

AYUB MEDICAL COLLEGE ABBOTTABAD

DEPARTMENT OF MEDICAL EDUCATION



MULTISYSTEM-I

3RD YEAR MBBS

BLOCK: H

DURATION: 4 WEEKS

SESSION: 2024

STUDENT NAME

DISCLAIMER

- Developing a study guide is a dynamic process and undergoes iteration according to the needs and priorities.
- This study guide is subjected to the change and modification over the whole academic year.
 - However, students are advised to use it as a guide for respective modules.
- It is to declare that the learning objectives (general and specific) and the distribution of assessment tools (both theory and practical) are obtained from Khyber Medical University, Peshawar. These can be obtained from:
<https://kmu.edu.pk/examination/guidelines>
- The time tables are for guiding purpose. It is to advise that final timetables are always displayed over the notice boards of each lecture hall.
 - Students are encouraged to provide feedback via coordinator

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1. Module Committee:

s.no	Name	Department	Role
1.	Prof. Dr. Umar Farooq		CEO & Dean
2.	Prof. Dr. Irfan U. Khattak		Director DME
Module Team			
3.	Prof.Dr. Haq Nawaz	Pharmacology	Block Coordinator
4.	Dr. Nisar Ahmed	Pharmacology	Module Coordinator
5.	Dr. Azfar Kamal	Pharmacology	Co-Developer

2. What Is A Study Guide?

It is an aid to inform students how student learning program of the module has been organized, to help students organize and manage their studies throughout the module and guide students on assessment methods, rules and regulations.

2.1 The study guide:

- Communicates information on organization and management of the module.
- This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as lectures, small group teachings.

2.2 Module objectives.

- Provides a list of learning resources such as books, computer-assisted learning programs, weblinks, and journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's performance.

2.3 Achievement of objectives.

- Focuses on information pertaining to examination policy, rules and regulations.

3. Recommended List Of Icons



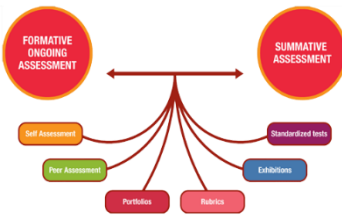
Introduction To Case



For Objectives



Critical Questions



Assessment



Resource Material

4. Organization of Module

4.1 Introduction:

Welcome to the Multisystem Module. As you can ascertain from the title it is a module which deals with the working and effects of various inter connected body systems which are unique in themselves and are dealt in detail in various other modules. The common factor in them is that they are innervated by the Autonomic Nervous System and also included will be the effect of our autocooids or local hormones and their novel working which makes us as diverse as we are or as similar as we are as a race. Going on in the module you will learn about Cancers, the bane of humanity and the ultimate power of the body to destroy all that is good for it. The known cures and ways of predicting their outcome and their progression and their end all are taught in this very informative module. Last but not the least Phytopharmacology or using an extract of a medicinal plant or its part, for internal or external use of human beings for diagnosis, treatment, mitigation, or prevention of any disease or disorder is also discussed briefly.

4.2 Rationale:

Learning about the autonomic nervous system and its diverse yet predictable working strengthens our understanding of bodily responses and symptoms in various pathological processes. While it's knowledge helps us to treat various presentations of disease and explain side or adverse effects of important groups of drugs. Learning how hereditary factors regulate our body and how they can be a basis of disease. A knowledge of how cancers can be managed and staged and treated is also essential in these times of rising incidence of Carcinogenic exposure.

The old art of Hickmat has been an essential part of alternative medicine in our part of the world and it's revival in Allopathy as Phtopharmacology is also essential for our knowledge and for making us a good health giver. Principles, concepts and skills gained in this module will help the students to make correlation of basic knowledge learnt in the theory classes with lab work and field visits and in future will give a background for making good and competent researchers and doctors.



5. Learning Objectives

S. No	Themes	Duration
1	Vomiting and blurred vision	1 week
2	Palpitation, fainting and death	1 week
3	Heredity and Cancers	2 weeks

5.1 General Learning Objectives

- 1) Explain the functional organization of Autonomic Nervous system (ANS)
- 2) Describe the basic and clinical pharmacology of drugs acting on the ANS
- 3) Describe anticancer drugs
- 4) Describe the basic and clinical pharmacology of Eicosanoids.
- 5) Describe the basic and clinical pharmacology of drugs used for common skin problems.
- 6) Describe the clinical uses of some popular herbal medications.
- 7) Describe single Gene Disorders, cytogenetic disorders and different mutations
- 8) Describe the molecular Genetics Diagnosis
- 9) Define neoplasia and nomenclature of tumors
- 10) Describe characteristics of benign and malignant tumors
- 11) Describe epidemiology of cancer
- 12) Describe carcinogens, their types and clinical aspects of neoplasia
- 13) Describe diagnosis of cancer, grading and staging of tumors
- 14) Describe pathways for tumor spread and tumor immunity
- 15) Describe the protocols and procedures of autopsy.
- 16) Describe Thanatology and its medicolegal implications.
- 17) Describe general principles of Toxicology and their role in medicolegal sciences.
- 18) Describe the fundamentals of Research Ethics

