Jordan University of Science and Technology

FACULTY OF MEDICINE
DEPARTMENT OF INTERNAL MEDICINE

Core Curriculum for 4th year Medical Students

Course Title:	General Internal Medicine
Course Code:	MED 422
Credit Hours:	9 Credit hours
Sequence:	Year 4, 10 Weeks
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Course Description

This core curriculum is designed to develop clinical competence, to foster appropriate attitudes toward professional responsibility as a physician and to introduce the student to the specialty of Internal Medicine. The emphasis will be on the internist's method and approach to the care of the patient. Both cognitive and non-cognitive learning will be primarily patient oriented. Students are assigned to one of four hospitals. All sites offer the benefits of a major teaching center with outstanding attending faculty. Teaching sites are closely monitored to ensure comparability. The depth and scope of clinical encounters during the 10-week rotation are comparable among sites as evidenced by student feedback, and clerkship evaluations. This course provides a systemic and basic overview of the most common diseases and treatments within internal medicine with placing the emphasis on patient interview, physical examination, problem identification, and case presentations. The focus will be on participation and dialogue, including different educational methods intended to optimize the learning outcome. During the course, multiple teaching bedside sessions will be devoted to each of the following specialties; Cardiology, Pulmonary and Critical care Medicine, gastrointestinal diseases, Hematology and oncology, rheumatology, nephrology, endocrinology, allergy and immunology and infectious medicine. The course will combine bedside group discussions, and lectures. Active student participation is a requirement. With diverse roles, the attending physician and Internal Medicine residents actively participate in student teaching. Although the students will have ample learning opportunities through their participation in case-presentations and discussions, teaching conferences, and lectures, their self-learning through reading and effective use of the medical libraries and learning resources will be stressed throughout the clerkship. The eventual goal is to develop the basic skills that will allow each student to continue independent learning and problem solving.

Course Learning Outcomes

The clinical clerkship in Internal Medicine is intended to enable the medical student to understand the clinical correlation of basic science knowledge acquired from prior years and to acquire further medical information and clinical skills necessary for understanding and management of commonly encountered medical problems and diseases of adult patients. By the end of this course, students are expected to:

1. Take proper clinical history, conduct proper clinical examination, and detect physical signs of common medical illnesses and learn how to obtain a thorough history and perform an appropriate physical examination in a time- efficient manner.
2. Present clinical data in both written and oral form in a clear and cogent fashion.
3. Acquire basic information with respect to pathophysiology and differential diagnoses of common medical problems as well as opportunities for health maintenance and illness prevention.
4. Generate a problem list or differential diagnosis for common medical problems
5. Investigate common medical problems in a rationale way
6. Acquire essential knowledge about common diseases affecting various organ systems
7. Build up proper relations with patients, colleagues, staff members, nurses, and technicians working in the hospital
8. Recognition of the constantly evolving nature of knowledge and the value of intellectual curiosity and lifelong learning,
9. Further, develop learning skills, including problem solving, group process, independent study and use of the literature.
10. Recognition and appreciation of one's own limits, values and need for growth as well as recognition of one's own response to criticism
11. Development of personal characteristics including professional appearance and appropriate balance between one's personal and professional life.
12. Develop a more realistic view of primary care internal medicine practice and of the varied structures of health care.

Methods of Instruction/Learning strategies:

- Patient encounters (inpatient and outpatient clinics)
- Bedside teaching sessions
- Small group discussions
- Lectures, covering the most common medical problems

Teaching Method:

1. Medical Students main group rotating during the 10 weeks course will be divided into **11-12 subgroups,** and rotate equally through 3 different outside hospitals, in addition to King Abdullah University hospital (KAUH), the main teaching hospital Jordan University of Science and Technology (JUST).
2. At each individual week, the subgroup will rotate according to the following hospitals distribution;
   A. **5-6 subgroups** will rotate at KAUH. Students will be directly supervised by teaching faculty members and with active participation of senior internal medicine residents and fellows. Teaching will be in a form of bedside case presentation and discussion.
   B. **4 subgroups** will rotate at Prince Rashid Military Hospital (PRMH), in Irbid, with a formal case presentation and discussion with distinguished designated teaching Faculty Members.
   C. **1 subgroup** will rotate at Prince Haya Military Hospital (PHMH), in Ajloun, with a formal case presentation and discussion with distinguished designated teaching Faculty Members.
   D. **1 subgroup** will rotate at King Talal Military Hospital (KTMH), in Mafraq, with a formal case presentation and discussion with distinguished designated teaching Faculty Members.

