



MD Program Course Description

Phase I

MEDI2100 - Medical Informatics 1

The course introduces students to the area of Medical Informatics using Microsoft Office packages. Upon completion of the course, the student should be able to use Microsoft office packages easily to create medical documents and to manipulate and analyze medical data using different types of spreadsheets, design medical illustration and graphs, produce professional medical presentations, know the essential elements of medical search databases and design simple web pages for healthcare.

MEDI2106 - Introduction to Human Anatomy

The aim of this course is to introduce the anatomy of human body on a regional basis and relate this with functional topography. The course also intends to initiate the concept of living anatomy as seen on medical images and surface anatomy. This course will also bring in the structure and function of basic tissues of the human body and also provide a glimpse of some of the disease processes which alter their function.

MEDI2107 - Introduction to Human Physiology

This is an introductory basic physiology course. It includes composition and regulation of body fluids as well as the integrative body responses especially to shock, hypothermia and hyperthermia. The concept of organ-systems will also be introduced here.

MEDI2108 - Enzymology & Methabolism

This course introduces several basic biochemical concepts and discusses fuel metabolism and its regulation, i.e. how ATP, the energy-currency of our cells, is produced from different metabolic fuels, the way energy sources are catabolised and stored in the body and how abnormalities can arise in these pathways.

MEDI2109 - Cellular Communication

This course explains the significant cellular functions that are related to how cells, or parts thereof, communicate between them in order to optimize their role in maintaining life. In particular, it describes the signaling processes that are utilized to convey and concert various cellular functions. The course also introduces the basic concepts of pharmacokinetics and pharmacodynamics and how drugs act on the autonomic nervous system.

CHEM2110 - Chemistry for Medicine

This course is designed to provide medical students with a sound understanding of fundamental concepts and principles in general chemistry and introductory organic chemistry. The emphasis will be placed on chemical applications in medicine and the allied health sciences. In the laboratory component, students will be introduced to synthesis, analysis, physical characterisation and spectrophotometry, and will be equipped with manipulative skills.



LANC2033 – Academic English for Medicine

The aim of this course is to build upon the foundation of earlier English for Medicine courses and to develop further the language and study skills required by medical students to successfully complete their pre-clinical programme. The course teaches academic listening and reading skills focused on selective paraphrasing from a range of sources and summarising academic texts. Students are expected to carry out academic research for two group oral presentations and to reference their sources formally. Medical terminology will be taught in a systematic way, mostly through self-study materials. Pharmacy terminology is also included in this course. The course includes class work, homework writing assignments, the use of a textbook and self-access assignments both in text-form and on Moodle. The student is also expected to participate in class and group discussions as well as any seminars required by the teacher.

Phase II - Semester 1

MEDI3101 – Molecular Biology and Principles of Genetics

This course will explore aspects of molecular biology and genetics in medicine. The impact of this evolving field in health and disease will be highlighted. Current views and new concepts relating to diagnosis, prognosis, prevention and treatment of diseases will be presented. The course will discuss chromosome structure and function, modes of inheritance of genetic diseases and the medical application of molecular genetics. The molecular cycle of life and the interactions between nucleic acids, proteins and other biological molecules will be considered. The integration of these processes in regulating structural and physiological need will be discussed.

MEDI3102 – Structure Function Relationship

This course is a further development of the concepts discussed in human anatomy, physiology and cell communication during phase 1 of the medical programme. In particular, the interrelationship between human structure and function at both macroscopic and microscopic levels will be further elucidated and described in this course.

MEDI3103 – Growth and Development

This module, as it deals with early development, can help students to know the fundamentals of this early period and the basis of aberrations and their consequences, and thereby be better doctors than were they to meet patients without such information. One can follow various developmental processes longitudinally from fertilization to birth and thereafter to puberty and through the aging process. Alternatively, one can study the individual at various cross-sectional stages/ages of life.