5.2 Specific Learning Objectives

Theme-1 (Vomiting and Blurred vision)				
Subject	Topic	Learning Objectives	MIT	No. of hrs
Physiology	Functional organization of ANS- and overview	Describe the functional organization of ANS and its related neurotransmitters and receptors	LGF	1
Pharmacology	Introduction to the pharmacology of Autonomic Nervous System (ANS)	Enlist major autonomic neurotransmitters.	LGF	1
		Enlist various types of cholinergic, adrenergic and dopaminergic Receptors discovered so far.		
		Describe the organ system Distribution of Autonomic eceptors.		
		Describe presynaptic receptors (autoreceptors and heteroreceptors).		
		Describe ionotropy, chronotropy and dromotropy.		
	Cholinomimetic drugs (Parasympatho-mimetic drugs)	Classify cholinomimetic drugs.	LGF	2
		Enlist the naturally-occurring cholinomimetic alkaloids.		
		Enlist major organophosphate compounds.		
		Enlist the organophosphates used as "Nerve gases".		
		Describe the pharmacokinetics of Cholinomimetics with emphasis on metabolism and duration of action.		
		Describe the mechanism of action		

		of directly-acting and indirectly-acting Cholinomimmetics.		
		Describe the organ system effects of directly-acting and indirectly-acting Cholinomimmetics with special reference to their effects on receptors.		
		Describe the clinical uses of Cholinomimmetics.		
		Describe the Cholinomimmetics used in glaucoma and Alzheimer's disease.		
		Describe the use of Edrophonium to differentiate between cholinergic crisis and Myasthenic crises.		
		Describe the adverse effects of Cholinomimmetics.		
		Describe the clinical manifestations of organophosphate poisoning.		
		Describe the clinical manifestations of mushroom poisoning.		
		Explain the pharmacological rationale of prophylactic use of Pyridostigmine in situations where chemical warfare with nerve gases is anticipated.		
		Enlist the contraindications of Cholinomimmetics.		
	Anti-Cholinergic drugs	Classify anticholinergic drugs (Parasympatholytics/Cholinoceptor -blocking drugs).	LGF	2
		Describe belladonna alkaloids with reference to their natural sources.		
		Describe the pharmacokinetics of antimuscarinic drugs with emphasis		
		on metabolism and duration of action.		
		Describe the mechanism of action of antimuscarinic drugs.		
		Describe the organ system effects		

		of antimuscarinic drugs with special reference to their effects on receptors.		
		Describe the clinical uses of antimuscarinic drugs.		
		Describe the drug treatment of organophosphate poisoning.		
		Enlist cholinesterase regenerating compounds.		
		Describe "aging" of the phosphorylated enzyme complex and its clinical importance regarding the management of organophosphate poisoning.		
		Describe the drug treatment of mushroom poisoning.		
		Describe the adverse effects of antimuscarinic drugs.		
		Describe atropine fever.		
		Name the antidote for atropine poisoning.		
		Describe the contraindications of antimuscarinic drugs.		
	Ganglion Blocking Drugs	Enlist major ganglion-blocking drugs.	LGF	1
		Describe the mechanism of action of ganglion-blocking drugs.		
		Describe the organ system effects of ganglion-blocking drugs.		
		Enlist the clinical uses of ganglion-blocking drugs.		
		Enlist the adverse effects of ganglion-blocking drugs.		
Forensic Medicine	Poison and Related Laws Legal Duties of a registered medical practitioner in a case of poisoning	Define a poison Describe laws related to poisoning or drug use. Explain legal, ethical, and moral duties of Registered Medical Practitioner in a case of poisoning.	LGF	1
	Fate of Poison	Enumerate different routes of administration of poisons.	LGF	1

	Diagnosis of poisoning in living and dead	Describe Biotransformation. Enlist the route of excretion of Poisons Describe the protocols of diagnosing poisoning in living and Dead		
	Antidotes	Define and classify antidotes Describe the mechanism of action of different antidotes	LGF	1
	Steps of management in case of poisoning	Describe general steps of management in a case of poisoning	LGF	1
	Organophosphate group	Describe the mechanism of action of commonly used organophosphate poisons.	LGF	1
		Describe the characteristics finding for organophosphate group in postmortem examination.		
		describe different signs and symptoms for organophosphate group.		
		Describe the medico-legal importance for organophosphate group.		
		Explain fatal dose, fatal period, and treatment for organophosphate poisons.		
Community medicine	Smoking	Describe the global distribution and increase of smoking	LGF	1
		Discuss the causes of smoking		
		Discuss the effects of smoking on Health		
		Describe preventive and control Measures		
	International Health	Describe International health regulations and their importance	LGF	1
		Describe preventive measures for travelers visiting disease endemic areas		
	Role of international health agencies in public health	Enumerate international health agencies working in health sector	LGF	1
		Discuss structure and function of WHO & UNICEF		

		Explain the roles of WHO & UNICEF in Pakistan		
PRIME/ Research	Research Ethics	Define ethics in research	LGF	1
		Discuss importance of research Ethics		
		Discuss principles of ethics		
		Describe the theories of ethics		
		Discuss research misconduct		
	Referencing	Differentiate between references, citation & bibliography	LGF	1
		List different styles of referencing		
		Select appropriate referencing style for a research project		
Theme-2: (Palpitation, fainting and death)				
Pharmacology	Sympathomimetic drugs	Classify sympathomimetic drugs according to the spectrum of adrenoceptors they affect and on the basis of their mode of action (directly-acting and indirectly-acting).	LGF	2
		Define Catecholamines with examples.		
		Describe the pharmacokinetics of sympathomimetic drugs with emphasis on their metabolism.		
		Describe the mechanism of action of sympathomimetics.		
		Describe the organ system effects of sympathomimetics with special reference to their effects on receptors.		
		Compare the effects of Adrenaline, Noradrenaline, Phenylephrine and Isoprenaline on heart rate and blood pressure.		
		Describe the clinical uses of sympathomimetics.		
		Describe the drug treatment of		