Recommended Textbooks

1. *Harrison's Principles of Internal Medicine,* Latest Edition
2. *Davidson's Principles and Practice of Medicine*, Latest Edition
3. *Kumar and Clark Clinical Medicine*, Latest Edition.
4. *Godman-Cecil Medicine, Latest Edition*
5. *CURRENT Medical Diagnosis & Treatment, Latest Edition*
6. *McLeod's Clinical Examination,* Latest Edition.
7. **Students' Choice:**
   i. *Step-Up To Medicine, (Step-Up series),* Latest Edition
   ii. *Kaplan Internal Medicine (CK),* Latest Edition.
8. Recommended **Handbooks:**
   i. Harrison's Manual of Medicine
   ii. Essentials of Kumar and Clark's Clinical Medicine
   iii. Oxford Handbook of Clinical Medicine
   iv. The Massachusetts General Hospital Handbook of Internal Medicine

Lectures Objectives:

1	Electrocardiogram (ECG)	1. Understand electrocardiography 2. Learn the right placement of ECG electrodes 3. Learn the basics of ECG (standardization, voltage, speed and time of ECG paper) 4. Understand normal ECG (direction of normal ECG potentials, position and axis). 5. Understand Learn how to differentiate simple ECG abnormalities, such as LBBB, RBBB and chamber hypertrophies.
2	Stable Coronary artery disease (CAD)	1. Describe the pathophysiology of CAD. 2. Describe and define stable angina including signs and symptoms at time of presentation. 3. Understand the grading of angina severity according to the Canadian cardiovascular society grading of angina pectoris. 4. Demonstrate knowledge of targeted risk factor management 5. Outline the pharmacological management of stable CAD. 6. Demonstrate knowledge of appropriate investigations and interventions for stable CAD (Angina)
3	Acute Coronary Syndrome (STEMI and NSTEMI)	1. Understand the definition of ACS 2. Learn the difference between Unstable Angina (UA), ST-Elevation Myocardial infarction (NSTEMI), and Non-STEMI (NSTEMI) 3. Learn how to risk stratify UA/NSTEMI 4. To be Familiar with the basic management of ACS
4	Cardiomyopathy (CMP)	1. Understand the international classification of primary CMP 2. Know the clinical presentation of all types of CMP with focus on hypertrophic CMP 3. Recognize the natural history of CMP, prognosis and possible outcomes especially if untreated. 4. To be familiar with the diagnostic approach to all CMP and physical findings in Hypertrophic obstructive Cardiomyopathy (HOCM) 5. Know the main pathways of management and treatment
5	Valvular heart disease	For each of the following valvular defects (aortic stenosis, aortic regurgitation, mitral stenosis, mitral regurgitation); the students will need to achieve the following objectives: 1. Know the common causes leading to the valvular defect. 2. Understand the pathophysiologic consequences for the valvular defect 3. Understand the signs and symptoms due to valvular defect 4. list and understand the diagnostic investigations to diagnose and stage the valvular defect 5. Define management plans for each valvular defect according to the 2014-AHA guidelines
6	Heart Failure (HF)	1. Learn the clinical definition, symptoms and findings of HF 2. Learn the functional classification (NYHA) and classification regarding systolic function. 3. Understand the pathophysiology of HF, inclusive causes and natural progression 4. Understand the basics of treatment (pharmacological and non-pharmacological) 5. Understand prognosis of HF.
7	Arterial hypertension (HTN)	1. Learn the definition and fulfilling points for diagnosis of HTN according to JNC 8th report for detection, evaluation and treatment of high blood pressure (BP) and comparing it with AHA and ACC guidelines. 2. Defining essential and secondary causes of HTN. 3. Learn the initial and secondary set of investigation. 4. Understand stratification of grades of high BP for the sake of treatment. 5. Learn the classes of antihypertensive drugs and discussion of the main side effects and considering the associated compelling and contraindicating condition of their use.

8	Infective endocarditis (IE)	1. Know the risk factors for developing IE, mainly cardiac factors and most common organisms' encounters 2. Learn how to establish the diagnosis using the modified Duke's criteria, (major and minor). 3. Recognize clinical physical findings of endocarditis 4. Know the complications and outcomes of Subacute Bacterial Endocarditis (SBE) 5. Know the groups of patients whom to give antibiotics for prophylaxis against SBE. 6. Know how to treat IE, and antibiotics to use.
9	Pericardial Diseases	1. Learn definitions and diagnostic criteria for pericarditis and how to apply them in clinical practice. 2. Learn classification of pericardial effusion. 3. Learn and apply old and new therapeutic options for refractory recurrent pericarditis and pericardial effusion 4. Learn strengths and weaknesses of different imaging methods for pericardial diseases and select the best imaging method according to the patient and specific diagnostic target
10	Asthma	1. Know the definition of asthma, and discuss risk factors for asthma 2. Understand the pathophysiology of atopic and non-atopic asthma 3. Identify the role of spirometry and peak flow meter in the diagnosis and management of bronchial asthma 4. Describe the mechanism of action, route of administration, and common side effects for different classes of asthma medications including new biological drugs 5. Know the 5 steps of asthma treatment according to GINA guidelines 6. Understand how to step up and step-down asthma treatment according to level of control 7. Know the definition of asthma exacerbation and identify the features of life-threatening asthma, and how to manage exacerbations
11	COPD	1. Know the definition of COPD and discuss the risk factors for COPD 2. Understand the pathophysiology of COPD, and how chronic bronchitis and emphysema lead to airway obstruction 3. Identify how to diagnose COPD, and assess the severity 4. Describe the mechanism of action of various drugs used in COPD 5. Highlight the role of smoking as a major risk factor for COPD, and how to help patients quit smoking 6. Recognize that COPD is a systemic disease and identify comorbidities associated with COPD 7. Define COPD exacerbation and know how to manage exacerbations 8. Know types of respiratory failure that complicate COPD and know how to manage them and their effect on prognosis
12	Hemoptysis	1. Learn definition of Hemoptysis and how to differentiate Hemoptysis from GI & Nasopharyngeal bleeding 2. Understand the pathogenesis of Hemoptysis 3. Learn different Classifications of Hemoptysis 4. Learn the approach to patient with Hemoptysis 5. Understand the diagnostic work up for patient with Hemoptysis 6. Learn the assessment of severity of Hemoptysis (Massive & non-massive) 7. Understand management of Massive & non-massive Hemoptysis.

