

ODESSA COLLEGE
Physical Therapist Assistant Program
Spring 2011

COURSE SYLLABUS

Course Number: PTHA 1321
Course Title: Pathophysiology
Credit Hours: 3
Contact Hours: 48
Prerequisites: PTHA 1201, 1305, 1413
Corequisites: PTHA 1325, 1431
Instructor: Lynn McKelvey
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Office Hours: Monday 8:30-11:30
Tuesday 3:30-4:00
Wednesday 8:30-11:30 & 1:00-4:00
Thursday 3:30-4:00

Course Description:

Study of the pathophysiology of diseases/conditions commonly encountered in physical therapy. The ability to acquire information specific to diagnoses that affect the physical therapy treatment setting, diseases and injuries involving the musculoskeletal and neuromuscular systems, and the need for physical therapy intervention are stressed. (SCANS 1, 2, 5, 6, 11)

Textbooks:

1. Professional Guide to Diseases, 9th Edition, Springhouse, 2008
2. Mosby's Medical Nursing, & Allied Health Dictionary, 6th Edition, Mosby, 2002
3. Pharmacology for Health Professionals, Lippincott Williams & Williams, 2005
4. PTHA 1321 Course Packet for Spring 2011

Objectives:

After completing this course, the student should be able to:

- 1.0 Understand diseases and disorders sufficiently to safely and effectively apply physical therapy interventions within the plan of care established by the physical therapist.
- 2.0 Identify aspects of pathophysiology that affect physical therapy interventions.
- 3.0 Describe the correct response to acute physiological changes in the patient's condition.
- 4.0 Obtain pertinent drug-related information and understand the impact of selected drugs on physical therapy intervention.

Competencies:

- 1.0 To demonstrate understanding diseases and disorders sufficiently to safely and effectively apply physical therapy interventions within the plan of care established by the physical therapist, the student should be able to:
 - 1.1 Define disease-related terminology.
 - 1.2 Identify the mechanisms of injury, inflammation and repair.
 - 1.3 Identify theories of pain transmission and perception.
 - 1.4 Identify the etiology and signs and symptoms of selected diseases and disorders.
 - 1.5 Identify medical treatment and prognoses of selected diseases and disorders.
- 2.0 To demonstrate identifying aspects of pathophysiology that affect physical therapy interventions, the student should be able to:
 - 2.1 Identify specific disease or disorder-related precautions and contraindications for physical therapy interventions.
 - 2.2 Identify the diagnostic procedures that affect physical therapy interventions and their precautions and contraindications.

- 2.3 Identify medical treatment and/or medication-related precautions and contraindications for physical therapy intervention.
- 3.0 To demonstrate describing the correct response to acute physiological changes in the patient's condition, the student should be able to:
 - 3.1 List normal ranges for vital signs.
 - 3.2 *Describe signs and symptoms of adverse responses to activity and conditions requiring treatment modification, treatment discontinuation, or immediate medical attention.
 - 3.3 *Describe appropriate responses to signs and symptoms of adverse responses to activity and conditions requiring treatment modification, treatment discontinuation, or immediate medical attention.
- 4.0 To demonstrate obtaining pertinent drug-related information and understanding the impact of selected drugs on physical therapy treatment, the student should be able to:
 - 4.1 *Locate, examine and describe the effects, indications, contraindications, side effects and adverse reactions of various commonly used drugs on physical therapy interventions according to guidelines provided in class.

**Indicates integrated, core curriculum skills (math, reading, writing, communication, technological literacy and/or critical thinking)*

Methods of Presentation:

Lectures, reading assignments, videos, discussion, and outside projects and assignments.

Course Requirements:

In order to receive credit for this course, all students must:

1. Complete all unit tests.
2. Participate in PowerPoint quizzes.
3. Complete the assigned project.
4. Complete the final exam.

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| Grade Compilation: | Tests | 55% |
| | Project | 10% |
| | Oral/Written Quizzes | 10% |
| | Final Exam | 25% |

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| Grading Scale: | 90-100 = A |
| | 80-89 = B |
| | 70-79 = C |
| | 60-69 = D |
| | Below 60 = F |

Note: Students must make a minimum grade of C in each PTA course in order to remain in the program.

Procedure for Requesting Special Accommodations

Odessa College complies with Section 504 of the Vocational Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. If the student has any special needs or issues pertaining to access to and participation in any class at Odessa College, please contact Becky Rivera-Weiss in the Office of Disability Services at 432-335-6861 to request assistance and accommodations.

