

## JINNAH SINDH MEDICAL UNIVERSITY

### STUDY GUIDE

<b>PROGRAM</b>	<b>MBBS</b>
<b>COURSE TITLE</b>	<b>Internal Medicine</b>
<b>ACADEMIC YEAR</b>	<b>5<sup>th</sup> YEAR- 2024</b>
<b>INTRODUCTION</b>	<p><b>Internal Medicine</b>, also known as <b>General Medicine</b>, is a medical specialty for medical doctors focused on the prevention, diagnosis, and treatment of internal diseases in adults. Medical practitioners of internal medicine are referred to as <b>Internists</b>, or <b>Physicians</b>. Internists provide care to both hospitalized (inpatient) and ambulatory (outpatient) patients and often contribute significantly to teaching and research. Internists are qualified physicians who have undergone postgraduate training in internal medicine.</p> <p>Internists primarily work in hospitals, as their patients are frequently seriously ill or require extensive medical tests. They often have sub-specialty interests in diseases affecting particular organs or organ systems.</p> <p>This course helps the students learn more about making diagnoses on the basis of information gathered about the patient and from the patient. These patients may be in the ambulatory care setting or hospitalized or in the emergency department. Students will be provided with knowledge through lectures and practice in key procedures in skills labs and in the work settings.</p> <p>The learning of conditions of adults starts in 3<sup>rd</sup> year MBBS and continues till the end of final year (5<sup>th</sup> year) MBBS. This study guide is for topics that will be dealt with in the final year.</p>
<b>RATIONALE</b>	For doctors to provide effective health care, it is imperative that

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	learners be given adequate opportunities in managing adult patients with common conditions so that they are productive physicians. No MBBS or MD program can be complete without satisfactorily gaining competence in the management of such conditions.
<b>OUTCOMES</b>	<p>By the end of the final year MBBS, students will be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate competence in basic clinical skills which they can utilize as doctors to improve the health care system quality</li> <li>• Demonstrate clinical reasoning in decision making</li> <li>• Justify management plans for common conditions in Emergency, in- and out-patient situations</li> <li>• Appropriately and promptly refer patients to specialists</li> <li>• Consistently demonstrate professional &amp; ethical behavior along with communication skills with all stakeholders</li> </ul>
<b>DISCIPLINES INVOLVED</b>	<ol style="list-style-type: none"> <li>1. Cardiology</li> <li>2. Endocrinology (&amp; Genetic Disorders)</li> <li>3. Gastroenterology</li> <li>4. Hematology</li> <li>5. Infectious Diseases</li> <li>6. Internal Medicine</li> <li>7. Nephrology</li> <li>8. Neurology</li> <li>9. Oncology</li> <li>10. Pulmonology</li> <li>11. Rheumatology</li> <li>12. Toxicology &amp; Environmental Medicine</li> </ol>
<b>COURSE OBJECTIVES</b>	By the end of the course of Internal Medicine (and Allied Disciplines) and for each of the conditions listed in this study guide, final year

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	<p>MBBS students will be able to:</p> <ul style="list-style-type: none"> <li>• discuss the etiology, risk factors, clinical presentations and relevant investigations for each</li> <li>• correlate the conditions' pathophysiology with signs and symptoms</li> <li>• justify differential diagnoses and diagnoses on the basis of history, examination findings and investigation reports</li> <li>• discuss outlines of treatment plans for each</li> <li>• explain plans for prevention of conditions where appropriate</li> <li>• enumerate complications and their principles of management</li> </ul>
<b>CARDIOLOGY</b>	<ol style="list-style-type: none"> <li>1. Arrhythmias &amp; Heart blocks</li> <li>2. Cardiomyopathies &amp; Myocarditis</li> <li>3. Congenital heart diseases (Ventricular and Atrial Septal Defects, Tetralogy of Fallot, co-arctation of aorta, Patent Foramen Ovale, Patent Ductus Arteriosus)</li> <li>4. Congestive cardiac failure &amp; acute pulmonary edema</li> <li>5. ECG Interpretation</li> <li>6. Ischemic Heart Disease (Angina /NON -STEMI)</li> <li>7. Pericardial effusion/ Pericarditis/Constrictive Pericarditis</li> <li>8. Peripheral vascular disease/ acute limb ischemia</li> <li>9. Rheumatic Fever/ Infective Endocarditis</li> <li>10. ST-Elevation MI; management and complications</li> <li>11. Systemic hypertension &amp; hypertensive emergencies</li> <li>12. Valvular heart Disease</li> </ol>
<b>ENDOCRINOLOGY &amp; GENETIC</b>	<ol style="list-style-type: none"> <li>1. Adrenal dysfunctions: Congenital Adrenal Hyperplasia, Pheochromocytoma</li> <li>2. Carcinoid tumors of Endocrine system: Insulinoma,</li> </ol>

