



INTEGRATED MODULAR COURSE

STUDENT'S STUDY GUIDE

MBBS YEAR - III

2022-2023



BAQAI MEDICAL COLLEGE


BAQAI MEDICAL UNIVERSITY

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SPIRAL II

PROPOSED

TEMPLATE OF

ONCOGENETICS

MODULE – II

(Duration: 4 Weeks)



MODULAR COMMITTEE FOR ONCO-GENETICS MODULE

1.	Dr. Sarah Azhar (Pathology)
2.	Dr. Nazia Jameel (Community Medicine)
3.	Dr. Faraz Saleem (Pharmacology)
4.	Dr. Rafay A. Siddiqui (Forensic Medicine)
5.	Dr. Munir Shaikh (Research)
6.	Dr. Azra Shaheen (Behavioral Sciences)
7.	Dr. Saqib-ur-Rehman (Medicine)
8.	Dr. Rabail Bashir (Surgery)
9.	Dr. Saima Qamar (Medical Education)

Module Number	Module Name	Dates	Duration	Module In charge	Assessment Date & Pattern
2.	Onco-genetics Module	06-05-2022 Begins: 06 th May, 2022 (Summer break in between) Ends: 28 th June, 2022	4 weeks	Dr. Sarah Azhar	Last week of Onco-genetics module (27 th & 28 th June, 2022) <i>(Subject to minor changes)</i> MCQs, SEQs & OSPE

ASSESSMENT TOOLS:

1. Formative assessment
 - Quiz (face to face or online)
2. Summative assessment
 - MODULAR EXAM:
 - A single modular exam will be held at the end of module which will include all the subjects taught in the module.
 - Module will be assessed by MCQ, SEQ and OSPE.

DEPT. OF PATHOLOGY
LEARNING OBJECTIVES OF ONCOGENETICS MODULE - II

(3rd year MBBS)

(NEOPLASIA & GENETICS)

By the end of onco-genetics module, the students of 3rd year MBBS will be able to:

NEOPLASIA			
TOPIC	MODE OF TEACHING	TIME (hours)	LEARNING OBJECTIVES
Introduction to Neoplasia & Differences of Benign & Malignant Tumours	Lecture # 1 (online)	01	<p>Define Oncology, Tumor, Neoplasia, Anaplasia, Dysplasia, Metaplasia, Malignant Tumor and Benign tumor.</p> <p>Recognize the type of tumor based upon its nomenclature</p> <p>Discuss the differences b/w carcinoma and sarcoma.</p> <p>Distinguish benign tumors with malignant tumors based upon their macroscopic & microscopic features, behavior of tumors and differentiation with examples</p>
Molecular Basis of Carcinogenesis I	Lecture # 2 (online)	01	<p>Summarize the common chemical and physical agents with their mechanism leading to carcinogenesis</p> <p>Explain the effects of radiation, which causes cancer</p> <p>List at least 5 major occupational carcinogens in Pakistan.</p> <p>List the common microbes and viruses related to human cancer.</p> <p>List the hereditary causes associated with cancers</p> <p>List the hallmarks of cancer.</p> <p>Comprehend the alterations in cell cycle control proteins in cancer cells</p> <p>Explain the role of proto-oncogenes, oncogenes & onco-proteins that cause self-sufficiency in growth promoting signals.</p> <p>Discuss the pathogenesis of evasion of apoptosis in carcinogenesis</p> <p>Justify that impairment in the repair of damaged/mutated DNA leads to cancer.</p> <p>Explain the mechanism of reactivation of telomerase and its association with unlimited proliferation capacity during carcinogenesis</p> <p>Discuss the role of sustained angiogenesis in carcinogenesis.</p>
Molecular Basis of Carcinogenesis II	Lecture # 3 (online)	01	
Metastasis	Lecture # 4 (online)	01	<p>Define metastasis</p> <p>Recall the different routes of metastasis</p> <p>Describe the process of invasion and metastasis of malignant tumors</p>
Tumour Immunity & Tumour Markers	Lecture # 5 (online)	01	<p>Discuss tumor antigens and anti-tumor effector mechanisms.</p> <p>Explain immune surveillance and immune evasion by tumors</p>