13	Tuberculosis	1. Discuss the epidemiology and risk factors for tuberculosis 2. Identify mode of transmission of pulmonary tuberculosis and pathogenesis of different types of tuberculosis, (primary, latent and reactivation TB) 3. Know how to confirm the diagnosis of pulmonary tuberculosis 4. Outline the goals of treating pulmonary tuberculosis and how to fulfill these goals 5. Discuss first line drugs used for treatment of tuberculosis, and know second line drugs 6. Discuss the role of vaccines as a preventive measure 7. Discuss factors that lead to drug resistance and identify different types of drug resistance
14	Pneumonia	1. Learn definition of Pneumonia & Pneumonitis 2. Understand the pathogenesis of Pneumonia 3. Understand different Classifications of Pneumonia; a. Community Acquired Pneumonia (CAP) b. Nosocomial / Hospital Acquired Pneumonia c. Healthcare Associated Pneumonia d. Aspiration Pneumonia 4. Learn the approach to Pneumonia and differential Diagnosis 5. Learn how to assess severity of Pneumonia 6. Understand diagnostic work up for patient with neumonia 7. Management of patient with pneumonia
15	Arterial blood gases (ABG)	1. Understand the basic physiology of acid-base balance 2. Understand different Acid-base disorders 3. Understand the rules of compensation mechanisms 4. Learn the interpretation of major acid-base disorders 5. Solving acid base disorders – clinical cases
16	Pulmonary function test (PFT)	1. Learn different types of commonly performed PFTs 2. Understand the basic physiology of spirometry 3. Learn and understand the interpretation of spirometry: obstructive vs. restrictive 4. Understand how to obtain lung volumes and their clinical significance and application 5. Understand how to obtain Diffusing capacity of carbon monoxide (DLCO) and their clinical significance and application 6. Learn the algorithm for PFT interpretation 7. Discuss different clinical cases and PFT interpretations
17	Venous thromboembolism (VTE) and pulmonary embolism (PE)	1. Case presentation scenarios 2. Understand the risk factors of VTE 3. Learn and understand the clinical presentation of DVT and PE 4. Learn the diagnosis approach; labs and imaging 5. Learn different types of hereditary and acquired thrombophilia 6. Learn different options and lines of treatment both short and long-term therapy 7. Understand the prognosis of VTE and PE 8. Learn and understand different methods of prevention of VTE and PE
18	Interstitial lung disease (ILD)	1. Understand the underlying pathophysiology of ILD 2. Classify ILD and different underlying causes. 3. Describe the general features of ILD 4. Understand how to approach patients with ILD 5. Know the pathology and prognosis of the various types of ILD. 6. Know the common types of ILD and their pathologic characteristics with focus on Idiopathic pulmonary fibrosis and Sarcoidosis. 7. Understand staging and different treatment approach.

19	Lung cancer	1. Define and understand the general classification of lung cancer 2. Describe the general features and different clinical presentation of lung cancer including paraneoplastic syndromes. 3. Know the common types of lung cancer and their pathologic characteristics. 4. Know the staging mechanism and prognosis of the various types of lung cancer. 5. Understand the aspects of clinical evaluation for patients with lung cancer. 6. List and understand the required investigations for patients with lung cancer. 7. Understand the management outlines for lung cancer.
20	Bronchiectasis	1. Define and understand the general classification of Bronchiectasis. 2. Describe the general features of bronchiectasis. 3. Know the common types of bronchiectasis and approach with focus on cystic fibrosis. 4. Understand the aspects of clinical evaluation for patients with bronchiectasis exacerbation. 5. List and understand the required investigations for patients with bronchiectasis. 6. Understand and learn the latest update regarding management outlines for bronchiectasis.
21	Obstructive Sleep Apnea (OSA)	Medical students will learn and understand the following points: 1. General introduction about normal Sleep: a. Duration b. Function (Refreshing Restorative Sleep) 2. Staging of Sleep & Sleep hypnograms 3. Studying of sleep in the lab a. All-Night Polysomnogram b. Definitions of Apnea c. Definitions of Hypopnea d. Apnea Hypopnea Index (AHI) 4. Definitions of Sleep disordered breathing a. Obstructive Sleep Apnea b. Central Sleep Apnea 5. Pathogenesis of Obstructive Sleep Apnea 6. Clinical Presentation of Obstructive Sleep Apnea 7. Risks of Obstructive Sleep Apnea 8. Diagnosis of Obstructive Sleep Apnea 9. Management of Obstructive Sleep Apnea
22	Viral Hepatitis	1. Learn the epidemiology of viral hepatitis 2. Learn the Hepatotropic viruses 3. Learn the manifestations of acute and chronic viral hepatitis 4. Understand the complication of viral hepatitis 5. Learn the serological profile of acute and chronic viral hepatitis 6. Learn vaccinations for viral hepatitis 7. Learn treatment options of acute and chronic viral hepatitis
23	Autoimmune Hepatitis	1. Learn the definition, epidemiology and pathophysiology of autoimmune hepatitis 2. Learn the serological types of autoimmune hepatitis 3. Learn the manifestations of autoimmune hepatitis 4. Understand the diagnostic approach to autoimmune hepatitis 5. Learn treatment options of autoimmune hepatitis 6. Understand indications for liver transplant.
24	Inflammatory bowel disease (IBD)	1. Understand the definition and etiopathogenesis of IBD 2. Learn the epidemiology and genetics of IBD 3. Understand the clinical presentations and distribution of IBD 4. Learn the diagnostic approach to IBD; history and physical examination, laboratory testing, endoscopic features of Crohn's disease (CD) and ulcerative colitis (UC). 5. Learn the distinguishing features between CD and UC 6. Understand the complications of IBD