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<b>DISORDERS</b>	<p>Gluconoma, MEN syndrome</p> <ol style="list-style-type: none"> <li>3. Diabetes Mellitus</li> <li>4. Down's syndrome</li> <li>5. Hyper- &amp; Hypoparathyroidism</li> <li>6. Hyperlipidemia</li> <li>7. Obesity, Metabolic syndrome</li> <li>8. Pituitary dysfunctions: Pan-hypo-pituitarism, Sheehan syndrome, Kallman's syndrome, Acromegaly, Diabetes Insipidus, SIADH</li> <li>9. Thyroid carcinoma</li> <li>10. Turner &amp; Klinefelter syndromes</li> </ol>
<b>ENVIROMENTAL DISEASES</b>	<ol style="list-style-type: none"> <li>1. Decompression sickness &amp; near drowning</li> <li>2. Electric shock</li> <li>3. Heat Stroke and heat exhaustion</li> <li>4. Hypothermia &amp; Frost bite</li> <li>5. Snake-bite management</li> </ol>
<b>GASTRO-ENTEROLOGY AND HEPATOBILIARY SYSTEM</b>	<ol style="list-style-type: none"> <li>1. Abdominal Tuberculosis</li> <li>2. Achalasia, Dysphagia, GERD, Dyspepsia</li> <li>3. Acute &amp; Chronic Diarrhea</li> <li>4. Acute hepatitis &amp; Fulminant hepatic failure</li> <li>5. Acute &amp; Chronic pancreatitis</li> <li>6. Alcoholic liver disease &amp; non-alcoholic fatty liver disease</li> <li>7. Autoimmune hepatitis (Alpha-1 Anti-trypsin Deficiency, Drug Induced Hepatitis)</li> <li>8. Chronic Hepatitis B &amp; C</li> <li>9. Cirrhosis and its complications</li> <li>10. Gastritis, Peptic ulcer &amp; H. Pylori infection</li> <li>11. Inflammatory bowel diseases</li> </ol>

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	<ul style="list-style-type: none"><li>12. Irritable bowel syndrome</li><li>13. Liver abscess</li><li>14. Malabsorption syndromes; Celiac diseases, Abdominal TB, Intestinal Lymphoma</li><li>15. Primary Biliary cirrhosis/ PSC</li><li>16. Upper &amp; Lower GI bleeding</li><li>17. Wilson's disease &amp; Hemochromatosis</li></ul>
<b>HEMATOLOGY</b>	<ul style="list-style-type: none"><li>1. Anemia: Classification and Types: Anemia of Chronic diseases, Aplastic anemia &amp; Bone marrow transplant, Hemolytic Anemia (Thalassemia, sickle anemia, hereditary spherocytosis, autoimmune hemolytic anemia, G6PD deficiency, Paroxysmal nocturnal hemoglobinuria), Nutritional Deficiency (including Iron deficiency, Folic Acid and B12 deficiency)</li><li>2. Bleeding disorders (Hemophilia's, Von-Willebrand Disease, DIC), Thrombocytopenia: ITP, TTP &amp; HUS</li><li>3. Blood products, Blood transfusion and transfusion reactions</li><li>4. Leukemias: Acute &amp; Chronic Leukemia</li><li>5. Lymphomas (Hodgkins and Non-Hodgkins)</li><li>6. Multiple Myeloma &amp; Cryoglobulinemia</li><li>7. Myeloproliferative disorders &amp; Myelofibrosis</li></ul>
<b>INFECTIOUS DISEASES</b>	<ul style="list-style-type: none"><li>1. Brucellosis</li><li>2. Enteric Fever</li><li>3. Fever of unknown origin</li><li>4. HIV diagnosis and management</li><li>5. Parasitic infection: Malaria, Leishmaniasis, Toxoplasmosis, Amoebiasis, Giardiasis</li><li>6. Viral hemorrhagic fever, Dengue, Crimean-Congo</li></ul>

