Tentative Syllabus for PA 603 - Clinical Medicine I

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COURSE DESCRIPTION
This is one 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 following modules: laboratory medicine, infectious disease, HEENT, dermatology, pulmonology, allergy and immunology, genetics, and gastroenterology. Students will develop a deeper curiosity about the art and science of clinical medicine, a passion about the field of medicine, and learn the skills of self-directed learning.

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 health care team.
12. Develop an emerging understanding of the importance of empathy and social skills in the practice of medicine.

Accomplish objectives in the following modules:

Laboratory Medicine Module Objectives:
- Define the terms: accuracy, precision, specificity, sensitivity and predictive values.
- State the indications for ordering all laboratory tests covered.
- Define the following tests: electrolytes, BMP, CMP, renal RBC, Hb, Hct, MCV, MCH, MCHC, RDW, Retic, ESR, platelets, hepatic panel, BUN, creatinine, and RBC differential and discuss their significance in relation to health and illness.
- Discuss how reference values/normal values are used to guide the practitioner in different age groups and populations.
- Define the terms: panic value and STAT.
- Understand test results and the implications associated with abnormal test results.
- Identify normal values and interfering factors for the lab tests covered.
• State the various test abnormalities and the significance of these abnormalities.
• State difference between hypo-hypernatremia, hypo-hyperkalemia, hypo-hyperchloremia, hypo-hypermagnesemia, hypo-hypercalcemia, hypo-hyperphosphatemia.

**Infectious Disease Module Objectives:**
• Describe and identify the work-up and assessment of a patient with an infectious disease.
• Review and describe the following issues associated with pathogenesis: transmission, adherence, invasion, inflammation, gram positive and negative toxins, and stages of infectious disease.
• Explain how infectious agents are identified and how epidemics arise and spread.
• Describe the role of pharmacotherapeutics in the treatment of infectious disease.
• Compare and contrast infectious organisms including: gram+ and –bacteria, rods and cocci, viruses, viroids, and prions.
• Describe the appropriate use and results, in terms of involved organisms, gained from: blood cultures, sputum, CSF, stool, urine, genital tract, and wound cultures.
• Define the following terminology with respect to viral classification: general structure and function, DNA, RNA, and diagnostics.
• Define the following with respect to common fungal organisms: structure and growth, infections, and diagnostics.
• Define basic classification of human parasites and the tissues involved in infestation.
• State and discuss the essentials of diagnosis and treatment for the more commonly seen infectious diseases in the following disease types: bacteremia, sepsis, HIV, influenza, URI’s, herpes, mycotic diseases, Rickettsial diseases, STD’s, spirochetal diseases, protozoal diseases, helminthic diseases, zoonotic diseases.
• Describe how vaccines work and differentiate those that are live and those that are not. List the most common types of vaccines and explain when they are indicated.
• Describe the workup of fever of unknown origin.

**HIV/AIDS Objectives:**
• Specify the known routes of HIV transmission and how workers are most commonly exposed in the healthcare setting.
• Utilize and choose appropriate universal precautions when providing care for patients.
• Generalize the general epidemiological trends of HIV infection with specific consideration to various population, cultural, and regional subsets.
• Summarize the immunologic consequences of HIV infection.
• Specify the components of a thorough patient history related to HIV infection risk.
• Counsel patients regarding the recognized modes of transmission of HIV.
• Identify and evaluate patients who are at risk for HIV infection and for whom testing should be recommended.
• Predict sensitivity and specificity for ELISA and Western Blot testing in high- and low-risk populations.
• Appropriately evaluate common problems such as cough, fever, lymphadenopathy, and diarrhea in the HIV infected patient through history, physical and laboratory studies.
• When performing a physical exam, recognize common abnormalities associated with HIV infection such as dermatological problems, Kaposi’s sarcoma, neurological problems and wasting, and assess their relative significance.
• Choose appropriate prophylactics and treatment for HIV patients.
• Given physical exam findings and/or laboratory results, the student will classify the stage of HIV
disease according to the criteria used by the CDC.
• Discuss/debate the management principles and issues in HIV infection and AIDS.