Clinical Aspects of Neoplasia	Lecture # 6 (online)	01	<p>Discuss the local and systemic effects of tumors</p> <p>Define cancer cachexia and list the causes that can lead to Cachexia</p> <p>Classify paraneoplastic syndrome & their origins</p> <p>Comprehend the criteria upon which malignant tumors can be graded & staged to determine the prognosis of malignant tumors</p>
Lab Diagnosis of Neoplasia	Lecture # 7 (online)	01	<p>Comprehend the various laboratory techniques that help in the diagnosis of tumors</p> <p>Discuss the tumor markers used in the diagnosis and management of cancers.</p> <p>Describe the role of molecular analysis in prompt diagnosis of cancers.</p>
Neoplasia Revision	Formative Assessment (QUIZ) (online)	02	<p>Recall the general concepts and principles of Neoplasia and molecular carcinogenesis, metaplasia with management and clinical co-relation.</p> <p>Recall the basis of Genetic disorders and the molecular techniques used for the diagnosis of genetic disorders.</p>

GENETICS

Introduction to Genetics	Lecture # 8	0.75	Describe the basic vocabulary of genetics, i.e. Gene, Allele, Chromosome, etc.
Basics of Genetic Abnormalities	Lecture # 9	0.75	Explain the nature of genetic abnormalities contributing to human disease Discuss the Mendelian disorders caused by single gene defects Describe the transmission pattern of single gene disorders List common sex linked, autosomal dominant and autosomal recessive disorders
Complex Multigenic & Cytogenic Disorders	Lecture # 10	0.75	Describe complex multigenic disorders. List the common cytogenic disorders involving autosomes and sex chromosomes. Discuss the karyotypic abnormality and clinical features of Trisomy 21 and Down syndrome. Describe the characteristics features of Klinefelter's syndrome and Turner's syndrome.
Molecular Diagnosis of Genetic Disorders	Lecture # 11	0.75	Describe the molecular techniques used for the diagnosis of genetic disorders. List the common indications for prenatal and postnatal genetic analysis.

By the end of onco-genetics module, the students of 3rd year MBBS will be able to:

NEOPLASIA			
TOPIC	MODE OF TEACHING	TIME (hours)	LEARNING OBJECTIVES
Leiomyoma & Lipoma	Practical # 1	2	<p>Define leiomyoma. List its common sites of leiomyoma according to the age of patient. Examine the gross specimen and describe the points of identification Identify and illustrate the histology slide. Define lipoma List the common sites of lipoma Identify the gross specimen and histology slide and write its points of identification. Illustrate the histology slide.</p>
Fibroadenoma & Hydatidiform Mole	Practical # 2	2	<p>Define fibroadenoma. Examine the gross specimen of fibroadenoma and describe its points of identification Identify and illustrate the histology slide of fibroadenoma Define hydatidiform mole List the types of hydatidiform mole Examine the gross specimen and describe its points of identification Identify and illustrate the histology slide of mole State its incidence and complications.</p>
Squamous Cell Papilloma & Squamous Cell Carcinoma	Practical # 3	2	<ul style="list-style-type: none"> • Define squamous cell papilloma. • List the common sites and etiology. • Identify the diagrammatic histology slide. • Define squamous cell carcinoma. • List the etiological factors. • Mention its routes of spread. • Examine the gross specimen and describe the points of identification, • Identify and illustrate the histology slide • List the complications of squamous cell carcinoma.
Adenocarcinoma	Practical # 4	2	<ul style="list-style-type: none"> • Define adenocarcinoma. • List the etiological factors and routes of spread. • Examine the gross specimen and describe the points of identification, • Identify and illustrate the histology slide • List the complications of adenocarcinoma.

DEPT. OF PHARMACOLOGY & THERAPEUTICS

LEARNING OBJECTIVES OF LECTURES

ONCOGENETICS MODULE – II

3rd Year MBBS

By the end of Onco-genetics module, the students of 3rd year MBBS will be able to:

TOPIC	MODE OF TEACHING	TIME (hours)	LEARNING OBJECTIVES
Principles of Cancer Chemotherapy	Lecture # 1 (online)	01	<ul style="list-style-type: none">• Outline pathophysiology of cancer.• Define cancer chemotherapy• Explain the different treatment modalities of cancer therapy• Explain different mechanisms of resistance to chemotherapeutic agents.• Discuss the adverse effects of cancer chemotherapy
Anti-cancer drugs I (Cell cycle specific drugs)	Lecture # 2 (online)	01	<ul style="list-style-type: none">• Explain Cancer cell cycle kinetics• Classify Cell Cycle specific anticancer drugs.• Explain the mechanism of action of 5- Fluorouracil, Methotrexate, Vincristine, Bleomycin• Discuss clinical uses of these drugs.• Discuss adverse effects of these drugs.
Anti -cancer drugs II (Cell cycle non-specific and miscellaneous drugs)	Lecture # 3 (online) vts	01	<ul style="list-style-type: none">• Classify Cell Cycle non-specific and miscellaneous anticancer drugs.• Explain the mechanism of action of, Cyclophosphamide, Doxorubicin, Imatinib, Transtuzumab, Tamoxifen• Discuss clinical uses of these drugs.• Discuss adverse effects of these drugs.