		7. Learn medical treatment options of IBD, both conventional and newer therapies 8. Understand indication of surgical intervention 9. Understand the global management of IBD patients; nutritional, psychological aspects, quality of life.
25	Diseases of the esophagus	1. Identify Important points in the anatomy, physiology and histology of the esophagus 2. Have some knowledge about motor disorders of the esophagus. 3. Identify reflux disease and esophagus with various definitions used. 4. Understand the symptoms, treatment and complications of reflux.
26	Peptic ulcer disease (PUD)	1. Understand the definition of peptic ulcer 2. Learn and understand causes and pathogenesis of PUD 3. Understand the rule of Helicobacter pylori in PUD 4. Understand approach and management of PUD
27	Liver Cirrhosis	1. Learn the definition of liver cirrhosis 2. Understand the causes of liver cirrhosis. 3. Understand and learn features of liver cirrhosis. 4. Identify features of decompensated liver cirrhosis and management. 5. Understand the role of liver transplantation in liver cirrhosis.
28	Diabetes Mellitus (DM)	1. Learn and understand the definition, and pathogenesis of DM 2. Learn the clinical features and causes of DM. 3. Understand to approach DM diagnosis 4. Understand the lines of management and different lines of therapy for DM. 5. Learn and understand complications of DM.
29	Pituitary disorders	1. Understand the anatomy of Pituitary gland. 2. Learn physiology and hormones of Pituitary gland. 3. Understand different disease of Pituitary gland; (Hypo-function, and Pan-hypopituitarism) 4. Learn and understand the definition, clinical features and causes of Pan-hypopituitarism. 5. Learn the diagnostic approach of Pan-hypopituitarism. 6. Understand the hormone dynamic testing of pituitary hormones 7. Learn therapy lines of Pan-hypopituitarism. 8. Learn and understand the definition, clinical features and diagnosis of Hypo-function of pituitary hormones. 9. Learn lines of treatments of Hypo-function of pituitary hormones.
30	Adrenal disorders	1. Understand the anatomy of Adrenal gland. 2. Learn physiology and hormones of Adrenal gland. 3. Understand manifestations of both excess and deficient hormonal effects. 4. Learn different causes of Adrenal gland disorders. 5. Learn lines of treatments of Adrenal disorders.
31	Thyroid disorders	1. Understand the anatomy of Thyroid gland. 2. Learn the pathophysiology of Thyroid disorders/diseases; (Thyroiditis, Hypothyroidism and Thyrotoxicosis). 3. Learn and understand the definition, clinical features and causes of Thyrotoxicosis. 4. Learn the diagnostic approach of Thyrotoxicosis 5. Understand the lines of management and treatment of Thyrotoxicosis. 6. Learn and understand the definition, clinical features and causes of Hypothyroidism. 7. The diagnostic approach of Hypothyroidism 8. Understand the lines of treatment of Hypothyroidism.

