

COURSE SYLLABUS

SPRING SEMESTER 2004

TITLE OF COURSE: Pathophysiology
PREFIX/NUMBER: ST 167
INSTRUCTOR:
DAYS/TIME: Tuesday & Thursday; 12:00 p.m. –12:50 p.m.
BUILDING/ROOM:
INSTRUCTOR OFFICE HOURS: M
T
R
F

(Name of school) is an equal opportunity educational institution and does not discriminate on the basis of age, race, religion, color, national origin, sex, or disability in its activities, programs, or employment practices as required by Title VI, Title IX, Section 504, Age Discrimination Act, and Title II of the ADA. The College has designated the Director of Human Resources as its Affirmative Action Officer with the responsibility to coordinate its civil rights compliance activities and grievance procedures. For information, contact the Human Resources Office, (address of office and college) or the Office for Civil Rights, U.S. Department of Education, Region VIII, Federal Office Building, 1244 North Speer Blvd., Suite 310, Denver, CO 80204-2512, (303) 844-5695 (TDD - 303-844-3417).

Students in this course who, due to disability, have a need for non-standard note taking, test taking, or other course modifications should notify the instructor, in private, as soon as possible.

1. TITLE OF COURSE: Pathophysiology
PREFIX/NUMBER: ST 167 Credit Hours: 2
2. PREREQUISITES: PRQ: ST 105, ST 107, ST 130, ST 140
CORQ: ST 131, ST 132, ST 141, ST 142, ST 157
3. REQUIRED TEXT:

McKenney, M. G., Mangonon, P. C., & Moylan, J. A. (Eds.). Understanding surgical disease: The Miami manual of surgery. Philadelphia: Lippincott-Raven

Publishers.

4. COURSE DESCRIPTION: A study of the fundamentals of pathology and human disease processes.
5. COURSE OBJECTIVES:
 - A. Explain basic concepts of disease processes as related to specific body systems.
 - B. Discuss the mechanisms of diseases and how they develop.
 - C. Explain the causes (etiology) of diseases.
 - D. Relate the disease processes to the surgical environment and explore surgical treatments.
 - E. Discuss and explore diseases that are poorly understood.
 - F. Discuss the clinical symptoms of diseases.
6. EVALUATION PROCEDURES:
 - A. Written examinations
 - B. Outside of classroom assignments
 - C. In class activities

Grading:

92 – 100 A
84 – 91 B
76 – 83 C
68 – 75 D
67 or less F

ATTENDANCE POLICY:

THE STUDENT IS EXPECTED TO ATTEND ALL CLASS SESSIONS. FOR EACH SESSION ATTENDED THE STUDENT WILL RECEIVE 5 POINTS. IF THE STUDENT IS LATE TO CLASS OR DOES NOT ATTEND, THE POINTS WILL NOT BE GIVEN. NO EXCUSE IS ACCEPTED FOR LATENESS OR NON-ATTENDANCE EXCEPT FOR THE FOLLOWING:

- DEATH IN THE FAMILY
- ILLNESS IN THE FAMILY

PROOF OF THE ABOVE MUST BE PROVIDED TO THE INSTRUCTOR IN ORDER TO RECEIVE THE POINTS.

STUDENTS SHOULD READ AND BE FAMILIAR WITH THE PCC ATTENDANCE POLICY AS STATED IN THE COLLEGE CATALOG. OF SIGNIFICANCE IS THE FOLLOWING PCC STATEMENT IN THE CATALOG:

“If a student misses twenty percent of a lecture or laboratory class beginning with the first official date of enrollment, it will be taken as evidence that a student does not intend to complete the course; and the instructor may withdraw the student from the course. A student will be assigned a W grade by the instructor, and the student will be liable for all tuition and fees related to that course.”

ASSIGNMENTS:

All homework and in class assignments are due in class on the day indicated in the class schedule. Late assignments are not accepted and no points will be given.

