Tentative Syllabus for PA 609 – Clinical Medicine II

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COURSE DESCRIPTION
The student will build upon the knowledge and skills attained in Clinical Medicine I to study the presentation in the following modules: cardiology, hematology, oncology, neurology, psychology, geriatrics, alternative medicine, rehabilitation, chronic care, occupational medicine, and palliative or end of life care. This is part two of a series of three courses in the study of medicine that will be taught in a modular format utilizing a combination of lecture and interactive techniques. It is designed to explore the common medical and surgical disorders encountered in general adult medicine. This will include: clinical presentation, acute care, etiology, pathophysiology, prevention, genetic involvement, diagnostic work-up, lab interpretation, appropriate referral, and management of disorders pertaining to the listed modules.

LEARNING OBJECTIVES
Upon completion of this series of courses, each student should be able to:

1. Understand and reasonably discuss the clinical elements of a broad range of topics, using both cellular and holistic terms.
2. Evaluate resources for exploration of topics and issues pertinent to current clinical practice.
3. Efficiently formulate a strategy for researching the clinical elements of topics pertinent to PA practice.
4. Demonstrate effective tactics for researching the underlying clinical elements of topics pertinent to PA practice.
5. Correctly recall or define clinical elements of topics and systems covered during this course.
6. Compare and contrast data and concepts of clinical elements of topics covered during this course.
7. Collaborate with colleagues to formulate conclusions using evidence based principles.
8. Build foundational knowledge and basic understanding of each of the topics listed in the syllabus.
9. Develop basic critical thinking skills necessary to evaluate a patient with specific signs and symptoms and formulate a differential diagnosis.
10. Demonstrate an understanding of the interdisciplinary nature of medicine.
11. Develop skills in teamwork necessary to function as a member of a functioning healthcare team.
12. Develop an emerging understanding of the importance of empathy and social skills in the practice of medicine.
13. Be able to analyze a clinical vignette in case study format and draw conclusions.

Accomplish objectives in the following modules:
Cardiology Module:
- Describe normal cardiac function.
- Describe pathologic manifestations of cardiac disease and the electrical mechanisms of normal heart rhythm and arrhythmias.
- Discuss common manifestations of cardiac disease (i.e., dyspnea, orthopnea, edema, paroxysmal nocturnal dyspnea, diaphoresis, and cyanosis), pulmonary findings with cardiac origins, and peripheral pulse findings.
- Identify heart sounds and murmurs as they related to normal and abnormal cardiac function.
- Determine when to order and how to properly interpret cardiac diagnostic tests including: electrocardiogram, echocardiography, trans-esophageal echocardiogram, stress echocardiography, cardiac MRI, cardiac catheterization, and angiography.
Describe the following miscellaneous effects seen on ECG: pulmonary embolus, hyperkalemia/hypokalemia, Digitalis effect/toxicity, hypocalcaemia/hypercalcemia, quinidine effects/toxicity, pacemakers, and heart transplant.

Describe and define the following arrhythmias, their ECG manifestations, etiologies, clinical presentation, and treatments: supraventricular arrhythmias, sinus arrhythmia, bradycardia, atrial extrasystoles, paroxysmal supraventricular tachycardia, SVT due to accessory atrioventricular pathways, Wolff-Parkinson-White syndrome, Lown-Ganong-Levine syndrome, atrial fibrillation, atrial flutter, atrioventricular junctional rhythm, ventricular tachycardia, ventricular fibrillation and sudden death, long QT syndrome, bradycardias, sick sinus syndrome, atrioventricular block, Mobitz type and type II, complete heart block, and atrioventricular dissociation.

Elicit cardiovascular disease risk factors, including diabetes mellitus, hypertension, hyperlipidemia, obesity, gender, family history, age, and smoking history.

Elicit a cardiac and peripheral vascular history and demonstrate a proper physical exam including: vital sign assessment, inspection of the precordium/neck, auscultation of heart, evaluation for bruits, peripheral edema, and cyanosis (central vs. peripheral).

