(Appendix I: Course Description)

Description of Courses Offered to M.D. Students
To obtain the Degree of Doctor of Medicine (MD) 2018-2019

In this curriculum, a total of 266 credit hours are needed in order to obtain the Degree of Doctor of Medicine. Studying in the MD program requires study progressing through two distinct stages as follows:

Stage I: Biomedical Sciences:

This includes courses of 132 credit hours that can be concluded in the first three years, courses are distributed through six regular semesters and summer semesters as needed. Every regular semester lasts for 16 weeks and the summer semester lasts for 8 intensive weeks.

This stage includes course that are University Requirements, Obligatory Requirements, and Optional Requirements. Students are evaluated by written and practical exams held during the semesters. Student should have at least 2.5 GPA to proceed to the next stage.

Stage II: Medical Doctor:

This stage includes courses of 134 credit hours and can be concluded in three years and performed on a yearly base constituting of 46 credit hours in the fourth year level, 48 credit hours in the fifth year level and 40 credit hours in the sixth year level. Education and training is taken in the University's halls and centers, the governmental and private hospitals and clinical centers in the Southern region of West Bank under the supervision of highly qualified physicians and medical consultants. During clinical rotations of this stage, students participate in the educational and practical events of the medical and health system of each department including morning reports, clinical educational rounds, clinical discussions, nightshifts and seminars based on clinical cases. These are all supervised and evaluated at the end of each rotation by clinical and written exams in addition to the medical evaluations of the students and by fulfilling special logbooks of clinical skills and procedures done during the rotations. In order to pass this stage successfully and to be graduated with the Degree of Doctor of Medicine (MD), students should have an accumulative degree of at least 70% in every year level of the three years of this stage, and each course in the clinical phase have a pass score not less than "C (70%) at MD program".

19105 Computer Skills (3 credit hours: 2 hours lectures, 1 hour labs)

This course is a broad introduction to the use of computers as tools for creativity, communications and organizing information. The course also provides fundamental basic knowledge in dealing with Microsoft office, internet browsing and visual basic. This course also provides an overview of the biostatistics programs including SPSS.

19027 General Chemistry for MS and 19035 Lab (4 credit hours: 3 hours lectures, 1 hour labs)

This course provides a survey of inorganic and physical chemistry and an introduction to organic chemistry for non-science and allied health majors. Topics studied in this course include atomic structure, covalent and ionic bonding, chemical reactions, chemical calculations, acid, base and solution chemistry, radiochemistry and chemistry of hydrocarbons. The medical and environmental applications of topics covered in lecture are highlighted.

19030 Introduction to human anatomy (Medical Terminology)(2 credit hours)

This course aims to introduce the medical / allied health sciences students to the science and terminology of medical human anatomy. The students are introduced to the main anatomical terms and concepts necessary to understand gross human anatomy which will be studied by these students latter in their academic and medical career.

19028 biology for MS (3 credit hours)

This course is designed to give major general concepts in cell biology and to provide medical students with basic biological principles and understanding of various biological processes that govern life of the cell, its structure function and reproduction.

19031 Organic Chemistry for MS and 19036 Lab (4 credit hours: 3 hours lectures, 1hour lab)

This course covers the basic and fundamental principles of organic chemistry, allowing the student to begin understanding the language of organic chemists abroad overview of the properties and characteristics of organic molecules is provided, and several key reactions and reaction mechanisms are discussed. Topics includes introduction to the petrochemical, pharmaceutical and polymers which focuses on the knowledge of the structure, functionality, and reactivity of organic molecules that is critical for the understanding of numerous

and disparate phenomena, from biological and biochemical processes, to medical and pharmaceutical basics, to the properties of materials. This course also includes one hour laboratory application of the theoretical knowledge.

19015 & 19021 Histology 1 & 2 (4 credit hours, lab included)

These courses are designed to give students detailed description of general histology and organology with the emphasis on human material by providing fundamental basic knowledge of histology and cell biology. The course provide students with basic knowledge of different aspects of cellular and tissue parts, it explores the histology and properties of the basic human tissues (Epithelium, connective tissue, Muscle and nervous tissues)

19041 Cell Biology (2 credit hours)

This course will introduce the Medicine learners with the cell structure and function, the course will begin with the discussion of plasma membrane structure and function that explain membrane's selective permeability which is important to understand the mechanism of signaling in the next chapter, also the following chapters will discuss in details the cytosolic components "intracellular" "Microtubules, Microfilaments, and Intermediate filaments" and intercellular components "junction and adhesion "that increase understanding of signaling pathway.

Upon completion of this course, the student will be expected to: Understand the relationship between plasma membrane structure and functions, memorize the different types of receptors and their roles in signaling also recognize abnormalities associated with receptor's defects and its role in cancer, understand the structure and function of Cytoskeletal system, and it's importance in treatment and diagnosis of cancer, show the importance of cell-cell adhesion and extracellular matrix in cell-cell recognition and in case of abnormalities lead to cancer

19033 Biostatistics for MS (3 credit hours)

The aim of this course is to teach epidemiologic and biostatistical methods in clinical research within an integrated framework, and to develop proficiency with computer software as Excel and SPSS for performing the analysis of clinical and epidemiological data sets. Applied Epidemiology and Biostatistics introduce epidemiologic and biostatistical methods as applied to clinical research. The students are trained to draw statistical inferences by two main methods these are: Estimation and Hypothesis testing. Chi-square variants are discussed with relevant clinical examples. Statistical design of experiments is dealt with concentrating on ANOVA and regression analysis.

19029 Biophysics (3 credit hours)

Applications of physical sciences in medical technology are the main field of this course. Topics include biomechanics, sound and hearing, pressure and motion of fluids, heat and temperature, electricity and magnetism in the body, optics and the eye, biological effects of light, use of ionizing radiation in diagnosis and therapy, radiation safety and medical instrumentation.