Physical therapist assistant students with a disability who request reasonable accommodations should meet with the Program Director no later than the first week of classes. Reasonable accommodations will be provided as authorized by the Office of Disability Services as long as the ability to meet course requirements is not compromised. Physical Therapist Assistant faculty provide no accommodations without authorization. It is the student's responsibility to be a self-advocate when requesting accommodations. The student will need to meet with each course instructor at the beginning of class to discuss the particular accommodation needed. Documentation of special needs will be maintained in the student's file.

Professional Behavior:

Professional behavior is absolutely essential both while the individual is a student in this program as well as after graduation. The Professional Behaviors Assessment form provides a standard for behavior and a mechanism for self-assessment by the student as well as assessment by faculty during the academic component of the program. If a faculty member observes consistent failure to demonstrate acceptable professional behavior by a student, the faculty member will utilize the assessment form as a tool for counseling the student. **Failure to respond appropriately to counseling regarding professional behaviors will result in dismissal from the program.**

Attendance:

Regular attendance at lecture and lab is essential and has a direct effect on the final grade that a student earns in class. Non-attendance on the part of a student may result in grade penalty or may lead to dismissal from the program.

A student should attend all lecture and laboratory sessions. Habitual or patterned absenteeism in lecture or lab will not be tolerated. As soon as such a problem is identified, the student will be required to meet with the faculty to determine a course of action and, if the problem is not corrected, the student will be subject to dismissal from the program. Absences in laboratory sessions are particularly problematic because of the lost opportunity to practice skills; therefore, students will be penalized for missing more than one lab session per semester. Should a student miss more than one lab session, one point for each missed session will be deducted from the final course grade.

All absences must be reported to the appropriate faculty member prior to the start of class. If the faculty member cannot be reached directly, a voice mail message may be left. Failure to notify the faculty prior to an absence will affect the student's Professional Behaviors Assessment.

Acceptance of Late Assignments:

Projects or outside assignments are due at the beginning of class on the assigned due date. Late papers will receive a 5% per day grade penalty (including Saturday and Sunday). This penalty will continue to be assessed each day the assignment is not turned in.

Missing an Exam:

Exams are defined as formally scheduled examinations covering a major portion of the course content and cumulatively comprising a relatively large percentage of the overall grade for a course. Every effort should be made by the student to be present for all exams. If it is necessary for a student to miss an exam, the instructor must be notified prior to the scheduled exam time and arrangements must be made for make-up. It is the instructor's option to give the same exam as the one missed or a different exam over the same content. If the exam is not made up within one class day, a 5% per day penalty (including Saturday and Sunday) will be assessed each day the exam is not taken.

Project: Pharmacology Project

Students will complete a pharmacology project on drugs commonly used by physical therapy patients. Instructions and due dates will be provided in class. This project will be worth 10% of the overall grade.

Quizzes:

Due to the extensive content covered in this course, it is not possible to discuss each disease or disorder in class. For this reason there are diseases and disorders specific to each system of the body that are to be read and studied independently by the students. To encourage students to participate fully in this aspect of the course, quizzes will be given on these diseases or disorders. Quizzes will usually be in the format of questions presented on PowerPoint slides answered by students using individual response devices. Students may refer to notes prepared in advance but not to the textbook during the administration of the quizzes. Grading will be based on the cumulative percentage of correct responses for the entire semester and will be worth 10% of the overall grade.

COURSE OUTLINE

- A. INTRODUCTION TO PATHOPHYSIOLOGY
 - 1. Definitions
 - 2. Classification of Disease

3. Causes of Disease
 4. Principles of Diagnosis
 5. Diagnostic Tests and Procedures
 6. Mortality and Morbidity
 7. Response to Changes in Physiological Condition
- B. INFLAMMATION AND REPAIR
1. Inflammatory Reaction
 2. Repair
 3. Chronic Inflammation
 4. Gross Inflammatory Lesions
- C. PHARMACOLOGY
1. Introduction
 2. Principles of Drug Action
 3. Over-the-Counter Drugs
 4. Side Effects, Adverse Reactions, Allergic Reactions, and Overdose
- D. AGING
1. Introduction
 2. Pathology
 3. Geriatric Pharmacology
- E. GENETIC/CONGENITAL DISORDERS
1. Introduction
 2. Review of Genetics
 3. Genetic Disorders
 - a Simple
 - b Polygenic
 - c Defects
 4. Specific Disorders
 - a Autosomal Dominant
 - Neurofibromatosis
 - Others
 - Osteogenesis Imperfecta
 - Marfan Syndrome
 - b Autosomal Recessive
 - Cystic Fibrosis
 - Others
 - Phenylketonuria
 - Sickle Cell Anemia
 - c X-linked
 - Hemophilia
 - Duchenne's Muscular Dystrophy
 - d Chromosomal Abnormalities
 - Down Syndrome
 - Others
 - Cleft Lip and Palate
 5. Congenital Abnormalities due to Intrauterine Injury
 - a Causative Factors
 - Drugs
 - Radiation
 - Infections
 - Malnutrition
- F. NEOPLASMS
1. Introduction
 2. Definitions
 3. Origin/Causes of Cancer