Otorhinolaryngology and Ophthalmology Module Objectives:
• Differentiate between tumors and disease of the eyes, urgent conditions of the eye and common non-urgent problems.
• Develop and assimilate a working knowledge of conditions that may present as eye pain, eye redness or visual loss. This will include but not be limited to: corneal foreign body, corneal abrasions, actinic cataracts, contact lens cataracts, cornea ulcer (bacterial and viral), herpes simplex infections, and acute narrow angle glaucoma.
• Compare and contrast the different etiologies of a red eye which includes: acute conjunctivitis, corneal trauma or infection, acute iritis, and acute glaucoma.
• Specify and differentiate the causes of acute visual loss which includes but will not be limited to: central or retinal artery occlusion, hemorrhage, retinal detachment, optic neuritis, temporal arteritis, CVA, and hysterical blindness.
• Judge and select the indications for immediate referral to an ophthalmologist for the various types of eye trauma which will include: chemical burns, blunt and penetrating trauma, conjunctival injury, cornea injury, iris injury, anterior chamber injury, lens injury, and globe rupture.
• Evaluate and present case studies of patients that have HEENT diseases, demonstrating an understanding of pertinent history, physical examination findings, pertinent diagnostic studies, and appropriate treatment plans.
• Differentiate between the following HEENT illnesses in terms of their etiological organisms, clinical presentation, laboratory findings, prevention, genetic involvement, and management of: common cold, sinusitis, influenza, rheumatic fever, otitis media, rhinitis, nasal polyps, streptococcal pharyngitis, tonsillitis, peritonsillar abscess, aphthous ulcers, oral candidiasis, oral leukoplakia, oral herpes, laryngitis, dental disease, periodontitis, diphtheria, mononucleosis, mastoiditis, otitis externa, parotitis, SOM, and thrush.
• Specify the etiology, pathogenesis, describe the clinical presentation, collect/order/interpret the appropriate laboratory workup, recommend/choose the appropriate management or pharmacological treatment and summarize the complications of the diseases and disorders noted.
• Approach and address patients’ with nasal discharge and differentiate between infectious etiologies compared to noninfectious etiologies.
• Be able to distinguish between and choose appropriate therapies for anterior epistaxis and posterior epistaxis.
• Compare and contrast the clinical presentation of croup and upper bronchitis and establish/choose emergency principles to the management of each.
• Describe and explain the types of inner ear diseases and how they are evaluated and treated including: tinnitus, Meniere’s disease, acoustic neuroma, and vertigo.
• Identify the indications and benefits of an audiology evaluation, and demonstrate the ability to prescribe an appropriate referral when necessary.
• Demonstrate the ability to properly diagnose, treat, and refer when necessary conditions of the ear including: barotraumas, cerumen impaction, tympanic membrane perforation, and foreign bodies.
• Define and determine warning signs of the most common tumors and cancers found in the ENT system including: cervical/auricular/parotid lymphadenopathy, thyroid mass, squamous cell carcinomas of the mouth, skin cancers of the head and face, and salivary gland tumors.
• Differentiate the following ENT emergent problems and describe the treatment for each: fractures, abscesses, foreign body, epistaxis, and ENT injuries.
• Describe and discuss the adverse effects of tobacco on the HEENT system.
• Describe diagnostic imaging including radiographs, CT, MRI procedures in ENT disease.
• Describe the specialty of speech pathology and explain when patients should be referred.
• Describe and discuss the physiology of speech.
• Recognize and inspect the anatomical land marks related to the external, inner and middle ear.

Pulmonology Module Objectives:
• Describe the physiologic function of the pulmonary system.
• State the symptoms and signs of pulmonary disease.
• Properly identify metabolic and respiratory acidosis and alkalosis when given the results of an arterial blood gas.
• Diagnose restrictive and obstructive lung disease when given the results of a pulmonary function study. The student will also be able to define the severity of the obstruction or restriction.
• Identify and list the signs, symptoms, risk factors, genetic involvement, prevention, diagnostic workup, prognosis, and treatment of the following pulmonary diseases: asthma, COPD, acute respiratory failure, bronchiectasis, cystic fibrosis, acute bronchitis, bronchiolitis, pneumonia, tuberculosis, pulmonary embolism, pulmonary hypertension, lung cancer, sarcoidosis, interstitial lung disease, autoimmune diseases, sarcoidosis, pneumoconiosis, TB, and diseases of the pleura.
• Describe a system for smoking cessation.
• Describe the workup of a patient with cough, hemoptysis, and/or SOB.
• When given a chest x-ray, describe a proper technique in evaluating the film and demonstrate the ability to diagnose lung disorders based on the chest x-ray.
• List the common laboratory tests/procedures used to evaluate the respiratory system and their general indications as well as the type of information obtained from each.
• Define the following terms and recognize their significance in terms of normal and abnormal pulmonary function: lung compliance, stiffness, and elasticity, airway resistance, V/Q ratio, shunting, COPD, and restrictive pulmonary disease.
• Define and revise the following pulmonary function terms and value the effects of restrictive and obstructive pulmonary disease upon them: FEV1 and FEV2, V.C. and FVC, R.V. and FRC, TLC, and ABG’s.
• Identify and differentiate the associated physical exam findings and environmental stressor and choose appropriate treatment regimens for a patient with acute and chronic asthma, wheezing, and bronchospasm.
• Quantify and measure the level of respiratory distress with asthma through: PFT’s, especially peak flow measurement and ABG’s, especially O2 and CO2 saturation.
• Evaluate the patient’s response to treatment according to history, physical examination and PFT results.
• Rank the important causes of chronic cough and hemoptysis.
• Differentiate between localized pulmonary infiltrate, pulmonary cavitation and solid pulmonary lesion and specify several common causes of each.
• Discuss the statistical incidence, mechanisms for spread, areas of common metastasis, related complications, prognosis, and basic management plans of different types of lung cancer.
• Be able to diagnose and urgently refer a patient who presents with a pneumothorax.
• Use laboratory results and radiographic findings to distinguish between different types of pneumonia.
• Specify the populations most at risk for the different types of pneumonia.
• Explain the appropriate use of tuberculin skin testing in terms of agents used indications, techniques and interpretation.