19004 Anatomy 1 and 19022 Lab (Thorax Abdomen Pelvis) (3 credit hours: 2 hour lectures, 1 hour lab):

This course designed to provide knowledge of the organ systems within the chest, abdomen and pelvis, and to help students understand the structural relationship between such organs. Laboratory hours will be used to examine models, films and slides to understand the organ system.

19032 First Aids (1 credit hour)

The purpose of this course is to help students to identify and eliminate potentially hazardous conditions in the environment, recognize emergencies and make appropriate decisions for first aid care. It teaches skills that students need to know in order to provide immediate care of a suddenly ill or injured person and help sustain life and minimize the consequences of injuries by ABC protocol, CPR, burn care and wound care until more advanced medical care arrives. This course is designed to introduce students to patients and the hospital environment including the different departments and facilities.

19016 Biochemistry (3 credit hours)

An integrated function of the human body is considered, ranging widely from cellular to higher organ-system levels. This course covers the molecular composition of living cells, the chemical reactions that biological components undergo, the regulation of these reactions and the nutrients that are needed by the living cells. The course material covers bioenergetics and intermediary metabolism of carbohydrates, lipids and proteins and their enzymatic regulation. It is a fundamental biological and medical science course that provides an understanding to cell biology, microbiology, nutrition, pharmacology, pathology and physiology at the molecular level. The course has one credit hour lab.

19103 &19104 English language 1 &2 (6 credit hours)

These courses combine the skills of speaking, listening comprehension, reading and writing for the intensive development of English. Application of the grammatical structures in all the above skills. These courses also includes medical terminology section which provides the framework needed before advancing to a more comprehensive medical courses. This section focuses on the many components of a medical term and how to break down a medical term by simply knowing the meaning of the prefix or suffix and by enriching the student's knowledge in medical terms.

19101 Arabic Language (3 credit hours)

This course introduces the fundamental elements of the modern standard Arabic language within the cultural context of Arabic-speaking people. Emphasis is placed on the development of advanced Arabic medical terms and Arabic advanced grammar. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Arabic and demonstrate cultural awareness.

19102 Islamic Culture (3 credit hours)

This course aims to establish the concept of Islamic culture and its position among the other international cultures, its position in the Muslim life, its sources, its bases and its characteristics. It also the fields of Islamic culture in faith, worship, relations, morals, knowledge, the clash between cultures in addition to Globalisation, Human Rights, Woman Rights, Democracy and other contemporary issues.

19106 Modern History Palestinian (3 credit hours)

This course aims to introduce students to the Palestinian history and the important aspects related to the Palestinian issue.

Elective University Courses (6 hours)

Students are required to complete three courses (2 credit hours each) of optional non- medical courses of their choice that are offered by other faculties and departments.

19008 Anatomy 2 and 19023 Lab (Limbs & Back) (3 credit hours: 2 hours lectures, 1 hours lab)

This course designed to provide knowledge of the organ systems within the limbs and back area, and to help students understand the structural relationship between such organs and the visual system. Laboratory hours will be used to examine models, films and slides to understand the organ system.

19012 Anatomy 3 and 19024 Lab (Head & Neck) (2 credit hours)

A course designed to provide knowledge of the organ systems within the head and neck area, and to help students understand the structural relationship between such organs and the visual system. Laboratory hours will be used to examine models, films and slides to understand the organ system.

19017 Medical Physiology 1 (4 credit hours)

This introductory physiology course introduces basics concepts in physiology of human body. The course familiarizes students with basic definitions and principles related to physiology. The course emphasizes the concept of internal environment and homeostasis and the concept of feedback in a biological system. It also helps students to understand body fluid and cellular physiology including membrane ionic basis of excitability, molecular mechanism and mechanics of contraction. The course gives an overview on the physiology and functions of nervous system, cardiovascular system, respiratory system, digestive and renal and the endocrine systems. It prepares the students for understanding future disease processes and pathophysiology.

19026 Human Embryology (3 credit hours)

Human embryology from fertilization to the end of the fetal period are reviewed. Topics include: current concepts in mammalian morphogenesis applied to the development of various organ systems, the principles of teratology; mechanisms of malformation and the etiology and pathogenesis of some of the most common human congenitalabnormalities.

19005 Medical Physiology 2 and 19038 Lab (4 credit hours: 3 hours lectures, 1 hour lab)

These courses provide students with basic aspects of medical physiology "cardiovascular, pulmonary, renal, gastrointestinal and reproduction", in addition to principles of general physiology, the control of different organs and the coordination among them. Special emphasis is on water, electrophysiological studies of the heart, electrolyte and acid-base balance, body responses and adaptation to various stress conditions, rhythms and physiological disorders. The course familiarizes students with basic definitions and principles related to physiology. The course emphasizes the concept of internal environment and homeostasis and the concept of feedback in biological system. It also helps students to understand body fluid and cellular physiology including membrane ionic basis of excitability, molecular mechanism and mechanics of contraction. It prepare student to understand future disease process and pathophysiology. The course includes two credit hours lab that cover all the systems.