MEDI3104 – Response to Infection and Pathobiology

During the ante, per- and postnatal stages of human life, the body is subjected to various internal and external (environmental) insults. These insults may induce several changes in the cells, tissues, or organs thereby causing diseases. These changes occurring at either the cellular, tissue organ or system level may include cancer, inflammation, infection or even chronic disease such as diabetes mellitus and hypertension. The course describes the general principles of the reaction of tissues to diseases and the disorders that affect the body as a whole. It begins with the reaction of cells and tissues to injury, the study of inflammation, and repair or healing process. Disturbances of body fluid and disorders of blood flow and distribution are also highlighted. Finally growth disturbances



MEDI3105 – Hospital and Community Attachment

This course introduces the sociological, epidemiological, and scientific aspects of medical practice through early medical contact (EMC) where students visit local communities, centers of community services, primary care facilities and hospital's departments to observe the process of:

- Professional collaboration between members of “the medical team”
- Health care delivered to local communities
- Hospital information system (HIS) and keeping of medical records

Oman health care system, disease prevention and health promotion, principles of epidemiology and statistics applied to the medical field will be introduced within this theme.

Phase II - Semester 2

MEDI4201 - Integrated Module 1

The intention of this course is to integrate basic medical sciences and clinical medicine within and across the modules. To develop basic clinical skills, personal communication skills and right attitude towards patients. Early encounter of patients will enable correlation of pathophysiology of disease with patient presentations. This clinical case-based learning forum is supported by multidisciplinary mentoring (by tutors) and will be presented and discussed by students.

MEDI4202 - Research Methodology

This course introduces students to biomedical research through research-based learning activities. The course covers concept and fundamentals of research methodology and analytical skills through lectures and tutorials and hands on practice through the planning and implementation of a research project.

MEDI4204 – Cardiovascular System

Upon completion of this educational activity, students should be able to: Understand concepts of cardiovascular control of the internal environment. Have a practical knowledge of the anatomy and physiology of the normal cardiovascular system. Have an understanding of the embryological development of the normal cardiovascular system together with key abnormalities which lead to congenital cardiac malformations. Review the local, paracrine, endocrine and neural mechanisms that act together to maintain blood pressure and blood flow to various organs in health and disease. Recognize ECG abnormalities seen in common forms of adult heart diseases Highlight the aetiology, pathogenesis, clinical features and principles of pharmacological interventions in common cardiovascular conditions.

MEDI4205 - Respiratory System

In this module an analysis of the functions of the respiratory system, including the properties of gases, gas exchange in the lungs, special features of the pulmonary circulation, lung defense mechanisms, and the metabolic functions of the lungs are discussed. A review of the structure of the lungs, thoracic cage and mechanisms that regulate respiration is also included. The module also analyzes the changes in respiration that occur in hypoxia, including clinical features pathophysiology and strategies of management of various common respiratory diseases. The approach to control and prevention of communicable and non-communicable respiratory diseases is also highlighted.



MEDI4206 – Hematopoietic and Immune Systems

This module will introduce the students to the principles and concepts of hematology and immunology which will guide them in understanding the mechanisms of immune responses and the pathophysiology of common hematological and immunological diseases.

MEDI3100 – Medical Informatics II

The course familiarizes students with the applications of information science and computer technologies in healthcare. In this course students will be introduced to the conceptual and technical components of medical informatics. The course introduces students to different applications of medical informatics such as; online medical resources, medical search engines, disease management databases and disease registries, Bioinformatics, medical simulation and medical virtual libraries. Also, it discusses the leading ethical issues that arise in healthcare informatics. Finally, it explores the role of telecommunications in healthcare; the internet and the various types of wireless communications. The delivery media will be through a combination of computer-based practicals and hands-on computer exercises.

Phase 2 - Semester 3

MEDI4301 - Integrated Module II

The Integrated Module II is designed to integrate the alimentary system, the uro-reproductive system and Nutrition courses that are taught simultaneously during this semester. It also integrates systems/courses from the previous semesters like the cardiovascular system, the respiratory system and the hematopoietic/lymphoid/immune systems.