Evaluate and trace through the cardiac cycle, cardiac murmurs of aortic stenosis/regurgitation, pulmonic stenosis/regurgitation, mitral stenosis/regurgitation, tricuspid stenosis/regurgitation, atrial septal defect, ventricular septal defect, and aortic coarctation, and describe the course, hemodynamic effect and typical clinical findings of these conditions.

Develop a diagnostic plan and differential diagnosis for: chest pain, shortness of breath, syncope, new onset murmurs or bruits, rhythm or conduction disturbances, peripheral vascular complaints.

Perform and interpret 3 and 12 lead electrocardiogram (EKG) tracings recognizing conduction delays and disturbances, signs of acute myocardial infarction, and dysrhythmias including asystole, premature atrial contractions (PAC’s), premature ventricular contractions (PVC’s), tachycardic rhythms, atrial fibrillation/flutter, bradycardic rhythms, sinus blocks (1st, 2nd types I and II, and 3rd degree), Wolff-Parkinson-White (WPW) syndrome, and bundle branch/fascicular blocks.

Select and interpret laboratory testing appropriate to evaluation of cardiac disease including lipid profiles (LDL, VLDL, HDL, triglycerides, total cholesterol), CRP, BNP, and acute cardiac markers (CPK, CK-MB, troponin)

Select and interpret appropriate imaging/diagnostic studies used in the diagnosis of cardiovascular disease including chest x-ray, Doppler ultrasound, chest CT, angiography, echocardiogram and cardiac stress testing.

Provide patient education regarding cardiovascular health promotion and disease prevention including diet, exercise, smoking cessation, and age appropriate screening exams.

Combine historical, physical exam findings and ancillary testing to formulate an appropriate differential diagnosis/treatment plan and disposition of mentioned cardiac conditions.

Contrast between and select appropriate cardiac pharmacotherapeutic interventions.

Evaluate and present case studies of patients with cardiovascular disorders, demonstrating an understanding of pertinent history, physical examination findings, pertinent diagnostic studies, and appropriate treatment plan.

Hematology and Oncology Module:

Describe each of the following hematologic disorders with regard to etiology, pathophysiology, common presentations, clinical findings, prevention, prognosis, genetic involvement, laboratory evaluation, and treatment: aplastic, vitamin B12 deficiency, folate deficiency, iron deficiency, G6PD deficiency, hemolytic, Sickle cell anemia, G-6-PD Defect, thalassemia, myxedema, myelodyplasia, neutrophilia, neutropenia, eosinophilia, lymphocytosis, polycythemia, lymphadenopathy, white blood cell disorders, Lymphocytic leukemia, myelogenous leukemia, lymphomas, multiple Myeloma, Non-Hodgkin’s lymphoma, Hodgkin’s disease, Idiopathic thrombocytopenic purpura, Thrombotic thrombocytopenic purpura, coagulopathy of liver disease, beta thalassemia, Factor VIII disorders,
Factor IX disorders, Factor XI disorders, Thrombocytopenia, Von Willebrand’s disease, vitamin K deficiency, disseminated intravascular coagulation (DIC), thrombocytosis, thrombosis, deep vein thrombosis (DVT), HEELP syndrome, and platelet disorder.

- List the indications for the transfusion of blood and its components.
- Identify tests required prior to transfusion.
- Explain the different blood types and describe potential blood transfusion reactions and complications due to ABO and RH incompatibilities.
- Describe the morphological characteristics of the RBCs in each of the anemic disorders.
- Recommend a screening workup for a patient without an obvious bleeding disorder.
- Describe and discuss cancer treatments, including indications, side effects, and complications.
- Demonstrate understanding of how tumor size and tumor markers are used to evaluate the effectiveness of treatment.
- Describe and discuss current cancer screening and prevention recommendations, staging, and general management of common cancers.
- Describe and discuss the basics of oncologic pain management. Include an assessment of treatment effectiveness.
- Evaluate and present case studies of patients with hematologic and oncologic disorders, demonstrating an understanding of pertinent history, physical examination findings, pertinent diagnostic studies, and appropriate treatment plan.
- Discuss the incidence of cancer in the US.
- Specify hematologic manifestations of malignancy.
- Define the following oncologic disorders and discuss etiology, common presentations, diagnostic workup, diagnosis, staging, laboratory findings, prognosis, complications, and treatment: multiple myeloma, ALL, AML, CLL, CML, Hodgkin’s disease and Non-Hodgkin’s lymphoma.

