

SYLLABUS

QUARTER: SPRING 2009

NAME OF COURSE: General Pathology - Path 120

LENGTH OF COURSE: 4 units, 44 hours, (3 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: Phys. 115

COURSE OFFERED BY: Physiology/Pathology Department
Suzanne L. Ray, M.S., Dept. Chair

COURSE INSTRUCTOR: [Suzanne L. Ray, M.S.](#)
780-4500 Ext- 2135
Email: sray@lifewest.edu
Room: 134

OFFICE HOURS: Mon 11:40-12:40, Wed 11:40-12:40
Other times by appointment

REQUIRED TEXT: Marieb EN. *Human Anatomy and Physiology*.
(7th ed. 2007)

RECOMMENDED TEXT: Reid R *Pathology Illustrated*. 6th ed. 2005

REFERENCE TEXT: Kumar V. *Robbins and Cotran Pathologic Basis of Disease*. 7th ed. 2005 or
Rubin E. *Rubin's Pathology*. 5th ed. 2008

MATERIALS: Handouts including class notes, visual aids, and sample test questions will be provided by the instructor.

METHOD OF INSTRUCTION: Lecture will attempt to familiarize the student with those basic terms and concepts relevant to the disease process. A functional viewpoint has been adopted so that the student can see the role of the chiropractor in the prevention of disease or where the condition requires other intervention and comanagement. Exams are aligned with the lecture material and also encourage the development of critical thinking skills. Processes and concepts will be developed with the aid of a visual presenter and will reveal both the histological as well as the actual patient presentation of this survey of diseases. Students are expected to learn basic principles given in lecture and show the ability to apply these on exams. 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 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. These will be of the multiple-choice format. There are no make-up exams 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. It is multiple choice.

A - 4.0	90 - 100%
B - 3.0	80 - 89%
C - 2.0	70 - 79%
D - 1.0	60 - 69% Poor, the student must repeat the course.
F - 0.0	59 - below, Fail, the student must repeat the course.

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.

ATTENDANCE:

Instructors are required to record student attendance. Roll can be taken at any time during the class period. The instructor may call names, pass a roll sheet, use submitted classroom assignments, or observe the students. If the instructor calls roll, a student who is not present when his or her name is called is absent. If the instructor uses a roll sheet, students have 15 minutes to sign in.

If a student arrives after attendance has been taken but within the first 15 minutes of the start of the class session, the student must see the instructor at the end of the class hour to request that his or her absence be changed to a tardy. Three tardies attendance constitute one hour of absence. Failure to notify the instructor will result in the absence mark remaining on the attendance sheet. This cannot be changed later. **No additional assignments can be used to compensate for absences except as outlined in the college course overlap policy.**

If a student leaves after attendance has been taken, the instructor can change the attendance record to indicate an absence for the class period. Any request to leave class early must be approved by the instructor before the class session.

A student who misses more than 10% of the class hours will be over-cut from the class. If the student presents documentation to the dean verifying a documented emergency or other excusable reason that prevented attendance for 15% of the class hours, the dean may permit him or her to continue attending the class. In determining whether or not to permit a student to continue attending a class, the dean will consider the student's overall attendance record and academic standing. Under no circumstances, regardless of any personal situation, will a student who misses 20% of the class hours receive course credit. Excused absences still count toward total absences, they only may entitle a student to make-up assignments and examinations.

A student is responsible for keeping track of his or her own attendance and absences. Instructors may but are not required to provide courtesy notices indicating that a student is approaching or has reached over-cut status.

Documented emergencies include hospitalization, accidents, or death in the family. Undocumented illness, not “feeling well,” weddings, events, extended vacations or school holidays, non-school scheduled seminars, etc., are not considered excusable reasons for missing class.

REQUEST FOR TESTING ACCOMMODATIONS

The student must notify the instructor of any authorized testing accommodations at least one week prior to the exam. Once arrangements have been made, they cannot be changed without approval from the instructor and the office of student services.

The student must notify the instructor of any schedule conflicts during final exam week at least one week prior to the beginning of final exams. Appropriate paperwork must be completed and submitted to the office of student services. Once arrangements have been made, they cannot be changed without approval from the instructor and the office of student services.

MAKE-UPS:

Students are expected to take all examinations and complete assignments as scheduled.

Students who have missed an exam due to a documented emergency or other excusable reason must pick up a “Request for Alternative Testing” form in the Dean’s Office. At that time, they will explain the circumstances of their emergency and provide documentation to the Dean of the College. If the Dean authorizes the exam, the student must then present the form to his/her instructor to complete the necessary information. The student must then take the completed and signed request to the Student Services Office to schedule a time for the exam to be proctored. As indicated near the top of the form, Student Services requires a minimum of 5 working days to set up and schedule the approved exam.