7. COURSE OUTLINE

Neoplasia

Desired Outcome

The learner will identify the unique features of tumors as compared to normal cellular characteristics and the adaptations of the body.

Performance Objectives

1. Relate the normal cell cycle to neoplasia.
2. Explain the difference between neoplastic and normal cells in relation to contact inhibition.
3. Relate normal cellular differentiation to neoplasia.
4. Compare the characteristics of benign and malignant neoplasms.
5. Discuss the various types of carcinogens.
6. Explain important factors in primary tumor growth.
7. Discuss the staging of tumors.
8. Describe the value of tumor markers in diagnosis and treatment of cancer.
9. Explain the cachexia syndrome.

Content Outline

1. Definitions
 - a. neoplasia
 - b. metastasis
 - c. metastasize
 - d. anaplasia
 - e. malignant
 - f. benign
 - g. differentiated
 - h. undifferentiated
 - i. angiogenesis
2. Risk factors for cancer
3. Intercellular communication
 - a. contact inhibition
4. Differentiation and anaplasia
5. Classifications of neoplasms
6. Characteristics of benign tumors
7. Characteristics of malignant tumors
8. Staging of neoplasms
9. Systemic manifestations of cancer and cachexia

Diseases of the Breast

Desired Outcome

The learner will identify the benign and malignant diseases that affect the breast.

Performance Objectives

1. List and discuss the methods used to evaluate patients with breast disease, including risk factors.
2. Discuss the common benign diseases of the breast.
3. Discuss the common malignant diseases of the breast.

Content Outline

1. Methods of Evaluation
 - a. history and physical
 - b. x-ray studies
 - c. tissue biopsy
2. Benign Diseases
 - a. infection
 - b. fibrocystic disease
3. Malignant Disease
 - a. infiltrating ductal carcinoma
 - b. staging
 - c. surgical treatment
 - d. postoperative treatment

Inguinal Hernia

Desired Outcome

The learner will discuss the anatomy and physiology of the inguinal region, diagnostic techniques, and surgical treatment of an inguinal hernia.

Performance Objectives

1. Anatomy and physiology of the inguinal Region
2. Differences between direct and indirect hernia.
3. Factors that contribute to inguinal hernia
4. Diagnostic methods
 - a. history and physical
 - b. visual
 - c. digital
5. Surgical treatment
 - a. open vs. laparoscopic
 - b. types of repairs
 - (1) Bassini repair
 - (2) McVay or Cooper's ligament repair
 - (3) Shouldice repair

Stomach and Duodenal Disorders

Desired Outcome

The learner will identify the types of disorders and treatments of the stomach and duodenum.

Performance Objectives

1. Discuss the common types of stomach pathologies and treatments.
2. List and define the medical terminology related to gastric and duodenal surgery.
3. Discuss the common types of duodenal disorder and treatments.

Content Outline

1. Pathology of the Stomach
 - a. gastritis
 - b. ulcers
 - c. surgical treatment
2. Pathology of the Duodenum
 - a. ulcers
 - b. neoplasms
 - (1) pancreaticoduodenectomy (Whipple's procedure)
3. Complications of Gastric and Duodenal Surgery
 - a. perioperative complications

Disorders of the Small Intestine

Desired Outcome

The learner will identify the features presented by the various types of common small intestine disorders.

Performance Objectives

1. Explain the features of small bowel obstruction and treatment.
2. Describe the disease process of Crohn's disease and treatments.
3. Explain small intestinal fistula.
4. Describe the process of malabsorption.

Content Outline

1. Crohn's Disease
 - a. progress of disease
 - b. diagnostic methods
 - c. methods of treatment
2. Small Bowel Obstruction
 - a. diagnostic methods
 - b. surgical treatment
3. Small Intestine Fistula
 - a. description of disease
 - b. methods of diagnosis
 - c. surgical treatment
4. Malabsorption
 - a. description of disease
 - b. clinical manifestations
 - c. progression of disease
 - d. treatments

Disorders of the Colon, Rectum, and Anus

Desired Outcome

The learner will identify and describe the common types of diseases and disorder of the colon and lower bowel to include the anus.