		Anaphylactic shock.		
		Describe the dose-dependent effects of Dopamine and its clinical importance.		
		Describe the sympathomimetic drugs used in the management of glaucoma.		
		Describe the role of mannitol and acetazolamide in the treatment of Glaucoma		
		Describe the adverse effects of sympathomimetics.		
		Describe hypertensive cheese Reaction		
		Enlist the foods with high Tyramine content.		
		Describe the drug interactions of sympathomimetics with Monoamine oxidase inhibiting drugs.		
		Describe the treatment of accidental overdose of adrenaline.		
	Sympatholytic drugs (Adrenoceptor antagonists)	Classify sympatholytic drugs (adrenoceptor antagonists) on the basis of spectrum of adrenoceptors they affect.		
		Name the prototype α -blocker.		
		Name the α -blocker having more specificity for prostate muscle.		
		Describe the mechanism of action of α -blockers.		
		Describe the organ system effects of α -blockers with special reference to their effects on receptors.		
		Describe the phenomenon of epinephrine reversal.		
		Describe the clinical uses of α -blockers.		
		Describe the adverse effects of α blockers.		
		Name the prototype β -blocker.		

		Enlist the β -blockers with intrinsic sympathomimetic activity (partial agonist activity).		
		Enlist the β -blockers with membrane stabilizing activity (Na channel-blocking activity).		
		Enlist the β -blockers which have proved to be inverse agonists.		
		Enlist the β -blockers which are relatively safe in chronic stable heart failure.		
		Enlist the β -blockers which are relatively safe in asthmatic patients.		
		Describe the pharmacokinetics of propranolol.		
		Describe the mechanism of action of β -blockers.		
		Describe the organ system effects of β -blockers with special reference to their effects on receptors.		
		Describe the clinical uses of β -blockers.		
		Describe β -blockers used in the management of glaucoma.		
		Describe stage fright and name the β -blocker used for its management.		
		Describe the adverse effects of β -blockers.		
		Name the antidote for β -blockers' toxicity.		
		Enlist the contraindications of β -blockers.		
		Describe the limitations of beta-blockers in patients with Diabetes Mellitus, Hyperlipidemias, Bronchial Asthma and peripheral arterial disease.		
		Enlist mixed adrenoceptor antagonists (Labetalol and Carvedilol).		

		Describe the clinical uses of mixed adrenoceptor antagonists.		
Forensic medicine	Thanatology/Death	Describe death.	LGF	1
		Describe phases of death.		
		Define brain death.		
		Describe the criteria of brain death.		
		Describe the role of EEG/ECG in death.		
		Explain apparent death.		
		Describe human tissue act.		
		Describe medicolegal importance of death.		
	Postmortem changes	Define Post Mortem changes.	LGF	1
		Classify Post-mortem changes.		
		Describe immediate, early and late changes of post-mortem.		
		Describe Post-mortem lividity.		
		Describe the steps to report changes due to post-mortem Lividity		
	Rigor mortis	Define Rigor Mortis.	LGF	1
		Describe the mechanism of formation of Rigor mortis		
		Describe the special features of Rigor Mortis.		
		Describe time consumed to develop Rigor mortis.		
		Describe chemical basis of Rigor Mortis.		
		Describe factors affecting Rigor Mortis.		
		Describe the conditions that simulate Rigor Mortis.		
		Describe procedure of its confirmation.		
		Describe medico legal importance of Rigor Mortis.		
	Cooling of dead body (Algor Mortis)	Define Algor Mortis?	LGF	1
		Describe different methods of		

		recording the temperature of dead body.		
		Describe the PM body cooling curve?		
		Describe the formula/calculation used for time since death.		
	Late P.M. changes & putrefaction	Define putrefaction?	LGF	1
		Describe the process of Putrefaction		
		Describe stages of putrefaction.		
		Describe order of progression in putrefaction.		
		Describe factors affecting Putrefaction.		
		Describe Casper dictum.		
		Describe medicolegal importance of putrefaction.		
	Adipocere formation (Saponification)	Define Adipocere formation.	LGF	1
		Describe features of Adipocere formation.		
		Discuss medicolegal importance of Adipocere formation.		
	Mummification	Define Mummification.	LGF	
		Describe features of Mummification.		
	Embalming	Define Embalming.		
		Enlist the chemical used for Embalming.	LGF	
		Describe the procedure for Embalming.		
		Describe the used of Embalming		
	Introduction to autopsy	Define Autopsy		1
		Define the modified continental system and compare it with other medicolegal systems in the world.		
		Classify types of Autopsy.		
		Describe the role of Autopsy in Criminal offences.		
		Describe section 174 and 176 of the Criminal Procedure Code		

		(CrPC), 1973				
	Modern autopsy suite	Describe the components of modern autopsy suite	LGF	1		
		Describe the precautions taken while working in modern autopsy suites				
		Explain the hazards encountered in modern autopsy suites				
	Autopsy Protocol	Describe pre-examination in Autopsy.	LGF	1		
		Describe the protocol of examination of clothes, and external examination in autopsy.				
		Classify and describe different autopsy incisions.				
		Describe internal examination in an autopsy.				
		Describe the procedure to collect different autopsy samples.				
		Describe the chain of custody.				
		Describe the steps of writing an autopsy report				
		Describe autopsy procedure for death due to heat and cold.				
	Exhumation	Define exhumation.			LGF	1
		Describe authorisation of autopsy surgeon for exhumation.				
		Describe protocol of exhumation.				
		Describe time limit for exhumation.				
		Describe the precautions for exhumations.				
		Describe the procedure to collect samples.				
		Describe the limitations of exhumations.				
		Describe the scope of exhumation.				
	Skeletonized body	Describe the steps of examination of a skeletonized body to assess its race, age, sex and stature	LGF	1		
		Describe the protocol for autopsy of a skeletonized body				
		Describe cause of death in such cases.				