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	<p>hemorrhagic Fever, Chikungunya</p> <p>7. Viral infection: Herpes, Chicken Pox, EBV, CMV, Measles, Fever with rash, Influenza, COVID</p>
<b>NEUROLOGY</b>	<ol style="list-style-type: none"> <li>1. Acute &amp; Chronic CNS infections (review)</li> <li>2. Coma</li> <li>3. Diseases of Extra -pyramidal conditions: Tremors, Huntington's disease, Wilson's disease</li> <li>4. MND, Myasthenia Gravis</li> <li>5. Myopathies and Muscle Dystrophies</li> <li>6. Neuropathies, Guillian-Barre Syndrome</li> <li>7. Paraparesis: Transverse Myelitis, Pott's disease, Disc diseases, Periodic paralysis</li> <li>8. Primary and secondary Headaches &amp; Trigeminal Neuralgia</li> </ol>
<b>PULMONOLOGY</b>	<ol style="list-style-type: none"> <li>1. Asthma</li> <li>2. Bronchiectasis &amp; Cystic fibrosis</li> <li>3. Bronchogenic Carcinoma</li> <li>4. Chronic Obstructive Pulmonary Diseases</li> <li>5. Diffuse Parenchymal lung disease.</li> <li>6. Hyperventilation /hypoventilation syndrome &amp; OSA</li> <li>7. Pneumonia</li> <li>8. Pneumothorax, Pleural Effusion</li> <li>9. Pulmonary Embolism, Pulmonary Hypertension</li> <li>10. Pulmonary Tuberculosis</li> <li>11. Respiratory failure &amp; Acute Respiratory Distress Syndrome</li> </ol>
<b>RADIOLOGY</b>	<ol style="list-style-type: none"> <li><b>1. Principles of Radiation Oncology:</b> <ul style="list-style-type: none"> <li>• Mechanism of action</li> <li>• Distinction between Curative and Palliative approach</li> <li>• Modalities of treatment (External Beam, Brachytherapy,</li> </ul> </li> </ol>

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	<p>3DCRT, IMRT, SRS)</p> <ul style="list-style-type: none"> <li>• Toxicities</li> </ul>
<b>RHEUMATOLOGY</b>	<ol style="list-style-type: none"> <li>1. Degenerative Arthritis</li> <li>2. Fibromyalgia, Anti-phospholipid syndrome</li> <li>3. Gonococcal arthritis &amp; Septic arthritis</li> <li>4. Crystal Induced Arthropathy</li> <li>5. Polymyositis, Dermatomyositis and Mixed Connective Tissue Diseases</li> <li>6. Rheumatoid arthritis</li> <li>7. Sjogren's syndrome</li> <li>8. Seronegative Spondyloarthropathies</li> <li>9. Systemic Lupus Erythematosus &amp; Antiphospholipid syndrome, Systemic sclerosis &amp; Raynaud's phenomena</li> <li>10. Vasculitis</li> </ol>
<b>TOXICOLOGY</b>	<ol style="list-style-type: none"> <li>1. Acute poisoning (Organophosphate, Opiates, Paracetamol)</li> <li>2. Benzodiazepine &amp; Barbiturates poisoning</li> <li>3. Corrosive &amp; Kerosene poisoning</li> <li>4. Ethanol &amp; Methanol poisoning</li> <li>5. Snake bite poisoning</li> </ol>
<b>NEPHROLOGY</b>	<ol style="list-style-type: none"> <li>1. Acid base disorders &amp; Renal Tubular Acidosis</li> <li>2. Acute kidney injury</li> <li>3. Chronic kidney disease and its complications</li> <li>4. Cystic diseases of kidney</li> <li>5. Electrolyte imbalance: Fluid balance, Na, K, Ca, Po<sub>4</sub></li> <li>6. Hemodialysis; types and complications</li> <li>7. Interpretations of urine D/R</li> <li>8. Interstitial nephritis, Lupus nephritis, Tubulo-interstitial nephritis</li> <li>9. Nephritic syndrome; Glomerulonephritis and its types</li> </ol>