19006 Biochemistry and 19037 Lab (4 credit hours: 3 hours lectures, 1 hour lab)

This course emphasis on the previous knowledge that has been taken in the introduction of biochemistry and its relation it to the medical practice. It also provides students with basic knowledge about structure and properties of main biomolecules in human body, such as amino acids, proteins, carbohydrates, lipids, and nucleic acids. The course emphasizes the relationship between protein structure and its biological function. It also help student understand generation and storage of metabolic energy, main metabolic pathways and their key steps. In addition, it discusses the role of phospholipids in determining the properties of biological membranes and their function. This course also includes biochemistry and genetics lab that provides medical students with some basic biochemical and molecular biology lab techniques, help them to perform some independent lab work and learn to cooperate with their colleagues in a laboratory environment. In the laboratory sessions, students are expected to learn how to use the centrifuge, pH meter, and spectrophotometer. Titration curves of weak, strong acids and amino acids will be constructed using pH meter. Protein concentration, glucose and cholesterol level in the plasma will be determined using spectrophotometer. In addition, students are familiarized with chromatography, electrophoresis and PCR techniques. Study the enzymatic activity of specific enzymes. DNA isolation, characterization and amplification using PCR techniques are performed.

19007 & 19010 General and Medical Microbiology and 19057 lab (7credit hours: 6 hours lectures, 1 hours lab)

A two semester course specialized in basic and medical microbiology. The first part introduces medical students to basic concepts in microbiology including, bacteriology, virology, mycology, hygiene and medical isolation. The second part concentrates on medical microbiology and provides core knowledge of infectious disease processes affecting each organ system, as well as working knowledge of the appropriate clinical laboratory investigations. It also covers basic concepts of infection control in hospitals, sterilization, disinfection and personal and medical hygiene, diagnosis of infectious diseases including specimen collection for the clinical microbiology laboratory, epidemiology of infectious diseases. The course has two credit hours laboratory, which covers a variety of microbiological and immunological techniques, with experiments designed to illustrate major concepts of bacteriology, virology, mycology and immunology.

19019 Public Health and Epidemiology (3 credit hours)

This course deals with the dimensions of personal and environmental health and their relationship to social, economic, psychological and political factors, measurements and indices of community health status. Theoretical framework for viewing organizational issues in the delivery of health services is also discussed. This course also focuses on teaching students how to apply management principles within the health system and health care delivery. Importance of local factors that affects the delivery of health services as well as economic challenges in health care system are addressed.

19014 & 19040 Neuroanatomy and Neurosciences (6 credit hours)

These courses are divided into the neuroanatomy part which aims to provide students with a basic understanding of the structural organization of the human central nervous system in sufficient depth to form basics for further clinical studies of the nervous system. Students learn to identify the major features of the brain and spinal cord (using protected specimen's models and cross-sectional images) to understand the structural and functional relationships between these structures and to apply this knowledge to the clinical situation. This division includes 1 hour lab that covers also head and neck anatomy. The other division of the course is the neurophysiology part which covers the physiology of the autonomic and somatic nervous systems, somatic sensation and sense organs, motor system and brain complex functions, life cycle of neurotransmitters and synaptic integration, in addition to basic mechanisms of neurological disease. This division includes 1 hour lab.

19034 Medical Ethics (1 credit hour)

This course deals with fundamental ethical principles underlying medical practice. Ethical aspects of decision making are discussed with special emphasis on moral, cultural and religious issues in addition to confidentiality and respectability in patient management. The course focuses on prominent ethical topics and new medical ethics issues appeared with recent development in medicine which includes careful examination of the philosophical theories of ethics which have guided medical ethics since its inception. It also takes in depth selected issues in biomedical ethics. These issues focus on what have been prominent in recent years and are likely to continue to occupy a prominent place in the field over the next decade. The course also focuses on careful examination of the philosophical theories of ethics which have guided medical ethics since its inception and ethical issues surrounding AIDS.

19018 Behavioral Sciences (3 credit hours)

This course on behavioral science (clinical psychology) aims to introduce students to psychosocial aspects of medical practice and to offer them an overview of clinical psychiatry. This course also deals with other allied disciplines of sociology and psychology. It also covers behavioral science includes behavioral biology as well as

biochemical, physiological and pharmacological correlates of behavior; individual behavior. It allow students to understand human emotions, life cycle, motivation, personality and its psychopathology; and interpersonal and social behavior.

19002 Community Service (1 credit hour)

Students are required to serve in the community as a volunteer for 50 hours, examples include blood donation, cleaning public places, volunteering in Assisted-living facilities.

19001 Leadership and Communication Skills (1 credit hour)

This course concentrates on the principles of leadership and communication including teamwork, management and communication theories, body language, public speaking. Each student is expected to present in front of his/her colleagues as part of the evaluation.

19011 Medical Genetics (3 credit hours)

This course provides students with comprehensive view of the science of genetics. It covers the history and development of genetics, structure and function of genes, chromosomes and their anomalies, patterns of single gene inheritance, types and mechanisms of mutations and tools of human molecular genetics.

19043 Molecular Biology (2 credit hours)

An integrated function of the human body is considered ranging widely from cellular to higher organ-system levels. This course will cover the molecular composition of living cells, the chemical reactions that biological components undergo the regulation of these reactions and the nutrients that are needed by the living cells. The course material covers bioenergetics and intermediary metabolism of carbohydrates, lipids and proteins and their enzymatic regulation. It is a fundamental biological and medical science course that provides an understanding to cell biology, microbiology, nutrition, pharmacology, pathology and physiology at the molecular level. The course has one credit hour lab.

19044 Hematology (2 credit hours)

This is a study of blood constituents in health and disease states with special emphasis on lab diagnosis. In addition, the course is a study of different pneumonia diseases, blood cancer, factors behind blood clotting and other related diseases. The course include one credit practical.

19045 Medical Endocrinology (2 credit hours)

Study the basic principles of endocrinology, focusing on major endocrine glands which regulate the metabolism and biochemical functions, growth and reproduction, Structure synthesis, effects of major hormones in the body, their secretion in normal and abnormal cases, and laboratory diagnosis of ass.