4. Frequency
5. Manifestations
 - a Local
 - b Systemic
 - c Hormonal
 - d Paraneoplastic syndrome
6. Diagnosis
7. Staging and Grading
8. Treatment
 - a Determination of Treatment
 - b Surgery
 - c Radiation
 - d Chemotherapy
 - e Immunotherapy
9. Pain Control
10. Physical Therapy

G. INFECTION

1. Introduction
2. Types of Infection
3. Types of Microorganisms
4. Modes of Transmission
5. Prevention of Transmission
6. Defense Against Microorganisms
7. Medical Management of Infections
8. Nosocomial Infections
9. Specific Infections
 - a Staphylococcal
 - b Streptococcal
 - c Gas Gangrene
 - d Pseudomonas
 - e Poliomyelitis
 - f Post Polio Syndrome
 - g Others
 - Vancomycin-resistant Enterococcus
 - Septic Shock
 - Lyme Disease
 - Respiratory Syncytial Virus Infection
 - Influenza
 - Herpes (Simplex)
 - Cytomegalovirus
 - Toxoplasmosis

H. TRAUMA

1. Introduction
2. Head Injuries
3. Neck and Spinal Injuries
4. Burns
5. Others
 - a Electric Shock
 - b Cold Injuries
 - c Heat Syndrome
 - d Asphyxia
 - e Brown Recluse Spider
 - f Open Trauma Wounds

I. IMMUNE SYSTEM

1. Introduction
2. Nonspecific Immune Response

3. Specific Immune REsponse
4. Immune Disorders
 - a Hypersensitivity
 - Allergy/Others
 - Asthma
 - Atopic Dermatitis
 - Latex Allergy
 - Anaphylaxis
 - Autoimmunity
 - Rheumatoid Arthritis
 - Juvenile Rheumatoid Arthritis
 - Ankylosing Spondylitis
 - Lupus Erythematosus
 - Fibromyalgia
 - Others
 - Scleroderma
 - Polymyositis and Dermatomyositis
 - Vasculitis
 - b Immunodeficiency
 - a AIDS
 - b Others
 - Chronic Fatigue

J. MUSCULOSKELETAL SYSTEM

1. Introduction
 - a Skeletal System
 - b Articular System
 - c Muscles
2. Congenital Disorders
 - a Clubfoot
 - b Developmental Dysplasia of the Hip
3. Joint Disorders
 - a Septic Arthritis
 - b Neurogenic Arthropathy
 - c Osteoarthritis
 - d Others
 - Gout
4. Bone Disorders
 - a Osteomyelitis
 - b Osteoporosis
 - c Fractures
 - d Dislocations and Subluxations
 - e Others
 - Legg-Calve-Perthes Disease
 - Osgood-Schlatter Disease
 - Hallux Valgus
 - Kyphosis
 - Scoliosis
5. Tumors
6. Spine
7. Muscle and Connective Tissue Disorders
 - a Tendinitis and Bursitis
 - b Sprains and Strains
 - c Myositis Ossificans
 - d Others
 - Epicondylitis
 - Achilles Tendon Contracture
 - Carpal Tunnel Syndrome

- Torticollis
- 8. Miscellaneous
 - a Herniated Disk
 - b Amputation
- 9. Age-Related Musculoskeletal System Changes
 - a Connective Tissue Changes
 - b Cartilage Changes
 - c Body Composition Changes
 - d Muscle Changes
 - e Skeletal Changes