Allergy and Immunology Module Objectives:
• Define the physiology and pathophysiology of allergic response and immunologic dysfunction.
Dermatology Module Objectives:

- Identify the different hypersensitivity reactions and distinguish which one a patient may have based on the history and physical examination.
- Name the diagnostic and lab tests for allergies and immunologic problems, and interpret the results including: CBC, nasal smear, RAST test, immunoglobulins, ABO/RH typing, and HLA tissue typing.
- Define the essentials of diagnosis and treatment of allergic conditions of the nose, eyes, throat, mouth, skin, and physical allergies, including, but not limited to, the following disorders: allergic rhinitis, allergic conjunctivitis, anaphylaxis, urticaria, physical allergies, drug hypersensitivity, food allergies, serum sickness, and asthma.
- Define and differentiate autoimmune and immunodeficiency disease in general terms from common primary care diagnoses and determine how a patient should be tested or when referred to a specialist.
- Evaluate and present case studies of patients that have allergic and immunologic diseases, demonstrating an understanding of pertinent history, physical examination findings, pertinent diagnostic studies, and appropriate treatment plans.
- Define the immunotherapy of environmental and drug and food allergies and the management in primary care.
- Identify and define the pharmacologic and non-pharmacologic therapeutics of designated allergic and immunologic diseases.
- Evaluate a patient with an allergic problem and formulate a treatment plan in connection with the ENT and Ophthalmology module in a mock patient format.
- Define, distinguish, and interpret laboratory findings in relation to allergy and immunology.

Dermatology Module Objectives:

- Describe a skin eruption or lesion, using appropriate dermatologic terminology.
- Describe appropriate uses of common dermatologic preparations (such as creams and ointments).
- Have an understanding of the typical presentation and basics of treatment for dermatologic conditions that present in primary care.
- Recognize common skin disorders such as acne vulgaris, viral cutaneous eruptions, psoriasis, dermatitis, hyperkeratotic lesions, eczema, and lichen planus.
- Describe the etiological factors and clinical features of skin cancer, benign and malignant melanotic skin lesions.
- Describe the features of uncommon but potentially life-threatening dermatologic conditions such as: Erythema multiforme, pemphigus, pemphigoid, lupus erythematosus and scleroderma.
- Understand the principles of treatment available for skin disease.
- Recognize the features of skin lesions that suggest possible malignancy.
- Be able to counsel patients in strategies for prevention of skin cancer.
- Define the following terms with regards to describing dermatologic conditions and apply each definition appropriately when presented a dermatologic condition: primary lesion, macule, papule, plaque, patch, nodule, pustule, vesicle, bulla, wheal, cyst, tumor, telangiectasia, secondary lesion, scale, erosion, ulcer, fissure, crust, erythema, excoriation, atrophy, scar, edema, depigmentation, hyper/hypopigmentation, lichenification, hyperkeratosis, symmetrical vs. asymmetrical distribution, sun exposed areas, disseminated, grouped, smooth, scaly, keratoses, exudative, friable, crusted, warty, umbilicated, soft, firm, superficial vs. deep, color, well-circumscribed, poorly defined, active or raised border, round, oval, irregular, pedunculated, annular, linear, serpiginous, and reticular.
- Elicit an appropriate history from a dermatologic patient including: time since onset, duration of rash or lesion, relationship to physical agents, itching or pain, size or color changes, past history, family history, social history, and previous treatment.
- Describe the current status of sunscreens and patient education regarding UVA and UVB.
Describe the following special signs and tests related to dermatologic conditions: Darier’s sign, Auspitz sign, Nikolsky sign, Koebner phenomenon, patch test, and diascopy.