19046 Clinical Chemistry (3 credit hours)

This is an advanced study of different human body fluids in health and disease states. The course also introduces methods of estimating these fluids by using high tech equipment and how to estimate normal and abnormal values in the body. It is also a quantitative and instrumental analysis. Particular emphasis is given to diagnosis, treatment, and disease prevention. Case studies of patients and quality control concepts will also be covered.

19026 Human Genetics (3 credit hours)

This course provides students with comprehensive view of the science of genetics. It covers the history and development of genetics, structure and function of genes, chromosomes and their anomalies, patterns of single gene inheritance, types and mechanisms of mutations and tools of human molecular genetics which emphasizes those principles that have application in medicine and disease process. This includes areas related to structure of DNA and RNA as the genetic material. It also covers DNA organization and its replication, mutation and repair in both prokaryotes and eukaryotes. Furthermore, gene expression is also discussed. Finally, the course gives an overview of certain aspects of cancer genetics as well as cytogenetic and molecular aspects of different biology techniques.

19039 Immunology (3 credit hours)

This course concentrates on the basic and clinical science of the immune system and its relationship to other sciences and biological systems of mammals. The first part concentrates on function-structure relationship of the immune system and its components such as the lymphoid tissue and cells, as well as the development and function of the immune system including the innate immunity, acquired immune response, cells and organs of the immune system, immunoglobulin structure and genetics, antigen-antibody reactions, the major histocompatibility complex and antigen presentation. This course also explores T cell, B cell and natural killer cells functions. The T cell receptors genetics, structure, selection apoptosis and adhesion molecules, phagocytic cell function are explored. Immune responses to infections, tumors, transplantation autoimmune diseases, allergies, and immune deficiency diseases are also covered. The second part concentrates on the clinical science of the immune system and its role in the prevention, causation and diagnosis of human diseases such as cancer, autoimmune disease and other topics.

19013 & 19020 Pathology 1 & 2 and 19025 Lab (9 credit hours: 8 hours lectures, 1 hours lab)

These two courses are delivered over two semesters covering the principles of the discipline of pathology. Disease is presented by organ system. The method of instruction includes lectures, demonstrations, group discussions, laboratories and autopsy participation. The course also allows students to learn basic concept of the various disease processes in the body as well the basic molecular, cellular and reactions to various injurious agents. Cell injury including adaptations, necrosis & apoptosis. Pathology of Inflammation including causes and manifestations and hemodynamic are also discussed. The course also emphasizes neoplasia including classification, epidemiology, and characteristics of benign and malignant tumors. The major grading and staging systems of neoplasms will be covered in detail. Knowledge of etiology of tumors and its consequences on health are also covered. The course also includes two hours lab during which students perform autopsy analyzing and preparation.

19003 & 19009 Pharmacology 1 & 2 (8 credit hours)

These courses introduce medical student to the pharmacological concepts of drugs and other xenobiotics action. The classification, mechanism of action, therapeutic uses and toxic effects of pharmacological agents are stressed on. Discussion of representative examples of major drug classes are emphasized, and treatment modalities, whenever appropriate are presented. A brief introduction on the basic principles of pharmacokinetics and pharmacodynamics are discussed in relation to different drug group. This basic course is planned to assist the student, via lectures, clinical correlative discussions and independent study, to be able to understand pharmacological therapy in the clinical phase of medical education.

19042 Medical Nutrition (2 credit hour)

Study of the basic composition of protein, fat, carbohydrates, vitamins and essential minerals. Highlight the basic digestion process of foods, their absorption and basic metabolism within the body. In addition, study of these nutrients in relation with human growth and development and keeping it healthy including dental health, and highlight the main diseases related to deficiency of these nutrients. This course covers also the definition of the balance complete diet and the body requirements of nutrients in hospitalized patient, outpatient management, critically ill-patient in ICU and surgical ward.

(Clinical Phase)

19201 Introduction to Clinical Medicine (4 credit hours)

This course the course which is being taught in many medical schools in the world introduces basic clinical principles to 4rd year students where student learns how to take proper history and perform proper physical examination. Moreover, the course covers the medical ethics which should be applied during the clinical years as well as observing important nursing skills.

19202 Internal Medicine - Junior (10 credit hour, 10 weeks)

Description and Objectives to be achieved during the Course: This course is designed for the fourth year and provides training in the care of medical problems of adults. Under supervision, students assume role of physician and take histories, perform physical exams, formulate differential diagnoses, write orders and perform routine procedures. The course includes frequent written and oral presentations of patients and stresses importance of working as a member of the health-care team. Students attend departmental meetings, seminars and lectures and take night shifts with their assigned team.

Students are encouraged to think critically, to develop differential diagnoses, diagnostic outlines, and management plans for the patients they follow. In the Ambulatory Experience component, students are taught how to manage patients outside of the hospital in in-patient environment. This patient-focused, clinical experience can take place in a hospital clinic, doctor's office, a community clinic, an emergency department, etc. The experience should provide an emphasis on health promotion and disease prevention, and reinforce and integrate the concepts learned in the introduction to clinical medicine and inpatient Clerkship. The major disciplines that encountered in this course including all the following sub- topics in internal medicine:

Cardiovascular System: This section system-based integrated module gives a comprehensive overview of cardiovascular system. Each the of basic science topics are incorporated into an integrated body of knowledge covering biochemistry physiology, pathological, and pharmacology, anatomy, histology and microbiology of the cardiovascular system. Developmental aspects of the heart as well as congenital disorders of the heart are explored. Pathology, pathophysiology, and pharmacology of the common disorder of the cardiovascular system including hypertension, arrhythmias, ischemic heart diseases, valvular heart diseases and cardiomyopathies are emphasized. Teaching methods include lectures, labs, as well as small group discussion and clinically

oriented seminars. Students also join rotations, morning reports and outpatient clinics in the cardiovascular department to evaluate the cardiac patients by history taking, physical examination, investigation interpretation of general lab tests, ECG, cardiac enzymes and electrophysiological studies and formulation of differential diagnosis and plan of treatment.