LEARNING OBJECTIVES OF TUTORIALS

ONCOGENETICS MODULE – II

By the end of onco-genetics module, the students of 3rd year MBBS will be able to:

<u>TOPIC</u>	<u>MODE OF TEACHING</u>	<u>TIME (hours)</u>	<u>LEARNING OBJECTIVES</u>
Introduction to prescription writing	Tutorial # 1	2	<ul style="list-style-type: none">• Define Prescription.• List different parts of Prescription.• Correlate the use of abbreviations in Prescription Writing.
Rationale prescription writing (cancer chemotherapy)	Tutorial # 2	2	<ul style="list-style-type: none">• Write prescription for the treatment of Acute Myeloid Leukemia and Chronic Myeloid Leukemia.• Write prescription for the treatment of Acute Lymphocytic Leukemia and Chronic Lymphocytic Leukemia.• Write prescription for the treatment of Hodgkin's Lymphoma and non-Hodgkin's Lymphoma.• Write prescription for the treatment of Carcinoma of breast

DEPT. OF FORENSIC MEDICINE
LEARNING OBJECTIVES OF ONCOGENETICS MODULE -II

(3rd year MBBS)

By the end of onco-genetics module, the students of 3rd year MBBS will be able to:

TOPIC	MODE OF TEACHING	TIME (hours)	LEARNING OBJECTIVES
Autopsy 4	Lecture # 1	0.75	Discuss Collection, Preservation, & Dispatch of Viscera and other Articles in Suspected Poisoning Cases & Rules for Transmitting to the Chemical Examiner / Histopathologist / Clinical Pathologist
Autopsy 5	Lecture # 2	0.75	Demonstrate Selected Special Procedures of Autopsy like Air Embolism, Fat Embolism, Pneumothorax, etc. Describe Examination of Mutilated Bodies or Fragments & Putrefied / Decomposed Bodies
Death & Postmortem Changes 1	Lecture # 3	0.75	Define Death with Scientific Concepts Describe the 2 Phases i.e., Somatic & Molecular Death.
Death & Postmortem Changes 2	Lecture # 4	0.75	Detail Mode, Manner, Mechanism & Cause of Death as per WHO criterion. Enlist Gordon's Classification of Death with examples.
Death & Postmortem Changes 3	Lecture # 5	0.75	Describe Brain Death with its ML aspects, especially in relation to Organ Transplantation Define Suspended Animation/ Apparent Death & its Types with examples.
Death & Postmortem Changes 4	Lecture # 6	0.75	Enlist Methods of Estimation of Time since Death / Postmortem Interval from the Immediate, Early & Late Signs of Death, & Factors influencing such changes. Differentiate between Postmortem Staining (PM Lividity or Suggilation) & Bruise, Hypostasis & Congestion, Rigor Mortis & Cadaveric Spasm, Rigor Mortis & Conditions simulating Rigor Mortis, Primary & Secondary Relaxation of Muscles, etc.
Death & Postmortem Changes 5	Lecture # 7	0.75	Explain Presumption of Death & Survivorship. Detail Medical Certification of Cause of Death / A Doctor's Approach to Death Certification as per WHO.

By the end of onco-genetics module, the students of 3rd year MBBS will be able to:

TOPIC	MODE OF TEACHING	TIME (hours)	LEARNING OBJECTIVES
Differences between Human & Animal Blood / Semen	Practical # 1 (online)	2	Differentiate between Human & Animal Blood. Differentiate between Human & Animal Semen.
Medicolegal Reports 1	Practical # 2 (online)	2	Write the Medico-legal Reports of: <ul style="list-style-type: none"> • Age Certification • Drunk / Alcoholic • Poisoning
Medicolegal Reports 2	Practical # 3 (online)	2	Write the Medico-legal Reports of: <ul style="list-style-type: none"> • Assault • Burns • Vitriolage
Medicolegal Reports 3	Practical # 4 (online)	2	Write the Medico-legal Reports of: <ul style="list-style-type: none"> • Victim of Rape • Alleged Rapist
Medicolegal Reports 4	Practical # 5 (online)	2	Write the Medico-legal Reports of: <ul style="list-style-type: none"> • Non-habitual Passive Agent of Sodomy • Habitual Passive Agent of Sodomy • Active Agent of Sodomy