		Describe nature of injury and type of weapon used in such cases.		
		Describe time since death in such cases.		
	Negative autopsy	Define negative autopsy.	LGF	1
		Describe causes of the negative autopsy.		
		Describe concealed trauma.		
	Autopsy artifacts and hazards	Describe autopsy artifacts.	LGF	1
		Describe the importance of forensic artifacts.		
		Describe effect of artifacts on the opinion of post-mortem report.		
	Infanticide	Describe infanticide and its related law.	LGF	1
		Describe the Age of viability and its medico legal significance.		
		Describe the concept of live birth and separate existence.		
		Describe the Hydrostatic test and its importance.		
		Explain Cause of death, i.e. acts of commission and acts of omission		
		Describe sudden infant death syndrome (SIDS)		
	Maceration	Define maceration.		
		Describe features of maceration.	LGF	
		Discuss differentiation point for maceration		
		Discuss medicolegal importance of maceration.		
	Autopsy of an infected body	Describe the protocols for autopsy of the infected dead body	LGF	1
		Describe the precautions required for autopsy of an infected dead body		
		Enlist the diseases transferred from during autopsy of infected dead body.		
	Autopsy of fragmentary remains	Describe autopsy of a fragmentary remains and mutilated body.		
		Discuss the protocols adopted for autopsy of fragmentary remains		

		Describe the samples needed for autopsy of fragmentary remains.		
	General management of poisons	Describe approach to manage a poisoned patient in accident and emergency department	LGF	1
Community Medicine	Child labor and Child Abuse	Define child labor	LGF	1
		Describe different types of child labor and its effects		
		Describe statistics of child labor		
		Describe governments` actions against child labor		
		Define IPEC 2011 (international program on elimination of child Labor		
		Define child abuse		
		Describe different forms of child abuse and its effects		
		Describe statistics of child abuse		
		Describe the preventive strategies regarding child abuse		
Theme-3: (Heredity & Cancers)				
Pathology	Genetics Introduction	Define the term mutation, hereditary, congenital, genotype, phenotype, codon, Mendelian Disorder.	LGF	1
	Mutations	Identify various mutations, repeat mutations and mutations in mitochondrial genes.	LGF	1
	Transmission pattern of single Gene disorders	Classify and diagnose patterns of single gene disorders. Identify x linked, autosomal dominant and recessive disorders.	LGF	1
	Biochemical and molecular basis of single gene disorders	Recognize enzyme defects with consequences and determine adverse reactions to drugs in genetics.	LG F	1
	Multigenetic Disorders and autosomy	Identify cases of multigenetic disorders and explain patterns and features of trisomy 21.	LGF	1
	Molecular genetic	Identify the basic principles used in various molecular	L	1

	diagnosis	techniques including PCR, FISH and Southern/Western blotting	G F	
	Introduction to Neoplasia	Describe and specify the terms: neoplasia, neoplasm, oncology, tumor, benign tumor, malignant tumor, anaplasia, metaplasia, differentiation and dysplasia.	LGF	1
	Nomenclature of Tumors	Identify and enumerate the nomenclature of tumors with respect to tissue of origin.	LGF	1
	Characteristics of Benign and Malignant Tumors	Illustrate the characteristics of benign and malignant tumors in respect to anaplasia, rate of growth, local invasion and metastasis.	LGF	1
	Epidemiology of Cancer	Identify the epidemiology with incidence, host factors and predisposing factors.	L G F	1
	Molecular Basis of Cancer	Depict the molecular/genetic basis of tumor, lesion, oncogenesis, protooncogenesis and predisposing factors.	LGF	1
	Carcinogenesis and its types	Classify types of carcinogens, hallmark of cancers and its process involved, bacterial, viral, chemical and microbial oncogenes involved in pathogenesis.	LGF	1
	Clinical Aspects and diagnosis of cancers	Characterize clinical features of neoplasia, including its effects on host, cachexia, clinical significance of preneoplastic syndromes.	LGF	1
	Pathways for tumor spread	Identify pathways for spread of tumors, its morphology, biochemical, molecular basis of methods implied for diagnosis and spread.	LGF	1
	Grading and Staging of tumors	Recognize and distinguish grades and stages of tumors.	LGF	1
	Tumor immunity	Categorize host defences against tumors with its antigens and antitumor mechanism and surveillance.	LGF	1

Pharmacology	Anticancer drugs	Describe terms like cell cycle-specific drugs and cell cycle- nonspecific drugs.	LGF	2
		Describe the role of P-glycoprotein in relation to the development of resistance to cytotoxic drugs.		
		Classify anticancer drugs.		
		Describe general adverse effects of anticancer drugs.		
		Describe the mechanism of action of alkylating agents.		
		Describe the clinical uses and adverse effects of Busulfan and Cyclophosphamide.		
		Describe the mechanism of action, clinical uses and adverse effects of Cisplatin.		
		Describe in general the mechanism of action of antimetabolites.		
		Describe the mechanism of action, clinical uses, adverse effects and contraindications of Methotrexate, Azathioprine, 6-Mercaptopurine and 5-Fluorouracil.		
		Describe the drug interaction of Azathioprine and 6-Mercaptopurine with Allopurinol.		
		Describe the natural source of plant alkaloids Vinblastine and Vincristine.		
		Describe the mechanism of action, clinical uses and adverse effects of Vinblastine and Vincristine.		
		Describe the mechanism of action, clinical uses and adverse effects of Doxorubicin, Daunorubicin, Dactinomycin and Bleomycin.		
		Enlist the anticancer mechanism of action and uses of hormonal agents like Tamoxifen, Flutamide, Goserelin and Aminoglutethimide.		