Neurology Module:
- Describe and discuss common neurologic problems and their presentation, differential diagnosis, diagnostic criteria, labs, treatment, health promotion, disease prevention, patient education, genetic involvement, and management including: multiple sclerosis, cranial and peripheral neuropathies, spinal disc disease, coma, CNS trauma, Alzheimer's disease, delirium, cerebral palsy, Bell's palsy, Guillain-Barre syndrome, myasthenia gravis, headaches, infectious disorders, movement disorders, essential tremor, Huntington's disease, Parkinson's disease, seizure disorders, generalized convulsive disorder, generalized non-convulsive disorder, status epilepticus, muscular dystrophy, amyotrophic lateral sclerosis, vascular diseases, cerebral aneurysm, stroke, TIA, sleep disorders, and space occupying lesions.

Stroke Module:
- Define stroke, rank its relative incidence as a major cause of death, specify diseases commonly associated with stroke, differentiate between TIA, reversible ischemic neurological deficit, progressive stroke and completed stroke. For the different types of strokes, specify their more frequent etiologies, diagnostic workup, prevention, recommended treatment, and distinguish their common clinical manifestations. Rate the risk for thromboembolic disease through PMH, (i.e., history of rheumatic heart disease, valve replacement), PE (murmur to valvular disease, irregular heart rate to atrial fibrillation, carotid bruit, etc.) and lab studies (EKG - atrial fibrillation; echocardiography - valvular disease; carotid angiography).
- Distinguish signs and symptoms of thromboembolic disease complications of the following systems: peripheral vascular, neurological, ophthalmic, and pulmonary. Choose and explain the respective tests for the intrinsic and extrinsic coagulation pathways.
• Seizure Disorders: Identify general potential etiologies for the disordered electrical activity of the cerebral cortex. Distinguish and interpret the differences in presentation between different seizures. Recommend and specify the currently accepted medications used in seizure therapy.

• Demyelinating Disorders: Rank the most common age and geographic background for individuals first diagnosed with multiple sclerosis (MS). Integrate the ocular, bladder and peripheral neuropathic signs of MS. Order and interpret diagnostic tests and discuss the management of MS.

• CNS Infections: Distinguish between meningitis and encephalitis according to general location of infection. Select the most common groups of viruses and bacteria which are associated with meningitis. Identify historical and physical exam findings associated with meningitis and encephalitis. Specify the contraindications to the use of lumbar puncture as identified in the history and physical exam, utilize history, physical exam and combined CSF and CT findings to diagnose CNS infections. Discuss/recommend the treatment of meningitis and encephalitis.

• Syncope/Coma and Delirium/Dementia: Assess the disorders of consciousness and higher brain function. Differentiate between the terms coma, consciousness, stupor, hypersonnia, delirium, vegetative state, locked-in state, dementia and brain death. List the most common causes of stupor and coma. Discuss delirium and dementia in regards to epidemiology, etiology, course and treatment.

Neurologic Module:
• Differentiate vertigo and benign positional vertigo.
• Distinguish vertigo from dizziness.
• Distinguish and list the characteristics of central and peripheral vertigo.
• Discuss/debate/recommend the treatment for vertigo.
• Distinguish and reason the etiology of weakness and distinguish between upper motor neuron disorders, lower motor neuron disorders, nerve root/peripheral nerve disorders and muscle disease.
• Discuss Tics and Tourette's syndrome including their manifestations, etiology and therapy.
• Define and differentiate between primary and secondary Parkinson's disease and construct its etiology, signs and symptoms, prognosis, and treatment.
• Define bradykinesia, rigidity, tremor, hemiparesis, micrographia and other terms commonly used to describe Parkinson’s disease.