MEDI4303 – The Alimentary System

The Alimentary system course in phase II of the curriculum is an integrated course dealing with the normal structure and function of the alimentary system together with introducing of the pathophysiology of the common gastro-intestinal, hepato-biliary and pancreatic disorders. Knowledge of basic sciences such as anatomy, physiology, pathology, microbiology, immunology and pharmacology is essential to understand the pathophysiology of disorders of the alimentary system. Therefore, the above mentioned sciences will be discussed with students together with clinical presentation-based problems to bring relevance and application to the pathophysiology of the alimentary system.

MEDI4304 - The Uro-reproductive System

This module considers the normal function of the urinary and reproductive systems in adult males and females. It also considers pregnancy and lactation, sexual differentiation in the fetus, puberty, and menopause. Infertility in both males and females as well as common maternal diseases in pregnancy will be discussed. It also describes normal kidney function and the role of hormones such as renin and angiotensin in maintaining water and electrolyte balance. This knowledge will be related to the pathophysiology of common disorders of renal function.



MEDI4305 – Clinical Nutrition

This course focuses on the basic principles of nutrition in health and disease based on the knowledge of nutrient classes, their functions, sources, deficiency and toxicity symptoms. Imbalance of dietary intake may result in serious health problems; therefore, this course will explain different techniques for assessing nutritional status and nutritional impact in relationship to weight loss and maintenance and physical activity. It also examines the nutritional status at different stages of life and consumer concerns about food safety.

MEDI4511 – Student Project I

This course introduces students to biomedical research through research-based learning activities. The course covers concept and fundamentals of research methodology and analytical skills through lectures and tutorials and hands practice through the planning and implementation of a research project.

Phase II - Semester 4

MEDI4502 - Integrated Module III

The Integrated Module III is designed to integrate the locomotor, endocrine and nervous systems that are taught simultaneously during this semester. It also integrates systems/courses from the previous semesters like the cardiovascular system, the respiratory system, hematopoietic/lymphoid/immune systems, alimentary system, the uro-reproductive system and Nutrition courses

MEDI4521 – Student Project II

This course introduces students to biomedical research through research-based learning activities. The course covers concept and fundamentals of research methodology and analytical skills through lectures and tutorials and hands on practice through the planning and implementation of a research project.

MEDI4403 – Locomotor System

Our daily activities are executed by the muscles and the skeleton conjointly called the musculoskeletal system under control of the brain. In this module the student will understand the normal structure, function and development of the musculoskeletal system, some of the normal aging processes and diseases that prevent normal function or development and give rise to locomotor problems. The case studies will introduce relatively common problems or clinical situations to encourage the student to integrate knowledge from a variety of different sources, understand the patho-physiologic mechanisms, solve problems and answer questions with a clinical orientation.

MEDI4404 - Human Nervous System

The subject matter of this course covers many levels of organizations ranging from molecules to neurons and from society of neurons to human behavior. This course is designed to guide students to understand the brain-mind continuum in its all dimensions. The aim of the neuroscience course is to make medical students comprehend how we perceive, move, talk, remember, think, feel pleasure, get angry and the patho-physiology of some of the major disorders that afflict these brain functions. This course ranges from basic neuroscience to neurological diagnosis and psychopathology. The course emphasizes self-learning and active student participation. Besides attending lectures and laboratory sessions.



MEDI4405 - Endocrine System

Upon completion of the Endocrinology Module, medical students will have acquired knowledge of the principles and mechanisms of neuroendocrine and endocrine structure and function. This includes learning about the nomenclature of endocrine glands and their hormones; the hormones' sites of biosynthesis, mechanism of action, and metabolism; their impact on overall body physiology and metabolism; and disease states resulting from various endocrine disorders. The focus will be on the pathophysiology of endocrine dysfunction. Students will be able to develop an attitude of compassion and understanding toward patients suffering from endocrine diseases through clinical correlations.