		Enlist the drugs of choice for ALL, AML, CLL, CML, Hodgkin's disease, Non-Hodgkin's lymphoma, Ca breast, Ca lung, Ca prostate and Ca stomach.		
		Describe cancer treatment modalities (primary induction, adjuvant, neo-adjuvant and maintenance chemotherapy)		
		Describe the antidotes of Methotrexate, Cyclophosphamide and Doxorubicin toxicity.		
	Herbal medications	Describe the terms like herbal medications, botanicals and nutritional supplements with special reference to drug regulatory factors.	L G F	2
		Describe the pharmacologic effects and intended uses of Garlic (<i>Allium sativum</i>).		
		Describe the drug interactions of Garlic with Warfarin and Aspirin.		
		Describe the possible medicinal use of Kalonji (<i>Nigella sativa</i>).		
		Describe the pharmacologic effects and intended uses of Ginseng.		
		Describe the drug interactions of Ginseng with antipsychotic and hypoglycemic medications.		
		Describe the intended clinical uses of Coenzyme Q10.		
		Describe the drug interactions of Coenzyme Q10 with Warfarin.		
		Describe the pharmacological effects and clinical uses of Ginkgo		
		Describe the pharmacological effects and intended uses of Milk Thistle (<i>Silbum Marianum</i>)		

		Describe the pharmacological effects, adverse effects and drug interaction of ST. John's Wort (Hypericum Perforatum)		
		Describe the pharmacological effects, clinical uses and drug interactions of Glucosamine		
Community Medicine	Cancers	Enlist the common cancers prevalent in Pakistan	LGF	1
		Describe the burden and epidemiology of common cancers prevalent globally and in Pakistan		
		Describe the prevention and control of cancers		
		Describe various governmental programs and strategies for the prevention of cancers		
Family medicine	Cancer screening	Identify red-flags in patient which need referral for cancer screening	LGF	1
		Explain the psychosocial impact of disease on patient and their families		
		Describe the indications, rationale and common diseases which require routine cancer screening		

PRACTICAL WORK

Discipline	Topic	LOs	Hours
Pathology	Lipoma	Identify the morphological changes occurring in lipoma and enlist the points of identification	2
	Squamous cell carcinoma	Identify morphological changes of squamous cell carcinoma and enlist the points of identification	2
	Fibro adenoma	Identify morphological changes of Fibro adenoma and enlist the points of identification	2
	Karyotyping	Demonstrate karyotyping on Karyogram, identify gender and chromosomal abnormalities on karyogram	2
	Introduction to	Differentiate between Qualitative	2

Pharmacology	experimental Pharmacology (experiments on isolated piece of rabbit's Ileum)	and Quantitative experiments.	
		Recognize various parts of Tissue Organ Bath and describe their functions.	
		Describe the ingredients and their quantities required for preparing the Tyrode's Solution.	
		Describe the technique of slaughtering of rabbit and removal of a piece of ileum.	
		Describe the fixation of piece of ileum in the inner organ bath.	
		Enumerate the causes of tissue death.	
	Ceiling effect for Parasympathomimetic drug (Acetylcholine)	Demonstrate ceiling effect for Acetylcholine on the isolated piece of rabbit's ileum by adding proper	2
		doses of the drug into the inner organ bath.	
		Interpret the recording of acetylcholine-induced ileal activity on the revolving drum.	
		Demonstrate washing of the inner organ bath for the subsequent doses of Acetylcholine.	
		Construct tables and graphs for inference of the results.	
	Antagonism between acetylcholine and atropine	Demonstrate surmountable antagonism between acetylcholine and atropine on piece of rabbit's ileum by adding proper doses of the drugs into the inner organ bath.	
		Interpret the recording of acetylcholine- and Atropine-induced ileal activity on the revolving drum.	
		Construct tables and graphs for inference of the results.	
		Demonstrate ceiling effect for	

	Ceiling effect for Histamine	Histamine on the isolated piece of rabbit's ileum by adding proper doses of the drug into the inner organ bath.	2
		Interpret the recording of Histamine -induced ileal activity on the revolving drum.	
		Demonstrate washing of the inner organ bath for the subsequent doses of Histamine.	
		Construct tables and graphs for inference of the results.	
	Antagonism between Histamine and antihistamine	Demonstrate surmountable antagonism between Histamine and antihistamine on piece of rabbit's	
		ileum by adding proper doses of the drugs into the inner organ bath.	2
		Interpret the recording of Histamine- and antihistamine-induced ileal activity on the revolving drum.	
		Construct tables and graphs for inference of the results.	
	To identify an unknown drug on rabbit's ileum with the help of two known antagonists	Demonstrate ceiling effect for the known agonist drug (Acetylcholine or Histamine) on the isolated piece of rabbit's ileum by adding proper doses of the drug into the inner organ bath.	
		Demonstrate surmountable antagonism between the agonist drug and the unknown antagonists (Atropine and antihistamine) on piece of rabbit's ileum by adding proper doses of the drugs into the inner organ bath.	
		Interpret the recording of drug-induced ileal activity on the revolving drum.	2
		Construct tables and graphs for inference of the results.	
	Introduction to experimental	Demonstrate measuring the pupil size.	