Performance Objectives

1. Colorectal Disease
 - a. evaluation and diagnosis of patient with colorectal disease
 - b. ulcerative colitis
 - c. diverticular disease
 - d. ischemic colon
 - e. polyps
 - f. cancer
 - (1) pathology
 - (2) diagnosis
 - (3) staging
 - (4) surgical treatment
 - (5) adjuvant therapy
2. Anorectal Disorders
 - a. hemorrhoids
 - b. fissures
 - c. pilonidal cyst
 - d. abscesses and fistulas

Liver and Spleen Disorders

Desired Outcome

The learner will identify the disorders that commonly afflict the liver and spleen.

Performance Objectives

1. Discuss the signs and symptoms of malignant hepatic tumors.
2. Discuss the treatment of malignant hepatic tumors.
3. Describe cirrhosis of the liver.
4. Discuss the disease process of portal hypertension and affect on the body.
5. Explain the treatments of portal hypertension.
6. List and explain reasons for splenectomy.

Content Outline

1. Malignant Hepatic Tumors
 - a. signs and symptoms
 - b. treatments
2. Cirrhosis
 - a. predisposing factors
 - b. direct causes
 - c. diagnosis
 - d. treatments
3. Portal Hypertension
 - a. description
 - b. complications
 - c. treatments
4. Splenectomy
 - a. reasons for performing splenectomy
 - (1) trauma
 - (2) immune system complications

Biliary System Complications

Desired Outcome

The learner will discuss the diseases that affect the biliary system and the complications caused by the disease.

Performance Objectives

1. List and explain the types of radiologic methods of diagnosis.
2. Define and describe cholelithiasis
3. Define and describe the differences between acute and chronic cholecystitis.
4. Describe the treatment methods of cholecystitis.

Content Outline

1. Radiologic Methods of Diagnosing Biliary System Disorders
 - a. upright abdominal radiograph
 - b. cholecystography
 - c. ultrasound
 - d. CT scan
 - e. percutaneous transhepatic cholangiography
 - f. endoscopic retrograde cholangiography
2. Cholelithiasis
 - a. definition
 - b. description
 - c. treatments

Gynecologic Disorders

Desired Outcome

The learner will describe the common disorders and anomalies of the female reproductive system.

Performance Objectives

1. Explain the etiology of uterine prolapse and the emergency surgical treatment.
2. Discuss abnormal uterine anatomy.
3. Discuss the various reasons for abnormal bleeding to occur and the surgical treatment.
4. Explain the reasons for having to perform a C-section.
5. Discuss the etiology of ovarian cancer and the treatments.
6. Discuss cervical dysplasia, cancer, and treatments.
7. Explain the pathology of endometriosis and the various treatment options.

Content Outline

1. Uterine Prolapse
 - a. anatomy of the uterus
 - b. cause of uterine prolapse
 - c. surgical treatment
2. Abnormal Uterine Anatomy
 - a. uterine anteflexion
 - b. uterine anteversion
 - c. uterine retroflexion
 - d. uterine retroversion
 - e. bifurcate uterus
3. Abnormal Bleeding
 - a. vaginal bleeding
 - (1) endometrial cancer
 - b. ectopic pregnancy
 - c. spontaneous abortion
 - d. polyps
4. Reasons Contributing to C-Section
 - a. placenta previa
 - b. abruptio placentae
 - c. failure to progress
 - d. fetal distress
 - e. cephalopelvic disproportion
 - f. abnormal fetal presentations
5. Ovarian Cancer
 - a. adnexal masses
 - b. neoplastic ovarian mass
 - (1) epithelial layer
 - (2) germ cell layer
 - (3) stromal layer

