

procedures and interpretation of their results will be introduced. They will also learn how to utilize these ancillary investigations to help them confirm their preliminary diagnoses. Ample examples of the investigations will be shown, e.g. ECG of a patient with myocardial infarction, normal X rays of different parts of the body and X rays of diseased states, CT's, MRI's, and isotopic scans of common conditions. Applications and indications for these investigations will also be explained.

#### **BMSC 2017 Pharmacology (3,3,0)**

This course aims to provide students with fundamental knowledge on the use of xenobiotics as orthodox Western drugs in the treatment of human diseases. In the beginning of the course, the important principles of pharmacology will be introduced. This is followed by a series of topics on the therapeutic approach in tackling inflammation and pain management. Subsequently, a systematic coverage on the mechanisms of action of drugs that on various organ systems will be covered, from different components of the nervous system to the cardiovascular and renal systems. The last section of the course is on chemotherapeutic agents, ranging from the use of antibiotics to the different classes of anti-tumor drugs. In addition, students also have the opportunity to participate in a semester-end group presentation on approved topics relevant to pharmacology. By the end of the course, students are expected to acquire essential knowledge on the classes and clinical uses of different drugs currently commonly used in Hong Kong, plus a general idea about toxicology.

#### **BMSC 2025 Microbiology and Immunology (3,3,0)**

Microbiology is the study of microorganisms, which are responsible for much of the breakdown and natural recycling of organic material in the environment. Of the vast number of species of microbes, only a few have the capacity to cause disease by invading the tissues of other living organisms and producing toxic substances. The purpose of this course is to introduce to the students the basic principles and concepts of medical microbiology, the various classes of microorganisms that interact with humans. Other disease-producing multicellular parasites, helminthes and flukes will also be briefly covered in this course.

The following aspects at basic theory and advanced topics are covered: (1) Overview of Microbiology in human perspective; (2) Diversity of Prokaryotic and Eukaryotic organisms; (3) Prokaryotic cell structure and growth; (4) Microorganisms identification; (5) Virus, Viroids and Prions; (6) Bacterial and Viral Pathogenicity; and (7) Helminthes and parasites.

"Immunology" is a basic science about immune system, including immune organs, cells, molecules and clinical relevance involved in immune response. The objective of this course is to give the students a general introduction in immunology and to provide a basis for the advanced clinical course "Immunology Diseases".

The following aspects at basic theory and advanced topics are covered (1) Anatomy and principle of the immune system and organs; (2) Cells and molecules of the innate immune system; (3) HLA molecules and antigen presentation; (4) Cell Migration; (5) Cells and molecules of the adaptive immune system; (6) The immune system in concert; (7) Laboratory investigations of the immune system; (8) Disorders in immune system; (9) Immune-based therapies; (10) T cell differentiation and maturation; (11) T cell receptors and T cell activation; (12) B cell differentiation and maturation; (13) B cell receptors and B cell activation; (14) Cytokines; and (15) Cytokine receptors.

#### **BMSC 3005 Hematology (2,2,0)**

Blood disorders cover a wide spectrum of illnesses ranging from the commonly encountered anemias to rarely seen conditions such as congenital coagulation disorders. Diseases affecting other systems can also affect the hematopoietic functions, making their study an integral part of the assessment of any medical diseases. The objective of this course therefore aims at giving the students a general overview of hematopoietic functions and diseases affecting these functions. This should be achieved in the following aspects: (1) composition of blood: plasma and blood cells; physiology of blood, blood cells and clotting; (2) hematopoiesis:

bone marrow structure, stem cell; (3) clinical manifestations of blood diseases; (4) investigation of diseases of blood; (5) anemias; (6) myeloproliferative disorders; (7) leukemias; (8) lymphomas and myeloma; (9) bleeding disorders; (10) venous thrombosis; (11) blood transfusion; and (12) clinical case studies.

#### **BMSC 3006 Cardiovascular System (2,5,2,5,0)**

In the modern era, cardiovascular disease contributes greatly to the burden of the healthcare system. In industrialized societies, it is the most frequent cause of adult death. It is important that students should be quite familiar with diseases affecting this system.

This course aims at offering students a general overview of the cardiovascular system in the following aspects: (1) the gross anatomy of the heart and its great vessels; (2) the physiology of the circulatory system; (3) the cardiovascular system in the diseased state: pathological changes and pathophysiological changes; (4) clinical manifestations of cardiovascular disorders; (5) history taking and physical examination of the cardiovascular system; (6) investigative methods of the cardiovascular system; (7) drugs that affect the cardiovascular system and medications that treat cardiovascular disorders; (8) overview of the following common cardiovascular disorders: Heart failure, Ischemic heart diseases, Valvular heart diseases, Hypertensive heart diseases, Congenital heart diseases, Arrhythmias, Myocardial diseases, Pericardial diseases, Endocardial diseases, Pulmonary heart diseases, Diseases of blood vessels; and (9) study of clinical cases.

#### **BMSC 3007 Digestive System and Hepatobiliary System (2,5,2,5,0)**

The digestive and hepatobiliary systems are responsible for digestion and absorption of nutrition for all metabolic activities of the body. The liver, apart from taking part in digestion, also participates in a number of important functions. Diseases of these two systems are a major cause of morbidity and mortality.

The objective of this course is to give the students a general view of the structure and function of the digestive and hepatobiliary systems and the common diseases affecting it.

This is achieved in the following aspects: (1) The anatomy and physiology of the gastrointestinal tract and the hepatobiliary system; (2) Investigation of gastrointestinal and hepatobiliary diseases; (3) Major manifestations of gastrointestinal and hepatobiliary diseases; (4) Overview of diseases affecting the gastrointestinal tract: Esophagus, Stomach and duodenum, Small intestines, Pancreas, Colon and rectum; (5) Overview of diseases affecting the hepatobiliary system: Liver, Biliary system; and (6) Study of clinical cases.

#### **BMSC 3015 Infectious Diseases and Immunology (2,2,0) Diseases**

Infectious diseases cause morbidity and mortality in man despite the advent of immunization and antibiotics. It is important that healthcare givers are familiar with the general aspects of individual infectious diseases, including epidemiology, diagnosis, prevention and treatments.

The objective of this course is to give students a basic knowledge of the various aspects of infectious diseases.

Teaching contents of this part: (1) Concepts of infection: Patterns, infectious agents, source, routes of transmission, prevention and control of infection; and Microorganism-host interactions; (2) Major manifestations of infection and investigative methods of infectious diseases; (3) Principles of management of infection; (4) Study of diseases caused by various infecting agents, including clinical features, investigations, management, complications, prognosis and prevention: Diseases due to viruses, Diseases due to chlamydiae and rickettsiae, Diseases due to bacteria, Diseases due to spirochetes, Diseases due to fungi (mycoses), Diseases due to protozoa, Diseases due to helminthes, Diseases due to arthropods, Sexually transmitted diseases; and (5) Case studies: Discussion of several clinical cases of infection.

'Immunology Diseases' is the topic on the disorders in immune system, including but not limit to autoimmune diseases and rheumatic diseases, which affect people at all ages and constitute