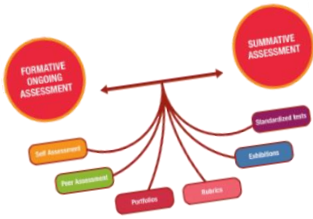
	Pharmacology (effects of drugs on rabbit's Eye)		
		Demonstrate corneal reflex.	
		Demonstrate light reflex.	
	Effects of Parasympathomimet ic drug (e.g.,	Demonstrate the effect of Pilocarpine on the size of the pupil in the test eye in comparison with the control eye.	2
	Pilocarpine) on rabbit's eye		
		Demonstrate the effect of Pilocarpine on the colour of the conjunctiva in the test eye in comparison with the control eye.	
		Demonstrate the effect of Pilocarpine on the corneal reflex in the test eye in comparison with the control eye.	
		Demonstrate the effect of Pilocarpine on the light reflex in the test eye in comparison with the control eye.	
	Effects of Sympathomimetic drug (e.g., Ephedrine) on rabbit's eye	Demonstrate the effect of Ephedrine on the size of the pupil in the test eye in comparison with the control eye.	2
		Demonstrate the effect of Ephedrine on the colour of the conjunctiva in the test eye in comparison with the control eye.	
		Demonstrate the effect of Ephedrine on the corneal reflex in the test eye in comparison with the control eye.	
		Demonstrate the effect of Ephedrine on the light reflex in the test eye in comparison with the control eye.	
	Effects of Parasympatholytic drug (e.g., Tropicamide) on rabbit's eye	Demonstrate the effect of Tropicamide on the size of the pupil in the test eye in comparison with the control eye.	2
		Demonstrate the effect of	

		Tropicamide on the colour of the conjunctiva in the test eye in comparison with the control eye.	
		Demonstrate the effect of Tropicamide on the corneal reflex in the test eye in comparison with the control eye.	
		Demonstrate the effect of Tropicamide on the light reflex in the test eye in comparison with the control eye.	
	Effects of Local anaesthetic (e.g., Proparacaine) on rabbit's eye	Describe the mechanism of action of Proparacaine regarding its effects on the eye.	2
		Demonstrate the effect of Proparacaine on the size of the pupil in the test eye in comparison with the control eye.	
		Demonstrate the effect of Proparacaine on the colour of the conjunctiva in the test eye in comparison with the control eye.	
		Demonstrate the effect of Proparacaine on the corneal reflex in the test eye in comparison with the control eye.	
		Demonstrate the effect of Proparacaine on the light reflex in the test eye in comparison with the control eye.	
	To identify effect of an unknown drug on rabbit's eye	Demonstrate the effect of the unknown drug on the size of the pupil in the test eye in comparison with the control eye.	2
		Demonstrate the effect of the unknown drug on the colour of the conjunctiva in the test eye in comparison with the control eye.	
		Demonstrate the effect of the unknown drug on the corneal reflex in the test eye in comparison with the control eye.	
		Demonstrate the effect of the unknown drug on the light reflex in	

		the test eye in comparison with the control eye.	
		Interpret the results.	
		Identify the unknown drug.	
	Visit to Pharmacology Museum	Identify the different plants and their parts used as a source of important drugs(e.g, Hyscyamus niger, Digitalis purpurea, Papver somniferum etc)	2
		Recognize the various preparations of common drugs used in clinical practice.	
		Observe the diagrammatic illustrations of mechanism of action of different drugs	
Forensic medicine	Autopsy report	Construct a full autopsy report including all components after thorough examination.	2
	Toxicology Sample collection	Explain the procedures, organ needed, and preservation used in sample collection.	2
	Toxicology Report Analysis	interpret the toxicology report received and then incorporate it in final opinion.	2
	Thanatology	Identify and describe various models of post-mortem changes	2
	Stomach wash	Perform stomach wash on a Manikin	2

Hours Distribution	
Theory	
Discipline	No. of hours
Physiology	01
Pathology	16
Pharmacology	14
Forensic Medicine	21
Community Medicine	05
Family Medicine	01
PRIME	02
Total	60
Practical/ SGDs	
Pathology	08
Pharmacology	22

Forensic Medicine	10
Total	40



6. Examination and Methods of Assessment:

The year-3 will be assessed in 3 blocks.

- 1) Block-1 (Foundation 2 and Infection and Inflammation modules) will be assessed in **paper-G**.
- 2) Block-2 (Multisystem, blood and MSK modules) will be assessed in **paper-H**.
- 3) Block-3 (CVS and Respiratory module) will be assessed in **paper-I**.
- 4) Each written paper consists of 120 MCQs.
- 5) Internal assessment will be added to final marks in KMU.
- 6) In OSPE, each station will be allotted 6 marks, and a total of 120 (+10% marks of internal assessment) marks are allocated for each OSPE/OSCE examination.
- 7) Practical assessment will be in the form of OSPE/OSCE which will also include embedded viva stations. The details of each section are given in the tables given below.