6. Cervical Cancer
 - a. scope of cervical cancer
 - (1) preinvasive dysplasia
 - (2) invasive cervical cancer
 - b. risk factors for development of cervical cancer
 - c. categorization of preinvasive cervical cancer
 - d. diagnostic methods
 - (1) Pap smear
 - (2) colposcopy
 - e. treatments
 - (1) cone biopsy
 - (2) loop electrosurgical excision procedure (LEEP)
 - (3) cryotherapy
 - (4) laser ablation
 - (5) hysterectomy
 - (6) radical hysterectomy (Wertheim's procedure)
7. Endometriosis
 - a. relation between estrogen and endometrial growth
 - b. risk factors
 - c. diagnosis
 - d. treatments
 - e. prognosis

Pediatric Surgery

Desired Outcome

The learner will gain an understanding of the disorders that are unique to pediatric patients.

Performance Objectives

1. List and explain the common pediatric surgical diseases.
2. List and describe the common congenital disorders that are surgically treated.
3. List and describe the common pediatric neoplasms that are surgically treated.

Content Outline

1. Pediatric Surgical Diseases
 - a. appendicitis
 - b. phimosis
 - (1) paraphimosis
 - c. hydrocele
 - d. pyloric stenosis
 - e. cryptorchidism
 - f. torque testicle
 - g. gastroesophageal reflux
 - h. intussusception
2. Congenital Disorders
 - a. diaphragmatic hernia
 - b. intestinal atresia
 - c. esophageal atresia
 - d. imperforate anus
 - e. Hirschprung's disease
 - f. oomphalocele
3. Pediatric Neoplasms
 - a. Wilms' tumor (nephroblastoma)
 - b. neuroblastoma

Neurosurgery

Desired Outcome

The learner will explain the management, special concerns, and surgical treatment of specific neurological injuries and diseases.

Performance Objectives

1. List and explain the diagnostic studies used to diagnose neurological disorders.
2. Discuss the use of the Glasgow coma scale.
3. List and explain the special concerns in the management of neurosurgical patient and treatments.
4. Discuss the surgical treatment of head injury patients.
5. Discuss the diagnosis and surgical treatment of spinal cord injuries.
6. Explain the treatment of peripheral nerve injuries.
7. Discuss the neurological deficits in “shaken baby syndrome.”
8. Describe the progression of a spinal tumor and treatments.
9. Explain the common types of neurovascular diseases and surgical treatment.
10. List and explain the common congenital disorders of the neurological system.
11. Describe various types of spinal cord diseases and disorders.
12. List and explain the common types of central nervous system infections.

Content Outline

1. Methods of Diagnosis
 - a. MRI
 - b. CT scan
 - c. PET
 - d. ultrasound
 - e. angiography
 - f. lumbar puncture
2. Glasgow Coma Scale
 - a. point system
 - b. interpretation
3. Special Concerns
 - a. intracranial pressure
 - (1) treatment
 - b. electrolyte levels
 - c. respiratory system
 - d. posttraumatic seizures
4. Head Injury
 - a. scalp injury
 - b. skull fracture
 - c. epidural hematoma
 - d. subdural hematoma
 - e. penetrating brain injury

5. Peripheral Nerve Injuries
 - a. categories
 - (1) temporary functional loss
 - (2) axonotomesis
 - (3) neurotomesis
 - b. surgical treatment
 - (1) anastomosis
 - (2) temporary fascial fixation
 - (3) transposition
6. Shaken Baby Syndrome
 - a. neurological injuries
7. Spinal Tumors
 - a. nerve root tumor
 - b. intramedullary tumor
 - c. extramedullary tumor
8. Spinal Cord Injuries
 - a. types of injuries
 - b. diagnosis
9. Spinal Cord Diseases
 - a. herniated vertebral disk
 - b. spondylolithiasis
 - c. spondylosis
10. Central Nervous System Infections
 - a. bacterial infections
 - (1) primary invasion
 - (2) penetration by traumatic injury
 - (3) hematogenous spread
11. Neurovascular Disease
 - a. atherosclerotic disease
 - b. vascular malformations
 - (1) arteriovenous malformations (AVM)
 - (2) venous angiomas
 - (3) capillary telangectasias
 - (4) cavernous malformations
 - c. aneurysms
12. Congenital Disorders
 - a. hydrocephalus
 - b. myelomeningocele