K. NEUROLOGIC DISORDERS

1. Introduction
2. Congenital Disorders
 - a Cerebral Palsy
 - b Spinal Cord Defects
 - c Others
 - Hydrocephalus
 - Cerebral Aneurysm
 - Arteriovenous Malformations
3. Paroxysmal Disorders/Others
 - a Headache
 - b Epilepsy
4. Brain and Spinal Cord Disorders
 - a CVA
 - b Parkinson's Disease
 - c Guillain-Barre Syndrome
 - d Alzheimer's Disease
 - e Others
 - Meningitis
 - Encephalitis
 - Brain Abscess
 - Huntington's Disease
 - Reye's Syndrome
5. Neuromuscular Disorders
 - a Myasthenia Gravis
 - b Amyotrophic Lateral Sclerosis
 - c Multiple Sclerosis
6. Peripheral Nerve Disorders
 - a Bell's Palsy
 - b Others
 - Peripheral Neuritis
7. Age-Related Neurological Changes
 - a CNS Changes
 - b Homeostasis
 - c PNS Changes
 - d Sensory Changes

L. SKIN DISORDERS

1. Introduction
2. Principal Types of Lesions
3. Principles of Treatment
4. Stasis Dermatitis
5. Pressure Ulcers
6. Malignancies
7. Others
 - a Folliculitis, Furunculosis and Carbunculosis
 - b Dermatophytosis

- c Seborrheic Dermatitis
 - d Nummular Dermatitis
 - e Contact Dermatitis
 - f Chronic Dermatitis
 - g Localized Neurodermatitis
 - h Exfoliative Dermatitis
 - i Psoriasis
 - j Hyperhidrosis
8. Age-Related Skin Changes

M. CARDIOVASCULAR DISORDERS

1. Introduction
2. Congenital Defects
 - a Epidemiology
 - b Etiology
 - c Diagnosis
 - d Specific Defects
 - Ventricular Septal Defect
 - Atrial Septal Defect
 - Coarctation of the Aorta
 - Patent Ductus Arteriosus
 - Tetralogy of Fallot
 - Transposition of Great Arteries
3. Valve Disorders
 - a Etiology
 - b Treatment
4. Acquired Inflammatory Heart Diseases/Others
 - a Myocarditis
 - b Endocarditis
 - c Pericarditis
 - d Rheumatic Fever and Rheumatic Heart Disease
5. Degenerative Cardiovascular Disorders
 - a Hypertension
 - b Coronary Artery Disease
 - c Myocardial Infarction
 - d Heart Failure
 - e Others
 - Dilated Cardiomyopathy
 - Hypertrophic Cardiomyopathy
 - Cor Pulmonale
6. Cardiac Arrhythmias
7. Aortic Aneurysms
8. Others
 - a Hypovolemic Shock
 - b Cardiogenic Shock
 - c Ventricular Aneurysm
 - d Cardiac Tamponade
9. Vascular Disorders
 - a Venous Disorders
 - Thrombophlebitis
 - Chronic Venous Insufficiency
 - b Arterial Disorders
 - Acute
 - Chronic Arteriosclerotic Vascular Disease
 - Thromboangitis obliterans
 - Raynaud's Disease and Phenomenon
10. Age-Related Cardiovascular Changes

N. HEMATOLOGIC DISORDERS

1. Introduction
2. Anemias
 - a Clinical Expression
 - b Pernicious Anemia
 - c Aplastic Anemias
 - d Others
 - Iron Deficiency Anemia
3. Polycythemias
 - a Polycythemia Vera
 - b Others
 - Spurious Polycythemia
4. Hemorrhagic Disorders
 - a Thrombocytopenia
 - b Others
 - Granulocytopenia and Lymphocytopenia
5. Age-Related Hematologic Changes

O. RESPIRATORY DISORDERS

1. Introduction
2. Acute Disorders
 - a Pulmonary Edema
 - b Atelectasis
 - c Pulmonary Embolism
 - d Others
 - Acute Respiratory Failure in COPD
 - Respiratory Acidosis
 - Respiratory Alkalosis
 - Pneumothorax
 - Pneumonia
 - Hemothorax
 - Pleural Effusion and Empyema
3. Chronic Disorders
 - a Chronic Obstructive Pulmonary Disease
 - b Bronchiectasis
 - c Tuberculosis
4. Age-Related Pulmonary Changes

P. ENDOCRINE DISORDERS

1. Introduction
2. Hypothalamus
3. Pituitary Gland
 - a Disorders/Others
 - Hypopituitarism
 - Hyperpituitarism
 - Diabetes Insipidus
4. Thyroid Gland
 - a Disorders/Others
 - Hypothyroidism
 - Hyperthyroidism
 - Simple Goiter
 - Hyperthyroidism
5. Parathyroid Glands
 - a Disorders/Others
 - Hypoparathyroidism
 - Hyperparathyroidism
6. Adrenal Gland
 - a Disorders/Others