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	<p>10. Nephrotic syndrome</p> <p>11. Pregnancy related kidney diseases</p> <p>12. Renal Artery Stenosis</p> <p>13. Renal replacement therapy and its complications</p> <p>14. Renal Vein Thrombosis</p>
<b>MEDICAL ONCOLOGY</b>	<p><b>1 Causes of cancer formation</b></p> <ul style="list-style-type: none"> <li>• Definition Cancer and causes</li> <li>• History taking and Physical Examination</li> <li>• Staging</li> <li>• Patient Communication and discussing prognosis</li> <li>• MDT approach</li> </ul> <p><b>2. Principles of Medical Oncology</b></p> <ul style="list-style-type: none"> <li>• Distinction between curative and palliative approach</li> <li>• Modalities of treatment (Cytotoxic Chemotherapy, Endocrine therapy, Biological agents and Immunotherapy)</li> <li>• Toxicities</li> </ul> <p><b>3. Oncological Emergencies</b></p> <ul style="list-style-type: none"> <li>• Neutropenic sepsis</li> <li>• Spinal cord compression</li> <li>• Tumor lysis syndrome</li> <li>• SVC obstruction</li> <li>• Hypercalcemia</li> </ul> <p><b>4. Screening of cancers for early detection</b></p> <p><b>5. Principles of non-surgical treatment of cancer</b></p> <p><b>6. Principles of chemotherapy</b></p> <p><b>7. Principles of radiotherapy</b></p>



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	<p><b>8. Follow-up for cancer patients</b></p> <p><b>9. Palliative care</b></p> <ul style="list-style-type: none"> <li>• Pain management</li> <li>• Anti-emesis</li> <li>• Counseling (Patient &amp; Families)</li> <li>• End-of-Life management</li> </ul>
<p><b>CLINICAL SKILLS</b> (performing under direct supervision- In skills lab and/ or during ward rotations)</p>	<ul style="list-style-type: none"> <li>• Administering oxygen &amp; nebulizers</li> <li>• Assess comatose patients</li> <li>• Blood sampling or venipuncture</li> <li>• Carrying out a urine multi dipstick test</li> <li>• CPR on mannequin</li> <li>• Giving intramuscular and intravenous injections</li> <li>• Lumbar puncture (skills lab and then in wards)</li> <li>• Measuring capillary blood glucose</li> <li>• Moving and handling, including patients who are frail</li> <li>• Passing N/G tube</li> <li>• Performing General and Systemic Physical Examinations</li> <li>• Performing Male and female Catheterization</li> <li>• Setting up and maintaining I/V line</li> <li>• Wearing protective equipment</li> </ul>
<p><b>CLINICAL SKILLS</b> (Observation, where possible)</p>	<ul style="list-style-type: none"> <li>• CPR on real patients</li> <li>• Dialysis</li> <li>• Endoscopies &amp; Colonoscopies</li> <li>• Insertion of Central venous line</li> <li>• Management of patients in Emergency Room/ Casualty</li> <li>• Ventilation</li> </ul>
<p><b>PROFESSIONAL BEHAVIOR</b></p>	<ul style="list-style-type: none"> <li>• Maintain personal hygiene at all times, especially after being in contact with patients</li> <li>• Effectively counsel patients regarding options for relevant</li> </ul>

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	<p>therapeutic procedures</p> <ul style="list-style-type: none"> <li>• Demonstrate respect, empathy and care while dealing with patients</li> <li>• Take consent appropriately before all procedures and processes</li> <li>• Communicate with professionally and with respect with patients, their attendants, health care team members, senior physicians and peers</li> <li>• Demonstrate punctuality and regularity in all academic sessions</li> <li>• Demonstrate care, empathy and principles of ethical and professional practice in all the therapeutic procedures while taking care of patient safety issues</li> <li>• Safeguard themselves from potential harm by adhering to prescribed protocols</li> <li>• Consistently demonstrate care for the betterment of the patients</li> <li>• Work effectively as a productive member of the health care team</li> <li>• Perform duties honestly and to the best of their abilities</li> <li>• Demonstrate proactive behavior in fulfilling their responsibilities</li> <li>• Follow institutional policies</li> </ul>
<b>INTERNAL ASSESSMENT</b>	<ul style="list-style-type: none"> <li>• Internal assessment will be according to JSMU policy. The details of internal assessment will be determined by the respective institutions.</li> <li>• Internal assessment carries 20% weightage in the final, end-of-year examination</li> </ul>
<b>ANNUAL EXAMINATION</b>	<p>The Theory exam comprises of two sections, Papers I &amp; II. There will be OSCE stations (observed and unobserved) related to papers I &amp;</p>

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II.

All clinical Topics and skills from Internal Medicine, taught in previous years, will be assessed in Final year MBBS professional examination as well.

Students are strongly advised to thoroughly read the policy on Academic Progression in Undergraduate Programs present on JSMU website.