• Headache and Facial Pain: Organize the different classifications, common precipitating factors, presenting symptoms, diagnostic workup, exam findings, laboratory findings, and treatment options for headache and facial pain.

• CNS Trauma: Discuss the role of serial neurologic exams in the evaluation of CNS injury. Specify the types of brain and spinal injuries and the respective etiologies. Discuss the clinical presentation, diagnostic workup, potential complications, and treatment of patients with suspected CNS trauma. Differentiate between the following terms: epidural/subdural/parenchymal hematoma, concussion, cerebral contusion, mass lesion, basilar skull fracture, cerebral hemorrhage, and coup/contrecoup.

• CNS Tumors: Specify the different classifications of intracranial and spinal space occupying lesions. Specify and interpret the clinical presentation of CNS tumors, including generalized and focal features. Specify and select the methods used in the diagnosis and treatment of CNS tumors. Discuss/debate the prognosis of CNS tumors.

• Evaluate and present case studies of patients with neurologic conditions, demonstrating an understanding of pertinent history, physical examination findings, pertinent diagnostic studies, and appropriate treatment plan.

Psychiatry Module:
• Discuss the clinical use of psychiatric assessment tools, pharmacotherapy, psychotherapy and counseling, and the DSM-IV.
• Define the following addictions with respect to their epidemiology, etiologies, clinical signs and symptoms, physical exam findings, diagnosis, treatment, and prognosis: alcohol, opiates, drugs, and
tobacco.

- Define the following with respect to their epidemiology, etiologies, clinical signs and symptoms, physical exam findings, diagnosis, treatment, and prognosis: situational anxiety disorder, generalized anxiety disorder, obsessive compulsive disorder, panic, phobia, dissociative disorder, PTSD, somatof orm disorder, conversion disorder, somatization disorder, hypochondriasis, factitious disorder, child and adolescent behavioral and emotional disturbances, chronic pain syndromes, ADHD, psychosexual disorders.

- Personality disorders, mood disorders, depression, bipolar disorder, sleep disorders, delirium, dementia, and cognitive disorders.

- Describe and discuss the components of a mental status exam and able to conduct the Mini-Folstein Mental Status Exam.

- Discuss and describe state of the art predictors of suicidal/homicidal risk and able to conduct an interview to assess these risks in an individual patient.

- Describe the multiaxial diagnosis and the major diagnostic categories within DSM-IV.

- Describe the components of an adequate assessment of ADHD in children, adolescents, and adults.

- Describe the psychosocial impact of chronic illness and death on patients and their families.

**Alternative and Occupational Medicine Module:**

- Discuss the training and role of occupational medicine practitioners.

- Review and describe each of the following: OSHA, NIOSH, DOT, NFPA, MRO, and MSDS.

- Review and discuss a case study involving an occupational medicine patient.

- Counsel patients about potential hazards in the community and workplace.

- Take an occupational and environmental screening history when the patient's complaints or physical findings suggest an occupational or environmental health hazard.

- Assess impairment and disability in the individual patient using knowledge about workman’s compensation and social security guidelines.

- Describe the ethical, legal, and regulatory concerns specific to occupational & environmental medicine.

- Demonstrate an understanding of relevant epidemiological, toxicological, and exposure factors; provide understandable information about risk reduction strategies; and discuss environmental risks in ways that exhibit sensitivity to patient’s health beliefs and concerns.

- Identify the informational, clinical, and other resources available to help address patient and community environmental health problems and concerns.

- Define and discuss the following: herbal remedies, Christian vs. non-Christian approaches to holistic health, clinically proven vs. “quack” forms of alternative therapy, truths and fallacies about supernatural healing, and ancient medical lore.

- Discuss and describe different forms of alternative medicine and how they may impact patient health.

**Geriatric Medicine Module:**

- Recognize and challenge many myths associated with aging.