Respiratory system: This multidisciplinary integrated respiratory system module provides comprehensive and integrated coverage of anatomy, histology, physiology and embryology of the respiratory system. Microbiology, biochemistry, and pharmacology relating to the system are discussed. Pathology of the upper and lower respiratory system is presented along with clinical presentations of diagnostic and treatment modalities. Teaching methods include lectures, labs as well as small group discussion, and clinically oriented seminars to enhance self-directed learning. Students also join rotations, morning reports and outpatient clinics in the pulmonary department to evaluate the pulmonary patients by history taking, physical examination, investigation interpretation of general lab tests, pulmonary function test and imaging studies and formulation of differential diagnosis and plan of treatment.

Gastrointestinal systems: Interdisciplinary integrative course which explores fundamental concepts of biochemistry, anatomy, histology, physiology, nutrition and public health problems, pathology, pharmacology, and microbiology as they relate to issues and common diseases of gastrointestinal and hepatobiliary system. Pharmacology and therapeutic management of common GI problems are also explored. Teaching methods include lectures and labs. In addition, small group discussions of common clinical problems are part of the teaching strategy of this module. This enhances integration of basic sciences and clinical knowledge and students' self-directed learning. Students also join rotations, morning reports and outpatient clinics in the gastroenterology department to evaluate the gastrointestinal patients by history taking, physical examination, investigation interpretation of general lab tests, liver function tests, endoscopic and imaging studies and formulation of differential diagnosis and plan of treatment.

Nephrology: This section is a multidisciplinary integrated course deals with the gross morphology, vasculature, lymphatic drainage and innervations of different organs forming urinary and reproductive system. Various functions, normal development and congenital anomalies of this system are covered. In addition, normal and pathological microscopic appearances of different components of the system are discussed. Biochemical and genetic aspects, microorganisms that infect the system as well as drugs that affect this system are conferred. The teaching methods include lecture and labs as well as seminars and small group discussions of clinical oriented problems are part of the teaching strategy of the course to enhance self directed learning. Students also join rotations, morning reports and outpatient clinics in the genitourinary department to evaluate the genitourinary patients by history taking, physical examination, investigation interpretation of general lab tests, renal function tests, acid-base balance, electrolytes, flow cytometry, dialysis and imaging studies and formulation of differential diagnosis and plan of treatment.

Musculoskeletal system and Rheumatology: This is an interdisciplinary integrated module of musculoskeletal system. Basic sciences of anatomy, biochemistry microbiology, pathology, pharmacology, and physiology of the musculoskeletal system are correlated with clinical disorder of this system. The goal of this integrated course is to provide the medical student with comprehensive knowledge about bones, joints muscles, tendons, ligaments, skin and associated soft tissues related to clinical manifestations of diseases. The teaching methods include lecture and labs as well as seminars and small group discussions of clinical oriented problems to enhance self-directed learning. Students also join rotations, morning reports and outpatient clinics in the rheumatology department to evaluate the musculoskeletal patients by history taking, physical examination, investigation interpretation of general lab tests, rheumatologic markers and imaging studies and formulation of differential diagnosis and plan of treatment.

Hematology and Endocrinology system: This section covers the role of the hematology department in the diagnosis and management of blood cell disorders. The anatomy and physiology of hematopoiesis are discussed in depth. Routine and specialized hematology tests are then emphasized, with a stressed on performing and interpreting test results. Finally, theory are applied to evaluate, classify, diagnose, and monitor blood cell abnormalities. Lectures are also supplemented with clinical demonstrations, student practice, study questions, group discussions, and case studies. In the other section, students in endocrinology department have to describe the function of the endocrine system, discuss the pathophysiology, etiology and incidence of endocrine dysfunction, identify laboratory tests that aid in the diagnosis of endocrine abnormalities and discuss the management of patients with endocrine system dysfunction. One of the 8 weeks rotations is spent in physiotherapy and rehabilitation unit

19203 General Surgery - Junior (10 credit hour, 10 weeks)

This 12-week rotation introduces students to the basic principles of surgery. Students rotate with the surgical teams at other various hospitals that are affiliated to our medical school. During the rotations, students are

exposed to medical encounters with patients with common surgical problems. The course allow students to practice history taking relevant to surgical disorders as well as performing focused relevant physical examination needed to assess patients with surgical problems The pre-operative and postoperative evaluation and management of surgical diseases are covered, in addition the students must during this rotation attend many operations that held in the surgical theater in order to evaluate and develop the basic surgical skills for them which comes in parallel with doing night shifts during this rotation. Urology which is designed to introduce students to a broad spectrum of urologic problems and surgeries are also introduced. During this part of rotation, the basic pathophysiology of urologic disease is stressed.

19205 Gynecology-Obstetrics - Junior (8 credit hour, 8 weeks)

This Eight-week course provides the students with the basic knowledge of common obstetrics and gynecology diseases. It also focuses on providing the students with the basic skills of history taking and skills of conducting physical examination relevant to obstetrics and gynecology. At the end of this course students are expected to generate appropriate assessment of common obstetrics and gynecology disease presentations including generating differential diagnosis and able to utilize laboratory and imaging facilities to reach appropriate diagnosis. Students are also exposed to the care of adult and adolescent female patients in a hospital setup. It also includes women's health issues related to reproductive health and fertility, pregnancy, lactation, cancer, obesity, and stress related issues Management of common disorders is discussed. Preventive medicine related to health during pregnancy and birth control is also emphasized.