32	Nephrotic syndrome	1. Learn the definition of nephrotic syndrome 2. Understand the Pathophysiology of nephrotic syndrome 3. Learn clinical and pathological classification of nephrotic syndrome 4. Learn the approach to patients with proteinuria 5. Learn the work up for patients with nephrotic syndrome 6. Learn the causes of idiopathic nephrotic syndrome, focus on: a. Minimal change disease b. Focal segmental glomerulosclerosis c. Membranous nephropathy 7. Understand the management of patients with proteinuria a. Conservative management b. Immunosuppressant therapies
33	Nephritic syndrome	1. Learn the definition of nephritic syndrome 2. Understand the Pathophysiology of nephritic syndrome 3. Learn clinical and pathological classification of nephritic syndrome 4. Learn the approach to patients with nephritic syndrome 5. Learn the work up for patients with nephritic syndrome 6. Learn about Rapidly progressive Glomerulonephritis (GN), with focus on: a. Anti-GBM b. Pauci-immune c. Immune complex 7. Understand the lines of management of patients with Nephritic syndrome; a. Conservative management b. Immunosuppressant therapies c. Role of plasma exchange
34	Acute kidney injury (AKI)	1. Learn the definition of AKI. 2. Know the main causes leading to AKI. 3. Understand the pathophysiology of AKI, with focus on acute tubular necrosis (ATN). 4. To put a clear scheme in approaching a patient presenting with AKI, and understand the main diagnostic tests to be ordered. 5. To discuss the important points in managing a patient with AKI. 6. Know the main indication for dialysis in AKI patients.
35	Spondyloarthropathy	1. Learn how to differentiate between inflammatory and mechanical back pain 2. Understand what diseases are included under spondyloarthropathy 3. Know associated extra-articular manifestation, symptoms and signs 4. Learn what investigation to do and deferential diagnosis 5. Learn complications and treatment outlines
36	Gout	1. Learn what is crystal arthropathy 2. Understand the pathogenesis and common causes of gout 3. Learn clinical presentation and complications 4. Learn about acute gout treatment and preventive treatment options.
37	Behçet's Disease	1. Learn about the disease background, epidemiology and pathogenesis 2. Learn the clinical features and diagnostic criteria 3. Learn about the disease complications 4. Understand the lines of treatment
38	Familial Mediterranean Fever (FMF)	1. Learn about the disease clinical features. 2. Learn about the genetic mutation and importance of family history 3. Learn and understand complications associated with this disease 4-. Learn and understand the importance of treatment to prevent complication

39	Lymphoma and Leukemia	1. Learn the classification of leukemia and lymphoma, from indolent types till highly aggressive types 2. Learn and understand the approach to treatment of leukemia and lymphoma. 3. Understand prognosis and targeted treatments and brief description about chemotherapy and complications of treatment including neutropenic fever with focus on infection and the lines of treatment and choice of antibiotics
40	Anemia	1. Learn the commonest causes of anemia 2. Learn the clinical manifestations and the causes of the following types of anemia: a- Iron deficiency anemia b- Megaloblastic anemia c- Hemolytic anemia d- Other causes of anemia 3. Understand investigations and the blood film morphology of common causes of anemia 4. Learn the management lines of the commonest types of anemia
41	Thrombocytopenia	1. Learn the pathophysiology of thrombocytopenia 2. Learn the most common causes of thrombocytopenia, with focus on: a- Primary immune thrombocytopenia b- Disseminated intravascular coagulation c- Thrombotic thrombocytopenia purpura 3. Learn the clinical manifestations and clinical signs of the causes of thrombocytopenia listed above 4. Learn the investigations needed for finding the causes of the thrombocytopenia 5. Understand the management of thrombocytopenia according the underlying causes of thrombocytopenia
42	Oncology Emergencies	1. Learn the definition of Emergencies in Oncology 2. Learn about pathogenesis of oncological emergencies 3. Learn how to approach patients with suspected oncological emergencies 4. Learn how to identify oncology patients who needs urgent diagnosis 5. Learn the urgent laboratory and imaging needed for diagnosis when oncology emergency is suspected 6. Understand when to decide to admit the patient to ICU versus regular floor 7. Learn initial lines of treatment
43	Immunodeficiency and AIDS	1. Learn the types and examples of causes of ID. 2. Learn the presentations ID cases 3. Learn the principles of laboratory tests for ID patients and the management. 4. Learn the modes of transmission of the HIV.
44	Principles of palliative medicine	1. Understands what palliative care is, WHO definition 2. Understand the importance of multidisciplinary teamwork 3. Understand the concept of total pain 4. identify the social and spiritual aspects of management
45	principles of pain management	1. Identify types of pain: a. Nociceptive b. Neuropathic 2. Identify pain measuring scales 3. Assess pain in the unconscious 4. Understand pharmacological treatment of pain 5. Explain the WHO ladder for management of pain 6. Understand nonpharmacological management strategies of pain
46	Breaking bad news	1. Understand the SPIKES protocol, six-step protocol for delivering bad news 2. Describe the types of responses patients and families may have to receiving difficult medical news

Knowledge Areas

1. CARDIOVASCULAR SYSTEM

I. Knowledge/Mix of Diseases/Patients

A. Ischemic heart disease: unstable angina and myocardial infarction
B. Heart failure
C. Congenital heart disease with onset of manifestations in the adult
D. Valvular heart disease—causes
E. Clinical diagnosis of rheumatic fever
F. Hypertension: essential and secondary
G. Pericarditis
H. Arrhythmias
    1. Distinction between ventricular and supraventricular rhythms
    2. Atrial fibrillation, atrial flutter
    3. Heart block 1^{o}, 2^{o}, 3^{o}
    4. Bundle branch and hemiblocks
    5. Main supraventricular tachycardias