Describe and discuss the components to successful use of topical medicines including: correct diagnosis, type of lesion being treated, the medication, the vehicle used to deliver the medication, and the method used to apply the medication.

For each of the following, describe characteristics and when it would be used: lotion, cream, gel, ointment, emulsion, paste, wet dressing, bath soaks, powder, or fixed.

Describe the diagnosis and treatment of the following papulosquamous diseases: seborrhea, psoriasis, pityriasis rosea, miliaria, and lichen planus.

Describe the diagnosis and treatment of the following vesiculobullous diseases: pemphigoid, pemphigus vulgaris, dyshidrotic eczema, erythema multiforme, dermatitis herpetiformis, and epidermolysis bullosa.

Describe the diagnosis and treatment of the following dermatitis conditions: contact dermatitis, eczema, generalized exfoliative dermatitis, nummular dermatitis, stasis dermatitis.

Describe the diagnosis and treatment of viral exanthemas, macular, and urticarial eruptions.

Describe the diagnosis and treatment of the following nodular diseases: erythema nodosum, granuloma annulare, and sarcoidosis.

Describe the diagnosis and treatment of the following pruritic conditions: scabies, lichen simplex chronicus, and pediculosis.

Describe the diagnosis and treatment of the following cutaneous infections: impetigo, erysipelas, cellulitis, lymphangitis, folliculitis, furuncles, carbuncles, and erythrasma.

Describe the diagnosis and treatment of the following viral infections: herpes simplex, herpes zoster, varicella, verruca, molluscum contagiosum.

Describe the diagnosis and treatment of the varied fungal infections of tinea and onychomycosis.

Describe the diagnosis and treatment of the following: acne, rosacea, hyperhidrosis, pityriasis alba, and vitiligo.

Describe the diagnosis and treatment of the following benign and premalignant skin conditions: hidradenitis suppurativa, pyogenic granuloma, corns and calluses, epidermoid cyst, acrochordons, xanthelasma, seborrhic keratosis, lipoma, dermatofibroma, keloid, hemangioma, Bowen’s disease, and actinic keratosis.

Describe the diagnosis and treatment of the following malignant disorders: Basal cell carcinoma, Squamous cell carcinoma, Melanoma, Kaposi’s sarcoma, and Cutaneous lymphoma.

Describe the following nail problems: Paronychia, Ingrown nail, subungual hematoma, Leukonychia, Habit-Tic deformity, Onycholysis, Koilonychia, Beau lines, and mucous cysts.

**Genetics Module:**

- Explain the importance of disease prediction and its implications for disease prevention.
- Possess a basic understanding of DNA and heredity.
- Understand how genes are organized into chromosomes, how chromosomes replicate in mitosis and meiosis, and how they are transmitted from parent to child.
- Know the patterns of inheritance characteristic of autosomal dominant, autosomal recessive, X-linked dominant and X-linked recessive traits.
- Obtain a comprehensive family medical history and construct an appropriate medical pedigree.
- Recognize patterns of inheritance and other signs suggestive of genetic disease in the family history.
- Elicit a comprehensive family medical history, construct an appropriate medical pedigree, and recognize patterns of inheritance and other signs suggestive of genetic disease in the family history.
- Describe the clinical manifestations of common Mendelian diseases.
• Understand the basic principles of inborn errors of metabolism and of pharmacogenetic variations and their general clinical manifestations.
• Understand how knowledge of a patient's genotype can be used to develop a more effective approach to health maintenance, disease prevention, disease diagnosis, and treatment for that particular individual.
• Understand how constitutional and acquired genetic alterations can lead to the development of malignant neoplasms and how identification of these changes can be used in the diagnosis, management and prevention of malignancy.
• Know conventional approaches to treatment of genetic diseases and the general status of gene-based therapies.
• Understand the purpose of genetic counseling.
• Communicate genetic information in a clear and non-directive manner that is suitable for individuals of different educational, socio-economic, ethnic and cultural backgrounds.
• Understand how legal and ethical issues related to genetics affect general medical practice.