19216 Psychiatry and Behavioral Sciences (4 credit hours, 4 weeks)

This is a 4 weeks clinical rotation in psychiatry. The rotation emphasizes principles and methods of psychiatric assessment, principles of psychiatric diagnosis, recognition of key signs and symptoms in psychiatry. Students have primary responsibility under supervision for diagnosis and care of patients at a Psychiatric community or Hospital facility. Emergency room, crisis intervention, familiarity with Psychopharmacology and short term hospitalization are emphasized. Diagnoses of the most common psychiatric disorders and understanding the general principles of treatment and management of these disorders are also emphasized.

19207 Research Methods for Clinical Sciences (2 credit hours)

This course emphasizes on biostatics and epidemiology and public health and introduces students to the different methods in clinical research and the sensitive ethical issues related to the involvement of patients and humans in research. This course introduces students to a number of research methods useful for academic and professional investigations of medical issues and information practices. By examining the applications, strengths and major criticisms of methodologies drawn from both the qualitative and quantitative traditions, this course permits an understanding of the various decisions and steps involved in crafting and executing a research methodology, as well as a critically informed assessment of published research. The course offers an overview of the different approaches, considerations and challenges involved in social research. In addition to reviewing core human research methods such as interviews, ethnographies, surveys and experiments, it explores methods used in critical analysis of texts (discourse/content/design analysis, historical case studies. It also discusses mixed method approaches, case studies, participatory and user-centered research. The students are expected to provide a proposal for their research that will be held during their fifth and sixth year. This course is given as condensed lectures for 4 hours every day for 2 weeks.

19214 Forensic Medicine (2 credit hours)

This course gives students introduction about forensic terminology with emphasis on the understanding of the underlying pathology of traumatic and sudden, unexpected deaths encountered. The course deals with medico -legal investigation of death and injury due to natural causes, accidents, and violence. It covers analysis/ investigation of transportation injuries, of homicides, suicides due to various causes. Students are also exposed to presentation of sexual crimes, methods for identification and guidelines for quality control assurance, situations requiring notification of the coroner, autopsy consents, death certification and steps taken by a medical expert in preparing for court. This course also includes toxicology section where students are taught the sciences of toxins and their influences on biological systems and the environment as well as to introduce students to toxicology applications in drug development and how to deal with the common emergent toxicological cases. This course is given as condensed lectures for 4 hours every day for 2 weeks.

19204 Pediatrics - Junior (8 credit hours, 8 weeks)

This course is offered to fifth-year students. It has a general introductory course in pediatric medicine, pediatric surgery, neonatology and pediatric gynecology in addition to specific aspects of ethical issues in pediatric. Inpatient and outpatient Pediatric clerkship of 10 weeks is designed to expose students to child care. Emphasis is on history taking and physical examination of infants, children and decedents are also emphasized. Principle

of preventive medicine such as vaccination and nutrition are covered in this course. Students are exposed to the environment of child care. Instruction includes ward rounds, outpatients, seminars, on-calls and lectures. This course includes two weeks of neonatology which includes comprehensive assessments and interpretation of diagnostic data on newborns/infants and their families. Systematic data collection, diagnostic reasoning, and clinical problem solving for a variety of newborns and infants are emphasized. Content focuses on perinatal assessment, fetal assessment, gestational age assessment, neurobehavioral and developmental assessments, congenital anomalies evaluation, physical exam of newborns and infants, and the use of diagnostics such as laboratory studies, radiographs, and instrumentation/monitoring devices.

19215 Clinical neurosciences and related subjects (2 credit hours, 2 weeks)

This course is designed to give students of the fifth-year the basic clinical knowledge in: Clinical Neuroscience: this is a 2 weeks clerkship where students learn how to take history and perform clinical examination and are involved in the evaluation and treatment of neurological and neurosurgical diseases. Instruction includes care of patients in the wards and out-patient clinics under supervision, case discussions and seminars in addition to didactic lectures. The clinical rotation take place in neurology, neurosurgery and neuropediatric facility in a hospital or as outpatient activity.

Neuroscience: This 2 weeks course is given as part of the clinical rotations for 5th year medical students. It is an integrated 2 weeks neurology neurosurgery course that covers common neurological and neurosurgical problems. The course also emphasizes fundamentals of the neurological history taking, neurological examination, investigation interpretation of general lab tests, LP procedures, EMG, EEG and imaging studies and formulation of differential diagnosis and plan of treatment. Pathophysiology and management of common neurological and neurosurgical diseases are covered during the course. Care in areas of head and spine injuries, congenital anomalies, brain tumors, spinal diseases, stroke, demylinating diseases, epilepsy, different types of headache and neuromuscular diseases are also covered. Students also join the neurosurgical team in the operating theater where they observe some of the common

19209 Ear, Nose and Throat ENT (2 credit hours, 2 weeks)

In the course, students are exposed to common ENT problems that face the primary care physician. Ophthalmology (2 weeks) which is designed to introduce students to the principles of eye diseases. Students are taught how to perform ophthalmic examination and how to recognize common eye diseases.

