Grading: There will be two midterm exams during the quarter, each equal to 25% of the final grade. Tests are in the multiple-choice format. There are no incompletes given unless the student and instructor have an agreement prior to missing the exam. The final exam is comprehensive and is worth 50% of the final grade.

A	4.0	90 - 100%
B	3.0	80 - 89%
C	2.0	70 - 79%
F	0.0	0 – 70%

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.00005**)

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.00009)

Extra Credit: There will be no extra credit work accepted in this class.

Independent Student Work

All exams must be the product of the individual student's original efforts for this class. Collaboration on other class assignments is permitted as defined by the instructor.

Procedures for Reviewing Exam: The instructor has authorized access to old exams, which may be used for study purposes. Students may share copies of their exams with other students after the instructor has returned them.

Course Goals

A functional viewpoint has been adopted so that the student can begin to see the role of the chiropractor in the prevention of disease or where the condition requires other intervention and comanagement. The student is expected to develop a rich vocabulary enabling them to succeed in the advanced physiopathology coursework. Exams are aligned with the lecture material but also encourage the development of critical thinking skills by requiring application of concepts.

Course Objectives:

Week 1:

- Introduce the course and goals
- Discuss perspectives on disease
- Introduce genetic factors
- Introduce the layers of defense

Week 2:

- Describe the functions of skin, mucosa, tears, ceruminous glands and relate to mechanical or chemical defense
- Relate blood cells to their origin from stem cells in marrow and to their final, mature functions
- Examine vocabulary related to hematology and hematopoiesis
- Differentiate leukocytic properties and functions
- Link white blood cells to their tissue counterparts-e.g.-mast cells or macrophages
- Discuss chemotaxis, margination, pavementing, diapedesis, phagocytosis, and pus formation
- Distinguish between innate and adaptive immunity
- Introduce antigen presentation and the significance of marker-receptors

Week 3:

- Relate the MHC classes to antigen presentation and to CD4+ or CD8+ cells
- Explain the role of the major histocompatibility antigens in health and disease
- Discuss the different types of T cells in terms of thymic interactions
- Explain the functions of CD4+ and CD8+
- Introduce apoptosis
- Define cell mediated immunity
- Introduce granuloma
- Distinguish cell mediated from antibody mediated immunity
- Explain T cell selection and activation, cloning and memory
- Define T helper subsets including regulatory T cells
- Explain immune suppression, AIDS, and the relationship of the T helper cell

Week 4:

- Explain B cell development, activation, and differentiation
- Define a plasma cell
- Define antibody and list their actions
- Explain serum complement and its activation
- Discuss immunoglobulin classes
- Define immune complex, agglutination, opsonization, complement cascade, lysis,
- immunoglobulin, receptor, and allergy

Week 5:

- Explain the significance of the primary and the secondary immune responses
- Point out the scientific rationale for vaccination
- Discuss any student concerns regarding vaccination
- Define and give examples of the types of acquired immunity
- Explain allergic reactions
- Explain the role of IgE, mast cells, and eosinophils in allergy
- MT#1

Week 6:

- Describe the four patterns of hypersensitivity
- Give examples of auto immune disorders
- Explain the process of blood coagulation
- Describe anticoagulant and thrombolytic actions
- Survey clotting disorders

Week 7:

- Distinguish between body coordination that is neurogenic and that which is chemical/hormonal

- Explain the role of histamine and other vasoactive molecules in the response to injury
- Explain the appearance of the 5 cardinal signs of inflammation
- Explain the nature of the active congestion, passive congestion, and repair phases of inflammation
- Define debridement, Rouleaux formation, exudate, and edema
- Relate the innate responses to the acute, subacute, and chronic time periods
- Distinguish and give examples of serous, fibrinous, and purulent exudate
- Discuss factors influencing healing
- Describe granulation tissue, healing by resolution, organization, first intention, and second intention
- Describe and explain the chronic nature of granulomatous inflammation

Week 8:

- Define necrosis
- Explain necrotic patterns: coagulative, liquefactive, enzymatic fat, caseous, fibrinoid, gangrenous
- Define hydropic change/cloudy swelling
- Describe injury and death at the cell ultrastructural level distinguishing reversible from irreversible change
- Introduce the concept of cellular accumulations
- Discuss Starling's Law of the capillaries in the formation of transudate edema
- Explain cellular accumulations of fat, heavy metals, and lipofuscin
- Define hemosiderosis, hemochromatosis, and steatosis
- Relate amyloidosis to multiple myeloma, Bence Jones proteinuria, and immunology

Week 9:

- Introduce abnormalities of growth
- Define simple growth shifts such as hypertrophy, hyperplasia, atrophy, aplasia, and agenesis
- Point out the significance of abnormal differentiation Define metaplasia, dysplasia, and anaplasia
- Discuss normal growth regulation including apoptosis
- Define neoplasm, tumor, cancer, carcinogen, mutation, malignancy, and oncology
- Explain metastasis and hematogenous, lymphatic, and body cavity seeding as potential routes
- Distinguish benign from malignant tumors in at least 6 different ways
MT2

Week 10:

- Introduce tumor nomenclature
- Distinguish carcinoma from sarcoma
- State the most frequent causes of cancer death today

- Distinguish staging with the T N M system from grading of tumors

Student Learning Outcomes (SLO):

This course aligns to PLO: (3)

Upon completion of this course the student should be able to:

1. Demonstrate understanding of basic concepts of hematology and immunology
2. Demonstrate understanding of basic pathologic processes
3. Define the terms used in the course note packet

Verification of these outcomes can include the two midterms, the comprehensive final exam, and the opportunities presented in class for interaction with the instructor.

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.