DEPT. OF COMMUNITY MEDICINE
LEARNING OBJECTIVES OF ONCOGENETICS MODULE - II

(3rd year MBBS)

By the end of onco-genetics module, the students of 3rd year MBBS will be able to:

TOPIC	MODE OF TEACHING	TIME (hours)	LEARNING OBJECTIVES
Occupational Cancers	Lecture # 1 (online)	02	Define occupational cancers. Describe the risk factors and causes of occupational cancers. Discuss the management, treatment and prevention of occupational cancers.

DEPT. OF RESEARCH
LEARNING OBJECTIVES OF ONCOGENETICS MODULE - II

(3rd year MBBS)

By the end of onco-genetics module, the students of 3rd year MBBS will be able to:

TOPIC	MODE OF TEACHING	TIME (hours)	LEARNING OBJECTIVES
Synopsis Write up	Lecture # 1	2	Prepare an appropriate introduction section
	Lecture # 2	2	Examine available literature to write a comprehensive literature review

DEPT. OF BEHAVIORAL SCIENCES
LEARNING OBJECTIVES OF ONCOGENETICS MODULE - II

(3rd year MBBS)

By the end of onco-genetics module, the students of 3rd year MBBS will be able to:

TOPIC	MODE OF TEACHING	TIME (hours)	LEARNING OBJECTIVES
Psychodynamic Theory of Personality	Lecture # 1	0.75	Psychosexual theory Tripartite model of personality Conscious and unconscious
Psychosocial Theory of Personality	Lecture # 2	0.75	Eight stages of Erick Erikson's theory

DEPT. OF SURGERY
LEARNING OBJECTIVES OF ONCOGENETICS MODULE - II

(3rd year MBBS)

By the end of onco-genetics module, the students of 3rd year MBBS will be able to:

TOPIC	MODE OF TEACHING	TIME (hours)	LEARNING OBJECTIVES
Principals of oncology	Lecture # 1	0.75	To understand biological nature of cancer Discuss principles of cancer prevention and early detection Define multidisciplinary management of cancer To discuss palliative care
Basal cell carcinoma skin	Lecture # 2	0.75	Discuss anatomy of skin Describe etiology of basal cell carcinoma Pathogenesis of basal cell carcinoma Discuss clinical presentation of basal cell carcinoma

DEPT. OF MEDICINE
LEARNING OBJECTIVES OF ONCOGENETICS MODULE - II
(3rd year MBBS)

By the end of onco-genetics module, the students of 3rd year MBBS will be able to:

TOPIC	MODE OF TEACHING	TIME (hours)	LEARNING OBJECTIVES
Clinical Presentation of different carcinomas	Lecture # 1	0.75	<ul style="list-style-type: none"> • Define cancer • Enlist major types of cancer • Identify hallmarks of cancer • Enlist most common types of cancer in male and female • Discuss major causes of cancer • Record common cancer types in different body organs • Discuss clinical presentation of different carcinoma • Enlist methods to diagnose carcinomas • Understand role of tumor marker in the diagnosis of cancer • Discuss different options for cancer treatment • Understand importance of psychological and social support in cancer patient
	Lecture # 2	0.75	

PEARLS

LEARNING OBJECTIVES OF ONCOGENETICS

MODULE - II

(3rd year MBBS)

By the end of onco-genetics module, the students of 3rd year MBBS will be able to:

TOPIC	MODE OF TEACHING	TIME (hours)	LEARNING OBJECTIVES
Acting with Integrity	Lecture # 1	0.75	<ol style="list-style-type: none">1. Discuss the importance of honesty and integrity, in particular in relation to students' interactions with patients, peers and professionals.2. Identify common situations where medical students' behavior may be deemed unprofessional.3. Identify approaches that would display honesty and integrity whilst on placement in hospitals.
Reflections on learning	Lecture # 2	0.75	<ol style="list-style-type: none">1. Develop reflective practices.
Team building-I	Lecture # 3	0.75	<ol style="list-style-type: none">1. Discuss pre-requisites for team building2. Identify types of team members3. Identify team building components