Gastrointestinal Module:
• Specify the common tests and procedures used in the evaluation of GI disease.
• Specify the common diseases of the esophagus, stomach, liver, gallbladder, pancreas and intestines.
• Form a differential diagnosis for abdominal pain.
• Integrate historical clues including onset, character and severity to rule out serious pathology.
• Grade physical exam findings of appearance and location of the pain to rule out serious pathology.
• Recommend, collect and measure lab data including UA, CBC, electrolytes, amylase and lipase to rule out serious pathology.
• Identify the etiologies, describe the common presentations, diagnostic workup, preventative measures, appropriate physical exam, genetic component, prognosis, risk factors, complications and recommend appropriate management for the following GI disorders: esophagitis, hiatal hernia, peptic ulcer disease, gall bladder disease, diverticulosis, diverticulitis, dysphagia, Malabsorption syndromes, Mallory-Weiss syndrome, Peutz Jeghers syndrome, esophageal varices, diarrhea, pancreatitis, gastroenteritis, IBD, IBS, Crohn's disease, appendicitis, ulcerative colitis, GERD, hiatal hernia, motility disorders, GI bleed, proctitis, pancreatitis, Zollinger-Ellison syndrome, bezoars, GI neoplasms, cholecystitis, cholelithiasis, mesenteric ischemia, anorectal disorders, hemorrhoids, anal fissures, proctitis, pruritus ani, rectal prolapse, anal fistulas, chronic liver disease, hepatitis, and gallbladder disease.
• Recognize signs and symptoms and select treatment for of a perforated viscus including: rigidity, rebound, and increased WBC.
• Select and interpret laboratory studies for the GI diseases noted.
• For colorectal cancer, specify its incidence, anatomical distribution, and staging, areas of metastasis, etiology, clinical manifestations, workup, findings, screening and treatment.
• Given a patient with altered bowel movement irregularity, distinguish between the signs and symptoms of inflammatory bowel disease and irritable bowel syndrome.
• Identify and differentiate between various etiologies for diarrhea including: Salmonellosis, Shigellosis, pseudomembranous enterocolitis, Campylobacter jejuni, enteropathic E. coli, vibrio cholera, giardiasis, Amebiasis, cryptosporidiosis, Toxoplasmosis, lactose intolerance, celiac disease, bile duct abnormalities, Crohn's disease, and Ulcerative colitis.
• After identification of the underlying etiology, select first-line treatment regimens for the different types of diarrhea.
• Given a patient whose diarrhea has resolved and who wishes to return to a normal diet, the student will select a dietary regimen which will allow the intestinal flora to return to normal.
• Given a patient at risk for benign/malignant lesions of the GI tract, the student will specify those risks as elicited through history.
• Distinguish between hemoccult, sigmoidoscopy, and air contrast barium enema as screening tools according to: cost, sensitivity, and specificity.
• Differentiate the difference which intervention makes in early vs. late Duke stage colon CA.
• Specify risks signs and symptoms for CA of the GI tract and organs.
• Identify through history possible risk for cirrhosis such as: ETOH, hepatitis, or other ingested toxins.
• Distinguish through physical exam and laboratory results two main stages of cirrhosis.
• Identify other signs of chronic liver disease including: portal hypertension, esophageal varices, hypoalbuminemia, spider angioma, gynecomastia, and jaundice.
• Distinguish between common modes of transmission for hepatitis A, B, C and D.
• Recognize possible acute and chronic signs and symptoms such as jaundice, liver inflammation associated with hepatitis A, B, C and D.
• Interpret the hepatitis panels/profile to distinguish between hepatitis A, B, C and D, including acute and chronic carrier status.
• Discuss/recommend the appropriate treatment of the above liver disorders.
• Utilizing historical clues, the student will determine if the probable underlying cause for pancreatitis is secondary to obstructive or non-obstructive causes.
• Develop a diagnostic plan and differential diagnosis for: abdominal pain (chronic/acute), nausea, vomiting, constipation, diarrhea, and jaundice.
• List infections of the GI tract to include: gastroenteritis, antibiotic colitis, food poisoning, diverticulitis, and describe their symptoms and physical findings as well as appropriate treatment.
• Select and interpret appropriate diagnostic studies of the GI and biliary systems to include x-ray, CT, MRI, fluoroscopy, endoscopy, and barium studies.
• Evaluate and present case studies of patients that have gastrointestinal/biliary diseases, demonstrating an understanding of pertinent history, physical examination findings, pertinent diagnostic studies, and appropriate treatment plans.

ASSESSMENT AND GRADING

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

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.

The instructor reserves the right to use subjective evaluations to elevate any student’s grade at the end of the semester, but I will not do this to lower any student’s grade. I will make every effort to ensure that your final grade corresponds to the Grading System as described in the program catalog. No grades will be dropped.