Table-1: Total Marks Distribution 3rd Year MBBS

Assessment Plan of 3rd Year MBBS						
Theory paper	Modules	Theory marks	Internal assessment theory (10%)	OSPE/OSPE	Internal assessment OSPE/OSPE(10%)	Total Marks
Paper G	Foundation-II	120	14	120	14	268
	Inf.&Inflamm.I					
Paper H	Multisystem I Blood II MSK-II	120	13	120	14	267
Paper I	CVS-II	120	13	120	12	265
	Respiratory-II					
Total Marks		360	40	360	40	800

Paper-H (Multisystem, Blood and MSK)

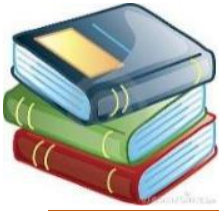
MCQs

Subject	Multisystem-1 module	Blood and Immunology-2	Musculoskeletal (MSK)-2 module	Total MCQs
Pharmacology	12	03	05	20
Pathology	16	22	13	51
Forensic medicine	09	02	09	20
Community medicine	03	04	03	10
ENT			01	01
Eye			01	01
PRIME			01	01
Research			05	05
Medicine	01	02	02	05
Orthopedics			02	02
Pediatrics		01	03	04
Total	41	35	44	120

OSPE

Subject	OSPE/OSCE	Viva stations	Total*
Pharmacology	5	2	7
Pathology	3	2	5
Forensic medicine	2	2	4
Community medicine	0	2	2
Paeds (history and physical examination)	1	0	1
Medicine (history and physical examination)	1	0	1
Total	12	8	20

* A minimum of 20 stations will be used in final exams. Total marks will be 120 (6 marks for each station).



7. Learning Opportunities and Resources

a. Books:

Pharmacology

- 1-Basic & Clinical Pharmacology, 14th edition
- 2- Goodman Gilman's The Pharmacological Basis of Therapeutics, 13th edition
- Lippincott Illustrated Reviews Pharmacology, 7th edition

Paediatrics

- Nelson textbook of Pediatrics, 21st edition
- Textbook of Pediatrics, Pakistan Pediatrics Association
- Basis of Pediatrics, Pervez Akbar Khan, Ninth edition

Prime/Research

- Essentials of research design and methodology. (Geoffrey Marczyk)
- The essentials of clinical epidemiology (Robert H)

Medicine

- Davidson's Principles and Practice of Medicine
- Kumar and Clarks Clinical Medicine

Forensic Medicine

- 1-Principles and practice of Forensic Medicine by Naseeb Rawan
- 2-Text book of Forensic Medicine and Toxicology by Nagesh Kumar G Rao.
- 3-Prakhs textbook of medical jurisprudence and toxicology

Pathology

Text Books

- Robbins Pathologic Basis of Disease

Reference Books:

- Walter & Israel's General Pathology"

Harsh Mohan's "Textbook of Pathology".

Pathology Illustrated

Stefan Silbernagl's "Color Atlas of Pathophysiology"

Muir's Textbook of Pathology

Textbook for Microbiology

Jawetz, Melnick&Adelberg's "Medical Microbiology"

b. Reference Books:

Levinson's "Medical Microbiology & Immunology"

Sherris Medical Microbiology

Lippincott's Illustrated Reviews: Microbiology

c. Website:

Forensic Medicine

PFSA Guidelines :<https://pfsa.punjab.gov.pk>

Prime

<https://libguides.usc.edu/writingguide/academicwriting>

d. Articles:

Koponen J, Pyörälä E, Isotalus P. Communication skills for medical students: Results from three experiential methods. Simulation & Gaming. 2014 Apr;45(2):235-54.

8. Timetables

AYUB MEDICAL COLLEGE ABBOTTABAD

TIMETABLE OF 3RD YEAR MBBS CLASS FOR THE SESSION 2024

Multisystem Module, Week 1: Theme 01 (Vomiting & Blurred Vision) & 02 (Palpitation, Fainting, & Death)

Days	9:00-9:50 am	10:00-10:50 am	11:00-11:50 am	12:00-12:50 pm	01:00-01:50 pm
Mon	Functional organization of ANS Physiology L1 Dr. Raisa Naz	Anti-Cholinergics & Ganglion Blocking Drugs Pharmacology L3 Dr. Afsheen Siddiqui	Transmission Pattern of Single Gene Disorders Pathology L2 Dr. Fiaz Ahmed	Drug Abuse Community Medicine L2 Dr. Muneeba Mushtaq	SDL
Tue	Anti-Cholinergics & Ganglion Blocking Drugs Pharmacology L4 Dr. Afsheen Siddiqui	Organophosphate Group Forensic Medicine L1 Dr. Salma Shazia	Autopsy Forensic Medicine L2 Dr. Inayat Ullah	Mutations Dr. Fiaz Pathology L3	SDL
Wed	Modern Autopsy Suite Forensic Medicine L3 Dr. Salma Shazia	Biochemical & Molecular Basis of Single gene Disorders Pathology L4 Dr. Fiaz Ahmed	International health Community Medicine L3 Dr. Rizwana	Autopsy protocol Forensic Medicine L4 Dr. Omair	SDL
Thurs	Autopsy protocol Forensic Medicine L5 Dr. Omair	Sympathomimetics Pharmacology L5 Dr. Sumbal Tariq	Complex Multigeneic & Cytogenetic Disorders Pathology L5 Dr. Fiaz Ahmed	Autopsy protocol Forensic Medicine L6 Dr. Omair	Smoking Community Medicine L4 Dr. Muneeba Mushtaq
Fri	Sympathomimetics Pharmacology L6 Dr. Sumbal Tariq	Exhumation Forensic Medicine L7 Dr. Omair	Sympatholytics Pharmacology L7 Dr. Haq Nawaz	Skeletonized body Forensic Medicine L8 Dr. Omair	HALFDAY