ENT: This is an introductory two weeks clinical rotation offered to 5th year medical students. During the rotation, common diseases of ear nasopharynx oral cavity are emphasized. Students see patients in the clinic with the attending staff and gain preliminary experience in performing otoscopic examinations of the ears, examinations of the nose, nasopharynx, and oral cavity and larynx,. Students are familiarized with the diagnosis and management of the common presenting problems in otolaryngology as well as emergency of Otolaryngology cases. Skills necessary to take relevant medical history and examination are well emphasized

19206 Selected Medical Specialties (6 credit hours, 6 weeks)

This course is designed to give students of the fifth-year the basic clinical knowledge in:

Dermatology: This is a four-week clerkship offered during the fifth year which is designed to give students broad clinical experience in skin diseases, it emphasis on outpatient diagnosis and treatment of common skin conditions and the cutaneous manifestations of systemic diseases. Radiology: This is a 2 weeks clerkship where students learn how to deal with the different aspects of radiographic studies including analysis, discussion and report writing for radiographic images with clinical attachment of these studies to the medical and surgical cases. Anesthesia: this is a 2 weeks clerkship that offers the student the ability to participate in performing general, regional and local anesthesia with emphasizing on the pre and post anesthetic care of the patients and the intra operative care of the operated patients including monitoring, choosing of anesthetic drugs, doses, positioning, intubation and fluid balance.

Dermatology: This 4-week course is offered to the 5th year medical students. During this course students attend daily general dermatology clinics where they encounter patients and learn about a variety of dermatological conditions. They interview and examine patients and discuss under direct supervision of the teaching staff. Students have daily seminars that cover common and important skin disorders. Students are expected to learn how to obtain dermatological history and examination with application of knowledge of specific dermatological terms used to describe various dermatological lesions and rashes. Throughout the course, students are involved in the consultations, outpatient clinics and interactive seminars.

Anesthesia: This 2-week course is offered to the fifth year medical students. During this clinical rotation students spend their morning hours in the operating theater learning basic principles of anesthesia including airway management, fluid management, induction and maintenance of anesthesia, patient's monitoring, and recovery. Students are given daily seminars that cover important aspects of anesthesia with focusing on re and post-operative care and complications of anesthetic procedures.

19210 Selected Medical Specialties (6 credit hours, 6 weeks)
19211 Selected Medical Specialties (6 credit hours, 6 weeks)
19217 Elective Medicine (4 credit hours, 4 weeks)
During this course, students are given the chance to experience their medical knowledge in external hospitals outside the educational hospitals by doing different clerkships in medical specialties inside and outside the Palestinian hospitals including European and American hospitals. Students must be evaluated at the end of their elective course by their supervising doctors of their different medical aspects and reports from the students are provided about their experience, surgical practice and social interaction during their elective course.
19208 Orthopedics and traumatology, surgical emergencies (4 credit hours. 4 weeks)
This course is designed to give students of the fifth-year the basic clinical knowledge in Orthopedics (4weeks) and traumatology and surgical emergencies (4weeks) which teaches students how to take orthopedic history and perform physical examination of the muscular-skeletal system. Students are also expected to learn how to diagnose and treat common adult and pediatric traumatic and orthopedic problems
Orthopedics: This is a four week clinical rotation for fifth year medical students during which the students will be introduced to general orthopedic disorders. Students at the end of the course are expected to have covered all aspects regarding assessing fractures, general management and complications of fractures, evaluation and assessment of orthopedic disorders affecting bone and joints are also covered. Students are trained to obtain relevant history and to perform physical examination of patients with common musculoskeletal disorders. General management of common orthopedic problems is also covered. Throughout the course, students will be involved in the daily morning report, clinical rounds, outpatient clinics and interactive seminars.
Traumatology and surgical emergencies: This four-week course introduces the knowledge and skills required to evaluate and stabilize the trauma patient. It addresses the critical time management of these patients. This is accomplished through instruction and hands-on sessions focusing on rapid assessment and emergency care interventions in the emergency department. This course also emphasize on the ability of the students for critical decision making for trauma patients, the importance of team working and the rapid assessment and evaluation of traumatic cases including the maintenance of life support and hemodynamic stability. Students are also introduced to the principles of Disaster Medicine.
19213 Emergency medicine (4 credit hours, 4 weeks)
This four-week rotation introduce the students to the principles of acute care medicine. Students have the opportunity to evaluate patients as well as formulate effective testing and treatment strategies. Active participation in patient care and procedural skills are emphasized. The course consists of experiences in patient care, assigned readings from emergency medicine references, lectures and seminars. Students will learn to conduct thorough but directed histories and physicals as well as to formulate a plan for workup and care for each patient they see. Procedural skills (such as LP, Thoracocentesis, Paracentesis etc.) are taught and supervised on a case-by-case base as needed, depending on the patient's complaints and need for evaluation. All students are expected to introduce themselves as student physicians and to conduct themselves in a professional manner.

19220 Research Project (4 credit hours):
This is a six credit hours project offered to sixth-year students. The aim of this course is to introduce students to the field of medical research; the subjects dealing with public health issues are particularly encouraged. The students can choose also a pure scientific clinical or basic medical science subject. Projects that regroup 2-3 students are also encouraged. In order to obtain a high quality researches, students can start in the fifth year working with their researches, after choosing their own project research or choosing a subject from a proposed list by the department of Medicine and society at the beginning of the fifth year. The Best researches are proposed for publication in local or international journals. Each student (or more) has a supervisor or more who helps him in the general disciplines and outlines of the research, the university offers the laboratories, financial support, and technical and statistical analysis facilities to improve the outcome of the researches. At the end of this course, students should submit their researches to the research committee in the school of medicine and in order to approve them and the researches should be presented in front of the evaluation committee who takes the final decision of approving the researches for publication. Students can't graduate without fulfilling all the requirements of the research project.
19212 Community and Family Medicine (5 credit hours, 4 weeks):
This is a five-week course offered to sixth-year students. It is designed to introduce students to the practice of community and family medicine. Students rotate into different clinics and sites where they are exposed to different health problems commonly seen in these primary health care centers including ante-natal care, well-baby and mother, immunization, food processing and handling and occupational medicine specifically the recognition and management of work- related diseases and injuries, fitness for work and the transition back

into employment. Students also take geriatric and rehabilitation medicine course during this rotation where they participate in the geriatric healthcare centers, nursing homes and rehabilitation and physiotherapy facilities for one week to emphasis their medical and surgical knowledge for geriatric age group. Their role includes communication with patients, physical examination and active participation in management plan, lectures and seminars are conducted on common disease as well as on disease prevention and health promotion in the context of national health system.