- Adrenal Hypofunction or Addison's Disease
 - Cushing's Syndrome
 - Hyperaldosteronism
 - Adrenogenital Syndrome
 - Pheochromocytoma
7. Pancreatic Gland
 - a Diabetes Mellitus
 8. Gonads
 9. Age-Related Endocrine Changes
- Q. OB/GYN AND SEXUAL DISORDERS
1. Introduction
 2. Gynecological and Obstetric Disorders
 - a Menopause
 - b Diastasis Recti
 - c Others
 - Endometriosis
 3. Sexually Transmitted Diseases/Others
 - a Gonorrhea
 - b Chlamydial Infections
 - c Genital Herpes
 - d Genital Warts
 - e Syphilis
 - f Trichomoniasis
 - g Nonspecific Genitourinary Infections
- R. RENAL AND UROLOGIC DISORDERS
1. Introduction
 2. Acute Renal Diseases
 - a Acute Renal Failure
 - b Renal Calculi
 3. Chronic Renal Disorders
 - a Nephrotic Syndrome
 - b Chronic Renal Failure
 4. Lower Urinary Tract Disorders
 - a Neurogenic Bladder
 5. Others
 - a Acute Pyelonephritis
 - b Lower Urinary Tract Infection
 - c Benign Prostatic Hyperplasia
 6. Age-Related Renal/Urological Changes
- S. METABOLIC AND NUTRITIONAL DISORDERS
1. Introduction
 2. Nutritional Imbalance
 - a Deficiencies
 - b Excesses
 3. Metabolic Disorders
 - a Hypoglycemia
 4. Homeostatic Imbalance
- T. HEPATOBILIARY DISORDERS
1. Introduction
 2. Liver Disease
 - a Viral Hepatitis
 - b Nonviral Hepatitis
 3. Others
 - a Cirrhosis and Fibrosis
 - b Hepatic Encephalopathy

- c Cholelithiasis
 - d Choledolithiasis
 - e Cholangitis
 - f Cholecystitis
 - g Cholesterolosis
 - h Biliary Cirrhosis
 - i Gallstone Ileus
 - j Postcholecystectomy Syndrome
 - k Acalculous Cholecystitis
4. Age-Related Hepatobiliary Changes

U. GASTROINTESTINAL DISORDERS

1. Introduction
2. Mouth and Esophagus/Others
 - a Gastroesophageal Reflux
 - b Hiatal Hernia
3. Stomach, Intestine and Pancreas
 - a Peptic Ulcers
 - b Inguinal Hernia
 - c Others
 - Gastritis
 - Gastroenteritis
 - Ulcerative Colitis
 - Crohn's Disease
 - Irritable Bowel Syndrome
 - Diverticular Disease
 - Appendicitis
 - Peritonitis
 - Intestinal Obstruction
 - Inactive Colon
 - Pancreatitis
4. Anorectum
 - a Pilonidal Disease
 - b Others
 - Hemorrhoids
5. Age-Related Gastrointestinal Changes

V. PSYCHIATRIC DISORDERS

1. DSM-IV
2. Psychosocial Assessment
3. Infancy, Childhood and Adolescence
 - a Mental Retardation
 - b Tic Disorders
 - c Autistic Disorder
 - d Attention-Deficit Hyperactivity Disorder
 - e Conduct Disorder
4. Psychoactive Substance Abuse
 - a Alcohol-Related Disorder
 - b Substance Abuse and Induced Disorders
5. Schizophrenic Disorders
 - a Schizophrenia
 - b Delusional Disorders
6. Mood Disorders
 - a Bipolar Disorders
 - b Major Depression
7. Anxiety Disorders
 - a Phobias
 - b Generalized Anxiety Disorder

- c Panic Disorder
- d Obsessive-Compulsive Disorder
- e Posttraumatic Stress Disorder
- 8. Somatoform Disorders
 - a Somatization Disorder
 - b Conversion Disorder
 - c Pain Disorder
 - d Hypochondriasis
 - e Body Dysmorphic Disorder
- 9. Dissociative and Personality Disorders
 - a Dissociative Identity Disorder
 - b Dissociative Fugue
 - c Dissociative Amnesia
 - d Depersonalization Disorder
 - e Personality Disorders
- 10. Eating Disorders
 - a Bulimia Nervosa
 - b Anorexia Nervosa
- 11. Sexual and Gender Identity Disorders
 - a Female Arousal and Orgasmic Disorders
 - b Dyspareunia
 - c Vaginismus
 - d Erectile Disorder
 - e Premature Ejaculation
 - f Gender Identity Disorders
 - g Paraphilias