II. History Skills

A. Obtain history of risk factors for coronary artery disease
B. Obtain history for rheumatic fever or congenital heart disease
C. Recognize importance of family history in assessment of cardiovascular disease
D. Use all modalities in "pain" history to distinguish coronary artery disease from other causes of chest pain
E. In hypertensive patient, obtain careful history of medication compliance

III. Physical Exam Skills

A. Determine venous pressure by examination of neck veins
B. Assess arterial pulses and recognize pulsus alternans, bisferiens pulse, and paradoxical pulse
C. Perform hepatojugular reflux test to assess venous pressure
D. On cardiac auscultation, recognize:
    1. Systolic and diastolic murmur--effects of physiologic and pharmacologic interventions
    2. Pericardial friction rub
E. On cardiac auscultation, recognize:
    1. S_1, S_2 and normal physiologic splitting
    2. S_3, S_4, and how they are best appreciated
    3. Systolic and diastolic murmur--effects of physiologic and pharmacologic interventions
    4. Special characteristics of the murmur of MVP and HCM
    5. Pericardial friction rub

IV. Diagnostic Tests

A. Recognize a normal EKG and common EKG abnormalities
B. Recognize a normal Chest X-ray

V. Therapeutic Interventions

A. Know therapeutic indications for angioplasty and other therapeutic applications of catheterization
B. Describe therapeutic approach to clinical syndromes described in I.

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2. DISEASES OF THE KIDNEY AND URINARY TRACT:

I. Knowledge/Mix of Diseases/Patients

A. Acute renal failure--The student must distinguish prerenal, renal, and post renal disease using clinical and laboratory parameters
B. Chronic renal failure and its associated metabolic-endocrine, GI, cardiovascular hematologic, and neuromuscular complications
C. The major glomerulopathies
D. Tubulointerstitial disease
E. Vascular injury

II. History Skills

In the patient who presents with a problem of the urinary tract, the student will determine by history:
A. Frequency and volume of urine (polyuria, oliguria, anuria)
B. Urine color, hematuria
C. Dysuria, diminished stream
D. Effects of nephrotoxic drugs or drugs that effect bladder emptying or urine color
E. The clinical syndrome of uremia

III. Physical Exam Skills

A. Recognize signs of uremia--cognitive, asterixis, odor of breath
B. Auscultate for bruits
C. Attempt to palpate for kidneys
D. Percuss bladder size

IV. Diagnostic Tests

The student should be able to:
A. Calculate fractional excretion of sodium as a measure of prerenal vs post renal azotemia
B. Evaluate the patient with glomerulonephritis for multisystem disease
C. Choose the most appropriate imaging test for the specific patient problem

V. Therapeutic Interventions

The student should be able to:
A. Manage the patient with acute renal failure and know all indications for dialysis
B. Recognize the possibility of urinary tract obstruction.

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3. DISORDERS OF THE RESPIRATORY SYSTEM:

I. Knowledge/Mix of Diseases/Patients

A. Diseases of airflow limitation
    1. Asthma
    2. Bronchitis
    3. Emphysema
    4. Bronchiectasis
    5. Cystic fibrosis
B. Interstitial lung diseases
    1. Occupational lung disease
    2. Hypersensitivity pneumonias
    3. Sarcoidosis
    4. Idiopathic pulmonary fibrosis
C. Infectious lung diseases
    1. Community acquired pneumonia
    2. Nosocomial pneumonias
    3. Tuberculosis
D. Pulmonary vascular lung diseases
    1. Pulmonary thromboembolism
    2. Pulmonary hypertension
    3. Noncardiogenic pulmonary edema (ARDS)
E. Neoplastic disease of the lung
    1. Bronchogenic carcinoma
    2. Paraneoplastic syndromes
F. Diseases of the pleura
    1. Pleural effusion
    2. Pneumothorax

II. History Skills

A. Correctly characterize respiratory symptoms of dyspnea, cough, and expectoration
B. Obtain careful history of accidental or occupational exposure to potential lung toxins
C. Obtain a precise history of tobacco use, including passive cigarette smoke
D. Obtain family history for cystic fibrosis, emphysema, asthma, tuberculosis, collagen vascular diseases, and lung neoplasm
E. Obtain history of drug exposure and medication use
F. Determine risk factors for HIV and TB

III. Physical Exam Skills

A. Examine the chest by inspection
    1. Identify abnormal respiratory patterns
    2. Recognize findings suggesting pulmonary disease such as deviated trachea, digital clubbing
B. Examine the chest by palpation
    1. Appreciate the significance of supraclavicular adenopathy, crepitation, and tenderness
C. Examine the chest by percussion
    1. Distinguish normal and abnormal resonance
    2. Further define areas of dullness by special maneuvers such as vocal and tactile fremitus
D. Examine the chest by auscultation
    1. Recognize normal breath sounds and characterize
    2. Recognize adventitious breath sounds such as crackles, rhonchi, and wheezes
    3. Understand the diagnostic implications of the adventitious sound

IV. Diagnostic Test Skills

A. The student should be able to:
1. Interpret arterial blood gases
2. Understand the use of the pulse oxymeter
3. Interpret spirometry including Flow-Volume loops
4. Interpret the chemical profile of pleural effusions

B. The student should understand the indications for:
1. Pulmonary function tests
2. Thoracentesis
3. Pleural biopsy

V. Therapeutic Skills

A. The student must be familiar with the general management of all diseases listed in I.
B. The student should be able to:
1. Correctly select antimicrobial agents for respiratory infection
2. Recognize a significant reaction to PPD
3. Know the indications and side effects for the commonly used medications in pulmonary medicine.