AYUB MEDICAL COLLEGE ABBOTTABAD

TIMETABLE OF 3RD YEAR MBBS CLASS FOR THE SESSION 2024

Multisystem Module, Week 2: Theme 02 (Palpitation, Fainting, & Death) & Theme 03 (Heredity & Cancers)

Days	9:00-9:50 am	10:00-10:50 am	11:00-11:50 am	12:00-12:50 pm	01:00-01:50 pm
Mon	Negative Autopsy Forensic Medicine L9 Dr. Salma Shazia	Sympatholytics Pharmacology L8 Dr. Haq Nawaz	Molecular Genetic Diagnosis Pathology L6 Dr. Fiaz Ahmed	Autopsy Artifacts and Hazards Forensic Medicine L10 Dr. Inayat Ullah	Referencing PRIME (Community Med) L4 Dr. Zeeshan
Tue	Infanticide Forensic Medicine L11 Dr. Salma Shazia	Introduction to Neoplasia Nomenclature of Tumors Pathology L7 Dr. Shagufta	Autopsy of an infected body Forensic Medicine L12 Dr. Omair	Eicosanoids, prostaglandins, & anti- histamines Pharmacology L9 Dr. Jamila Sahir	Reference manager PRIME (Community Med) L5 Dr. Zeeshan
Wed	Eicosanoids, prostaglandins, & anti-histamines Pharmacology L10 Dr. Jamila Sahir	Autopsy of fragmentary remains Forensic Medicine L13 Dr. Omair	Characteristics of Benign & Malignant Tumors Pathology L8 Dr. Shagufta	Embalming, Adipocere formation & Mummification Forensic Medicine L14 Dr. Nighat Seema	Epidemiology of Cancers, Molecular Basis of Cancers Pathology L9 Dr. Shagufta
Thurs	Carcinogenesis Pathology L10 Dr. Shagufta	Thanatology Forensic Medicine L15 Dr. Nighat Seema	Postmortem Changes Forensic Medicine L16 Dr. Inayat Ullah	Types of Carcinogens Pathology L11 Dr. Shagufta	Phytopharmacology Pharmacology L11 Dr. Faryal Mustafa
Fri	Rigor Mortis Forensic Medicine L17 Dr. Nighat Seema	Clinical Aspects of Neoplasia & its diagnosis Pathology L12 Dr. Shagufta	Anti-Cancer Drugs Pharmacology L12 Dr. Nisar Ahmed	Algor Mortis Forensic Medicine L18 Dr. Omair	HALFDAY

L: Sequence of lectures of a discipline.

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TIMETABLE OF 3RD YEAR MBBS CLASS FOR THE SESSION 2024

Blood & Immunology module II

Days	9:00-9:50 am	10:00-10:50 am	11:00-11:50 am	12:00-12:50 pm	01:00-01:50 pm
Mon	Late Post-Mortem changes & Putrefaction Forensic Medicine L19 Dr. Omair	Pathways for Tumor Spread Pathology L13	Anti-Cancer Drugs Pharmacology L13 Dr. Nisar Ahmed	Maceration Forensic Medicine L20	

9. For inquiry and troubleshooting



Please contact

drsumbaltariq@yahoo.com

adeelalam2@gmail.com

10. Course Feedback Form

Course Title: _____

Semester/Module _____

Dates: _____

Please fill the short questionnaire to make the course better

Please respond below with 1, 2, 3, 4 or 5, where 1 and 5 are explained.

THE CONDUCT OF THE MODLUE

- | | | |
|--|----------------------------|----------------------------|
| A. The lectures were clear and easy to understand | | |
| l. Strongly disagree | 5. Strongly agree | <input type="checkbox"/> |
| B. The teaching aids were effectively used | | |
| l. Strongly disagree | 5. Strongly agree | <input type="checkbox"/> |
| C. The course material handed out was adequate | | |
| l. Strongly disagree | 5. Strongly agree | <input type="checkbox"/> |
| D. The instructors encouraged interaction and were helpful | | |
| l. Strongly disagree | 5. Strongly agree | <input type="checkbox"/> |
| E. Were objectives of the course realized? | Y <input type="checkbox"/> | N <input type="checkbox"/> |

THE DESIGN OF THE MODLUE

- | | | |
|--|----------------------------|----------------------------|
| A. Were objectives of the course clear to you? | Y <input type="checkbox"/> | N <input type="checkbox"/> |
| B. The course contents met with your expectations | | |
| l. Strongly disagree | 5. Strongly agree | <input type="checkbox"/> |
| C. The lecture sequence was well-planned | | |
| l. Strongly disagree | 5. Strongly agree | <input type="checkbox"/> |
| D. The contents were illustrated with | | |
| l. Too few examples | 5. Adequate examples | <input type="checkbox"/> |
| E. The level of the course was | | |
| l. Too low | 5. Too high | <input type="checkbox"/> |
| F. The course contents compared with your expectations | | |
| l. Too theoretical | 5. Too empirical | <input type="checkbox"/> |
| G. The course exposed you to new knowledge and practices | | |
| l. Strongly disagree | 5. Strongly agree | <input type="checkbox"/> |

H. Will you recommend this course to your colleagues?

1. Not at all

5. Very strongly

Please give overall rating of the course

90% - 100%	()	60% - 70%	()
80% - 90%	()	50% - 60%	()
70% - 80%	()	below 50%	()

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Please give suggestions for the improvement of the course.

Optional - Your name and contact address:

Thank you!!