Documented emergencies include hospitalization, accidents, or death in the family. Undocumented illness, not “feeling well,” weddings, events, extended vacations or school holidays, non-school scheduled seminars, etc., are not excusable reasons for making-up an exam or assignment.

EXTRA CREDIT: There will be no extra credit work accepted in this class.

CONDUCT AND RESPONSIBILITIES

It is the student’s responsibility to maintain professional standards of behavior and attire while on campus. Students are expected to be prepared for instructional activities. They must bring required supplies/equipment and dress appropriately in accordance with the instructor’s directions. Failure to do so can result in the student being marked absent for the class session. Any disruptive activity (e.g. use of cell phones, side conversations) in the classroom is prohibited. If the instructor requires a disruptive student to leave the classroom, the student remains responsible for all information and will be marked absent for the class session. The dean will impose sanctions for unprofessional behavior. Any form of deceit, fraud, plagiarism, unauthorized collaboration, or theft will result in failure of the course and referral to the dean for disciplinary sanctions.

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 EXAMS

The instructor has authorized access to old exams, which are available in the library and may be used for study purposes. Students may share copies of their exams with other students after the instructor has returned them.

REQUEST FOR TESTING ACCOMMODATIONS

The student must notify the instructor of any authorized testing accommodations at least one week prior to the exam. Once arrangements have been made, they cannot be changed without approval from the instructor and the office of student services.

The student must notify the instructor of any schedule conflicts during final exam week at least one week prior to the beginning of final exams. Appropriate paperwork must be completed and submitted to the office of student services. Once arrangements have been made, they cannot be changed without approval from the instructor and the office of student services.

COURSE OBJECTIVES:

The Student should be able to:

1. relate blood cells to their origin from stem cells in marrow and to their final, mature functions
2. differentiate leukocytic properties and functions
3. focus on cellular responses of inflammation and compare to immunity
4. distinguish cell mediated from humoral immunity
5. know the role of the major histocompatibility antigens in health and disease
6. relate the MHC classes to antigen presentation and to CD4+ or CD8+ cells
7. understand the different types of T cells and thymic interactions
8. explain T and B cell selection and activation, cloning and memory
9. define a plasma cell and relate it to multiple myeloma
10. define antibody and list their actions
11. give details of antibody classes and function
12. explain serum complement activation
13. explain the significance of the primary and the secondary immune responses and relate to vaccination
14. define and give examples of the types of immunity
15. describe the functions of skin, mucosa, tears, ceruminous glands and relate to mechanical or chemical defense
16. distinguish between body coordination that is neurogenic and that which is chemical/hormonal
17. explain the role of histamine and other vasoactive molecules in the response to injury
18. explain the appearance of the 5 cardinal signs of inflammation
19. explain the nature of the active congestion, passive congestion, and repair phases of inflammation
20. relate the phases of #8 to acute, subacute, and chronic time periods

21. discuss chemotaxis, margination, diapedesis, debridement, Rouleaux formation, transudate, exudate, and edema
22. apply Starling's Law of the capillaries to the inflammatory response
23. distinguish and give examples of serous, fibrinous, and purulent exudate
24. describe granulation tissue, healing by resolution, organization, first intention, and second intention healing
25. explain what factors determine the outcome of final healing
26. distinguish infection from inflammation from immunity
27. describe and explain the nature of granulomatous inflammation
28. link white blood cells to their tissue counterparts-e.g.-mast cells or macrophages-fixed or mobile
29. distinguish T cells from B cells and from plasma cells
30. state the location of the immune system's various components
31. relate cell-mediated immunity to T cell function and humoral immunity to B cell function and explain characteristics of each
32. explain immune suppression, AIDS, the relationship of the T cell to Kaposi's sarcoma
33. define antigen, antibody, agglutination, opsonization, phagocytosis, complement cascade, lysis, coagulation, immunoglobulin, receptor, and allergy
34. understand the specificity and memory components of immunity
35. understand the role of IgE, mast cells, and eosinophils in allergy
36. give examples of auto immune disorders and give a basis for this type of disease
37. distinguish these necrotic patterns - coagulative, liquefactive, enzymatic fat, caseous, fibrinoid, gangrenous
38. discuss and define these cell accumulations-hemosiderosis, hemochromatosis, amyloidosis, fatty infiltration, lipofuscin
39. relate amyloidosis to multiple myeloma, Bence Jones proteinuria, and immunology
40. describe injury and death at the cell ultrastructural level distinguishing reversible from irreversible change
41. define hydropic change, pyknosis, karyolysis, karyorrhexis, and apoptosis
42. define cellular adaptations regarding size and numbers - hypertrophy, hyperplasia, atrophy, aplasia and give examples
43. define cellular changes which involve differentiation - metaplasia, dysplasia, and anaplasia and give examples
44. define neoplasm, tumor, cancer, carcinogen, mutation, malignancy, and oncology
45. define metastasis and explain hematogenous, lymph drainage, and body cavity seeding as potential routes
46. distinguish benign from malignant tumors in at least 6 different ways
47. distinguish carcinoma from sarcoma
48. address tumor nomenclature including 4 major classes of leukemia, lymphoma- Hodgkin's and non-Hodgkin's, melanoma, and mesothelioma
49. distinguish staging with the T N M system from grading of tumors
50. list at least 6 mutagenic agents
51. state the most frequent causes of cancer death today