Orthopedic Surgery

Desired Outcome

The learner will describe the less common types of orthopedic anomalies that occur in patients and the treatments.

Performance Objectives

1. Discuss osteosarcoma and surgical treatments.
2. Explain Ewing's sarcoma and treatments.
3. Describe osteopetrosis as to its cause, pathology, clinical manifestations, and treatments.
4. Describe Klippel-Feil syndrome including clinical manifestations and treatments.
5. Discuss Sprengel's deformity and discuss surgical treatments.
6. Describe developmental dysplasia of the hip (DDH) and the treatments.
7. Explain Legg-Calve'-Perthe's disease including cause, clinical manifestations, and treatments.
8. Describe the various clubfoot deformities.
9. Describe the types of fractures that are unique to pediatric patients.
10. Explain the etiology of Dupuytren's disease and the surgical treatment.

Content Outline

1. Osteosarcoma
 - a. description
 - b. stages
 - c. surgical treatments
2. Ewing's Sarcoma
 - a. description
 - b. stages
 - c. surgical treatment
 - d. adjuvant therapy
3. Osteopetrosis
 - a. description
 - b. clinical manifestations
 - c. treatments
4. Klippel-Feil Syndrome
 - a. cause
 - b. clinical manifestations
 - c. results of disease
 - d. surgical intervention to treat complications
5. Sprengel's Deformity
 - a. description
 - b. surgical intervention

6. Developmental Dysplasia of the Hip (DDH)
 - a. description
 - b. etiology
 - c. results of disease
 - d. surgical intervention to treat complications
7. Legg-Calve´-Perthe's Disease
 - a. description
 - b. clinical manifestations
 - c. treatments
8. Clubfoot Deformities
 - a. valgus conditions
 - b. varus conditions
 - c. treatments
9. Pediatric Fractures
 - a. incomplete (greenstick)
 - b. torus (buckle)
 - c. physeal injury
 - (1) types I - IV
10. Dupuytren's Contracture
 - a. description
 - b. etiology
 - c. surgical treatment

Burn Surgery

Desired Outcome

The learner will discuss the treatments of burn patients and the surgical skin graft as a part of the treatment.

Performance Objectives

1. List and discuss the types of burns.
2. List and discuss the methods of evaluating the burn patient.
3. Explain the Rule of Nines for adult and pediatric burn patients.
4. Explain the care of burn wounds.
5. Discuss the special physiological needs of the burn patient.
6. Discuss the types of skin grafts that can be performed in surgery for the burn patient.
7. Describe the physiological complications caused by burns.
8. Discuss the rehabilitation therapy of the burn patient.

Content Outline

1. Types of Burns
 - a. flame
 - b. thermal
 - c. chemical
 - d. electrical
2. Evaluation of the Burn Patient
 - a. ABC's
 - b. Rule of Nines
 - c. guidelines for patient admission
 - d. laboratory tests
3. Wound Care
 - a. dressing
 - b. topical agents
 - c. drugs
4. Special Physiological Needs
 - a. nutrition
 - b. fluid replacement
 - c. vitamin replacement
 - d. protein requirement
5. Skin Grafting
 - a. debridement and irrigation
 - b. split-thickness skin graft (STSG)
 - c. full-thickness skin graft (FTSG)
 - d. homograft
 - e. allograft
6. Rehabilitation Therapy
 - a. physical therapy
 - b. occupational therapy
7. Physiological Complications of Burns