- Effectively question and critique our culture's tendency towards ageism.

- Recognize the importance and growth of geriatrics as a relatively “young” specialty.

- Understand the value of effective communication with elderly patients.

- Describe the importance of demonstrating empathic concern toward the elderly while also valuing their dignity and autonomy.

- Produce a comprehensive geriatric evaluation that includes a medical and functional component.

- Differentiate dementia from delirium using a Folstein mini mental status exam.

- Develop the essential elements of a drug history when evaluating an elderly patient.

- Recognize potentially serious iatrogenic complications associated with prescription and over-the-counter drugs.
• Promote and recommend strategies to improve the functional status of geriatric patients.
• Understand the normal aging process versus pathologic senescence.
• Understand how age-related physiologic changes affect medical diagnosis, treatment, and outcome.
• Recognize those physiologic and anatomic changes that occur in the aging process, being able to differentiate between those findings that are considered normal in aging and those that are pathologic.
• Demonstrate competence in obtaining a history and appropriate physical exam in this population.
• Define the appropriate screening exams, both physical and laboratory/diagnostic, necessary to maintain the elder patient's health and well-being in terms of health promotion and disease/injury prevention.
• Recognize common pharmacotherapeutic issues in the treatment of the elderly including medication side effect profiles in the aged, polypharmacy, and weighing of treatment priorities vs. risks of medication therapies.
• Identify and evaluate for those complaints common in the elderly including: incontinence, dementia, delirium, depression, trauma secondary to falls and gait disturbances, nutritional and dietary issues in the aged, elder abuse, and care giver issues.
• Describe those medico legal concepts surrounding aging and end of life issues including powers of attorney, living wills, and advance directives including DNR orders.
• Describe the psychosocial issues surrounding advancing age and end of life decisions.
• Demonstrate knowledge and differentiation of rehabilitation, chronic care, occupational medicine, and palliative care.
• Define and differentiate care given in the above listed settings.
• Explain common issues and clinical decisions encountered in the above listed settings and demonstrate critical thinking skills to make decisions regarding patient care in these settings.
• Describe the health care team for rehabilitative medicine and the role of allied health professionals to include physical therapists, speech and language pathologists, prosthetists, orthotists, occupational therapists, etc.
• Describe various physical medicine modalities including diathermy, ultrasound, electrical stimulation, etc.
• Diagnose and manage the common musculoskeletal disorders including fibromyalgia, myofascial pain, repetitive motion disorders, chronic pain, and overuse syndromes.
• Recognize and prevent the complications of prolonged bed rest including contractures, pressure sores, DVT, osteoporosis, deconditioning, etc.
• Describe the differences among impairment, disability, and handicap.
• Describe the types of and indications for various therapeutic exercises including aerobic exercise.
• Describe the indications for various assistive devices to reduce disability including wheelchairs, prosthetics, orthotics, and others.
• Describe indications for, methods of, and involving factors related to palliative care.
• Define “disability” and rehabilitative medicine and be able to apply its principles to various situations as appropriate.
• Differentiate disease, impairment, disability and handicap and be able to apply rehabilitative principles as necessary.
• Understand the various components of rehabilitation.
• Understand and be able to utilize the individuals involved in the rehabilitation team.
• Define the different care settings utilized for rehabilitation and be able to decipher which is most appropriate for which conditions.
• Understand the process of assessment for rehabilitation potential.
• Differentiate between the acute care phase, rehabilitative phase and chronic phase of various conditions and the various therapeutic measures used in each.
ASSESSMENT
The final grade will be calculated as follows:

- End of module exams 60%
- Clinical Correlation Cooperative Group Assignments given each module 30%
- Full attendance & participation with professional behavior 10%

Final grades will be assigned based on the cumulative number of points earned expressed as a percentage of the total number of points possible.

Your grade will be determined by calculating the percentage of points you have earned out of all available points, and comparing your percentage to the standard grading scale (A = >90.00%, B = 80.00-89.99%, etc.) with appropriate adjustments made for + and - grades.