19221 Internal Medicine Senior (10 credit hours, 10 weeks):

This course is offered to sixth-year students based on the knowledge previously taken during the fourth year. Emphasis is placed on acquiring skills and attitudes desirable from a compassionate and understanding physician. Students record histories, physical examinations and laboratory data together with the diagnosis and treatment plans. They are taught how to develop sound clinical reasoning and responsibility for full time involvement in patient care including bed side teaching, morning reports, clinical rounds, outpatient clinic attendance and night calls. Each student works with and is supervised by a resident and attending staff.

Critical Care and Intensive Medicine: At the end of this rotation, students join the Intensive care department for 2 weeks where they are taught some essential life support and intensive care of critically ill patients. During that, they are exposed to a different discipline in the specialty and its interaction with different surgical and medical teams. They are provided with necessary theoretical and practical knowledge throughout their rotation in intensive medicine including ventilation set, electrolyte imbalance management, acid base balance management, serology and transfusion medicine, shock states and shock management, single and multiple organ dysfunction and management, inherent post-operative changes and problems, sedation and pain management skills, performing the ACLS and ATLS and applying some important procedures such as applying the central venous catheter and arterial lines.

19222 General Surgery Senior (10 credit hours, 10 weeks):

An eight-week general surgery rotation is a clinical experience that introduces students to basic principles of surgery and related problems based on the knowledge that was taken during the fourth year. Its curriculum is defined by learning objectives and encompasses inpatient-hospital and outpatient-office experiences. During the clerkship, students evaluate and follow patients. The 8 week rotation is divided into six weeks of general surgery and two-week of surgical emergency. Functioning as members of the patient-care team, the students share pre- and post- operative evaluation and management, and visiting the operating theaters to observe surgical procedures. Daily rounds and faculty/preceptor interactions give students the opportunity to discuss patient problems in detail. Faculty members provide students with regular feedback, advice, and direction during this rotation. Throughout the course, students will be involved in the daily morning report, clinical rounds, outpatient clinics and interactive seminars.

19223 Pediatrics Senior (8 credit hours, 8 weeks):

This is an eight-week rotation for sixth year medical students based of the knowledge taken during the fifth year. During this 8-week rotation, students are exposed to different settings through rotating with different sub specialist in different hospitals. This includes both in patients and out patients encounters. This rotation is to emphasize active student's involvement of students in patient care and allow them to follow their own patients with continuity. Students are also encouraged to act at the level of interns in preparation for graduation requirement. Throughout the course, students will be involved in the daily morning report, clinical rounds, outpatient clinics and interactive seminars.

19224 Gynecology-Obstetrics Senior (8 credit hours, 8 weeks):

This course is intended to expand on the knowledge acquired in the fourth year, with emphasis on the practical aspects of obstetrics and gynecology. During this course, students are expected to perform normal delivery, assisted delivery and handling with the delivery and postpartum issues such as episiotomy and the management of post-partum hemorrhage. Students also learn more about management of common obstetrics and gynecology diseases and to deal with common emergency situation in this field. They are also familiarized with the common screening and preventive methods that are related to women’s health and sexual issues including sexual transmitted diseases and birth control methods. Throughout the course, students are involved in the daily morning report, clinical rounds, outpatient clinics and interactive seminars.

19219 Health Economics (2 credit hours)

Students are introduced to the principles of health care economics and management of resources. The course includes an overview of health insurance systems as well as the approach to solving problems and facing challenges in the health care system.

19220 Medical Imaging (2 credit hours)

This 2-week clinical rotation in radiology is offered to fifth year MD students. The goal of this course is to present a basic introduction of the common radiological exams procedures and techniques as well as familiarize

medical students with indications and contraindications of different radiological exams. The course also emphasizes basic radiological anatomy and train medical students to identify and diagnosis common and emergency pathological conditions using different radiological modalities in relation to the medical and surgical cases. This course also focuses on the interventional radiology where students observe some of the common interventional procedures in both surgical and medical cases.

19225 Cardiology (4 credit hours)

This course will improve your knowledge of how the heart works, the causes of cardiovascular diseases such as heart attacks, strokes, high blood pressure and heart failure and what you can do to avoid them.

Week 1: Introduction to the structure and function of the cardiovascular system, consisting of the circulatory system and the heart as a pump. The circulatory system – including the different blood vessels, the blood cells and plasma. The structure of the heart – including its four chambers, the major blood vessels that enter and exit the heart, the smaller blood vessels that supply the heart muscle with vital blood and oxygen and the heart valves that regulate the flow of blood through the heart. The cardiac cycle and how this relates to an ECG (electro cardiogram) Investigation of the structure of the heart through a hands-on practical activity.

Week 2: Introduction to the process of atherosclerosis .What is angina? Introduction to haemostasis and thrombosis? What is a heart attack? What is a stroke? Investigation of the effects of thrombosis through a hands-on practical activity.

Week 3: What is heart failure? What is hypertension? What is valvular disease? What are arrhythmias? Investigation of the effects of heart failure through a hands-on practical activity.

Week 4: Non-modifiable risk factors for cardiovascular disease including age, gender and genetics. Modifiable risk factors for cardiovascular disease including smoking, stress, cholesterol, obesity, diet, and physical activity. Lifestyle choices that can be made to try and reduce the risk of cardiovascular disease. Calculating the risk of cardiovascular disease with the QRisk Cardiovascular * Disease Risk Calculator.