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4. ENDOCRINOLOGY AND METABOLISM:

I. Knowledge/Mix of Diseases/Patients

A. Diseases of the pituitary
1. Diabetes insipidus
2. Pituitary tumors
    a. Acromegaly
    b. Cushing Disease
    c. Prolactinoma
3. Hypopituitarism
4. Empty Sella Syndrome

B. Thyroid disease
1. Hypothyroidism causes
2. Hyperthyroidism
    a. Graves disease
    b. Toxic multinodular goiter
    c. Toxic adenoma
    d. Factitious
3. Thyroiditis
    a. Chronic thyroiditis (Hashimoto's)
    b. Subacute thyroiditis (painful and painless)
4. Approach to thyroid nodule

C. Diseases of the adrenal cortex
1. Cushing Syndrome
2. Hyperaldosteronism
3. Addison's Disease

D. Pheochromocytoma
E. Diabetes mellitus
    1. Diagnosis
    2. Classification and pathogenesis
    3. Clinical features
    4. Complications
    5. Treatment
        a. Diet
        b. Insulin
        c. Oral agents
F. Hypoglycemia
    1. Fasting
    2. Reactive
G. Disorders of the parathyroid gland and of calcium metabolism
H. Metabolic bone disease
    1. Osteoporosis
    2. Osteomalacia
    3. Paget's
    4. Renal osteodystrophy

II. History Skills

A. Demonstrates knowledge necessary to take a proper history for a patient suspected of having an endocrine or metabolic disorder.
B. In a patient with diabetes mellitus, the student must obtain and put in chronological order a detailed history of the disease, including all complications, hospitalizations, medications.

III. Physical Exam

A. Know importance of:
    1. Weight
    2. Height
    3. Skeletal proportions
B. Recognize exophthalmus and abnormal ocular motility
C. Evaluate thyroid size, nodularity, tenderness, and bruit
D. Evaluate skin-temperature, moisture, pigmentation, pretibial myxedema, diabetic dermopathy
E. Evaluate quality of voice
F. Evaluate texture and pattern of hair
G. Recognize diabetic retinopathy

IV. Diagnostic Skills

A. Understand the use of thyroid function tests
B. Describe the tests necessary to diagnose diseases listed in I.

V. Therapeutic Interventions

A. Understand the indications, side effects, and adverse reactions for each of the following:
    1. L-thyroxine
    2. Glucocorticoids
    3. Antithyroid drugs

4. Oral hypoglycemics
5. Insulin (all forms)

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5. GASTROENTEROLOGY:

I. Knowledge/Mix of Diseases/Patients

A. Diseases of the esophagus: anatomic and motor causes of esophagitis (GERD)
B. H Pylori and PUD
C. Disorders of absorption
D. Inflammatory bowel disease
E. Liver and biliary tract disease
    1. Acute and chronic hepatitis
    2. Cirrhosis and alcoholic liver disease
    3. Approach to patients with abnormal LFTs
F. Pancreatic diseases
    1. Acute pancreatitis
    2. Chronic pancreatitis
    3. Pancreatic cancer
    4. Endocrine tumors

II. History Skills

In obtaining history from a patient with a GI complaint:
A. Describe all characteristics of abdominal pain
B. Recognize potential importance of family history and medication history and GI side effects of all drugs
C. History of diet, weight, food intolerance, bowel pattern, and bleeding
D. Compare and contrast history of inflammatory bowel disease vs. irritable bowel syndrome
E. Precise history taking in GERD and dysphagia

III. Physical Exam Skills

A. Students must do complete exam of abdomen and rectal exam including:
    1. Auscultation for bowel sounds and bruits
    2. Percussion for liver size
    3. Palpation for spleen
B. Recognize need for additional physical exam maneuvers such as:
    1. Shifting dullness and fluid wave when ascites is suspected
    2. Murphy's sign for right upper quadrant pain or tenderness
    3. Eliciting signs of peritonitis
    4. Perform rectal digital exam and check for fecal blood

IV. Diagnostic Studies

A. Know indications for paracentesis
B. Know indications for placement of nasogastric tube
C. Properly interpret the following laboratory tests:
    1. Serologic studies for viral and autoimmune hepatitis
    2. Liver function tests

V. Therapeutic Skills

A. The student should know indications, side effects, interactions and follow-up for the most commonly used GI medications (e.g. PPIs, Laxatives, Prokinetic agents)

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6. HEMATOLOGY:

I. Knowledge/Mix of Diseases/Patients

A. Pathophysiology of anemia
B. Anemia of chronic disease
C. Iron deficiency anemia
D. Megaloblastic anemia
E. Hemolytic anemias (congenital and acquired)
F. Myeloproliferative disorders
G. Leukemias (acute and chronic)
H. Lymphoma (Hodgkins, non-Hodgkins and plasma cell myeloma)
I. Clotting disorders
    1. Platelet and vessel wall
    2. Coagulation and thrombosis
    3. Hypercoagulable state

II. History Skills

A. Knowing presenting signs of anemia
B. Recognize that dizziness, shortness of breath, headache, exercise intolerance, and sensitivity to cold may be presenting symptoms of anemia
C. Recognize that symptoms of angina, claudication, TIA may be unmasked by anemia
D. Recognize the value of reviewing all previous hematologic lab data in evaluation of hematologic disorders
E. Recognize symptoms of platelet disorders (spontaneous mucocutaneous bleeding, immediate bleeding with trivial trauma) versus symptoms of clotting-factor deficiency (delayed bleeding, deep muscular hematomas, hemarthroses)
F. Recognize the importance of "B" symptoms (fever, night-sweats, weight loss) in patients with lymphoma
G. Recognize the importance of the family history in patients with anemia and coagulation disorders

III. Physical Diagnosis Skills

A. Recognize ecchymotic or petechial rash
B. Palpate all lymph node areas, spleen and liver

IV. Diagnostic Skills

A. Know the value of the following tests in the work-up of a patient with hemolytic anemia:
    1. Blood smear review
    2. Reticulocyte count
    3. Coombs test
    4. Serum haptoglobin

5. Glucose 6 phosphate dehydrogenase deficiency
6. Hemoglobin electrophoresis
7. Urine hemosiderin

B. Know the proper evaluation for bleeding disorder

V. Therapeutic Interventions

A. Know the appropriate indications for transfusion of erythrocytes and platelets
B. Know indications for fresh frozen plasma, cryoprecipitate, and purified factor concentrates.

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7. INFECTIOUS DISEASES:

I. Knowledge/Mix of Diseases/Patients

A. Clinical syndromes
1. Gram-negative sepsis
2. Infective endocarditis
3. Upper and lower respiratory infections
4. Urinary tract infections
5. Soft tissue infection
6. Tuberculosis
7. Mycoplasma pneumoniae pneumonia

B. Viral infection
1. Influenza and prevention
2. Herpes infection,
3. Hepatitis A, B and C

C. Fever of unknown origin

II. History Skills

A. Demonstrate at bedside ability to elicit history with special attention to relevant travel and residential history, animal contact, work and recreational activity, drug use and sexual history
B. Elicit any co-existing disease which may be relevant to pathogenesis of infection

III. Physical Examination

A. Demonstrate ability to perform thorough physical exam in effort to determine source of infection
B. Recognize skin lesions which may provide diagnostic clues to etiology of infection
C. Recognize fever patterns and their possible diagnostic indications
D. Perform Kernig and Brudzinski tests in evaluating for meningitis

IV. Diagnostic Tests

A. Obtain sputum on patients with pneumonia
B. Interpret body fluid results (CSF, pleural, peritoneal, joint)

V. Therapeutic Interventions

A. Choose appropriate antibiotic regimens for most common infections

B. Know major side effects of antibiotics

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8. RHEUMATOLOGY:

I. Knowledge

A. Clinical manifestations of SLE
B. Rheumatoid arthritis
C. Scleroderma
D. Mixed connective tissue disease
E. Sjogren's syndrome
F. Ankylosing spondylitis
G. Vasculitic syndromes
H. Sarcoidosis
I. Osteoarthritis
J. Psoriatic arthritis and arthritis associated with GI diseases
K. FMF
L. Behcet's disease
M. Gout

II. History Skills

A. Demonstrate ability to elicit history of multisystem disease. Know importance of extra-articular symptoms such as rash, uveitis, aphthous ulcers, alopecia, pleuritic pain
B. In patient with joint disease, determine presence or absence of morning stiffness, redness, heat, swelling, restricted movement

III. Physical Exam Skills

A. Know the physical findings associated with each of the diseases listed in I.
B. Evaluate each joint for swelling, erythema, tenderness, crepitation, contracture, deformity.
C. Determine range of motion and compare to normal. Identify Heberden node, Bouchard node, ulnar deviation, Swan neck deformity.
D. Demonstrate joint effusion.
E. Examine the spine. Evaluate chest expansion for spondylitis.

IV. Diagnostic Tests

The student should be able to:
A. Know the basics of diagnostic joint aspiration
B. Know when to order the following tests: rheumatoid factor, anti-DNA, anti SM, anti RNP, anti RO (SSA), anti-LA (SSB), ANCA

V. Therapeutic Interventions

A. Know general treatment options for all diseases listed in I

Course Assessment

Assessment		
Assessment Type	**Expected Due Date**	**Weight**
First Exam		--
Second Exam		--
Midterm Exam (Theory)		--
Evaluation		**15**
Quizzes		--
Research activity		--
OSCE		**25**
Mini-OSCE		**15**
Final Exam (Practical)		**45**
Final Exam (Oral)		--
Total		**100**

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