GENERAL PATH TOPIC OUTLINE:

I. A comparative view of pathology

- a. definition
- b. homeostasis
- c. allopathic - western - reductionist
- d. alternative - eastern - wholistic
- e. chiropractic

II. Layers of defense

- a. physical - cutaneous membrane
- b. chemical - mucosa, tears, saliva, cerumen
- c. cellular
 1. blood cells and blood composition
 - a. whole blood/plasma/serum
 2. erythrocytes
 3. thrombocytes
 4. differential approach to WBCS
 5. hematopoiesis

III. Focus on leukocytes - functions

- a. granular
 1. neutrophils
 2. basophils
 3. eosinophils
 4. content of granules
 5. normal counts and leukocytosis
- b. agranular
 1. monocytes - scavengers
 - antigen presentation
 2. lymphocytes - specificity and memory
 - immunity
 - T cells - cell mediated
 - B cells - chemically mediated
 3. antigen
 4. antibody
 5. CD 4 +
 6. CD 8 +
 7. MHC 1

8. MHC 11

IV. Coordination of defense

- a. nerves
- b. chemicals

V. Response to injury - inflammation

VI. Healing and repair

VII. Granulomatous inflammation

VIII. Hypersensitivity reactions - allergy

IX. Auto immunity

X. Cell death - necrosis

- a. coagulative
- b. liquefactive
- c. caseous
- d. gangrenous
- e. fibrinoid
- f. enzymatic fat

XI. Cloudy swelling AKA hydropic change

- a. the cell takes a "hit"
- b. the life - death moment defined

XII. Cellular accumulations

- a. water - see hydropic change
 - 1. transudate
 - 2. Starling's forces
 - a. hydrostatic pressure
 - b. colloid osmotic pressure
 - c. lymph
- b. fat
 - 1. intra cell - steatosis
 - 2. interstitial - fatty infiltration
- c. iron
 - 1. hemosiderosis
 - 2. hemochromatosis
- d. copper - Wilson's dx
 - Kayser - Fleischer rings
- e. other heavy metals
- f. lipofuscin
- g. amyloidosis
 - protein - antibody - plasma cells
 - multiple myeloma

XIII. Growth changes - simple, physical mass

- a. hypertrophy
- b. hyperplasia
- c. atrophy
- d. agenesis = aplasia

XIV. Differentiation errors or shifts

- a. metaplasia
- b. dysplasia
- c. anaplasia
- d. mutagens/carcinogens

XV. Neoplastic transformation

- a. benign tumors
- b. malignant tumors
- c. 5 differences
- d. staging
- e. grading
- f. nomenclature
 - 1. - oma - benign
 - 2. carcinoma
 - 3. sarcoma
- g. tumor immunity
- h. AIDS- Kaposi's sarcoma

GEN PATH SYLLABUS ADDENDUM

Instructor: Suzanne L. Ray

WEEKLY SCHEDULE

Week 1: A Philosophical Approach to Defining Pathology

Week 2: Layers of Defense

Week 3: Antigenicity and Cell Mediated Defense

Week 4: Antibody, Serum Complement, and Chemically Dependent Immunity

Week 5: Inflammation and Repair, the Granuloma

Week 6: **Midterm 1** and Necrotic Patterns

Week 7: Cellular Accumulations and Starling's Law of the Capillaries

Week 8: Abnormalities of Growth – Adaptations

Week 9: Neoplastic Transformation

Week 10: **Midterm 2** and Tumor Nomenclature