A brief Course Description			
Course Name	**Anatomy and Histology**		
Course Code	**MBS 101M**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**2nd Year/ 3rd Level**		
Credit Hours	2		
Contact Hours	**Lecture: 2**	**Lab/Tutorial**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**HFSB 102-1**		
Co-Requests:	**MBS 141M**		
Course Objectives:	A. Describe the human body, its cells, tissues and membranes in terms of structure and function. B. Describe the general anatomy and introductory histology of the skin and subcutaneous tissue. C. Describe the general anatomy and introductory histology of the skeletal system including joints and articulations. D. Describe the general anatomy and introductory histology of the muscular system.		

	E. Describe the general anatomy and introductory histology of the nervous system including nerves, neurons, the spinal cord, brain and the autonomic nervous system including the characteristics of the special senses. F. Describe the general anatomy and introductory histology of the cardiovascular system including blood, heart, vasculature and lymphatic system. G. Describe the general anatomy and introductory histology of the respiratory, renal and digestive systems. H. Describe the general anatomy and introductory histology of the endocrine and genitourinary systems.

A brief Course Description			
Course Name	**Physiology**		
Course Code	**MBS 141M**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**2nd Year/ 3rd Level**		
Credit Hours	3		
Contact Hours	**Lecture: 3**	**Lab/Tutorial**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**None**		
Co-Requests:	**MBS 101M**		
Course Objectives:	A. Describe the physiological processes involved in the functioning of cells, skin and bone. B. Describe the physiological processes involved in the functioning of excitable cells with comparisons and contrasts of membrane action potentials, skeletal muscle, excitation/contraction coupling versus neuromuscular and synaptic transmission. C. Describe the physiologic functioning and list/define the effects of nervous system activation utilizing terms such as autonomic nervous system, neurotransmitters, reflexes		

	and integration, sensory receptors, somatosensation, vision, hearing, chemical senses, brain function, emotion, learning and memory, cerebral spinal fluid and the blood brain barrier. D. Describe the functioning of the cardiovascular system including the cardiac cycle, electrocardiograms, arterial circulation, venous and lymphatic systems, regulation of cardiac output, control of blood flow and regulation of blood pressure. E. Describe the functioning of the respiratory system utilizing and defining terms such as gas exchange and transport, pulmonary circulation, large versus small airways, regulation of breathing and alveolar sac and respiratory contributions to pH. F. Describe the functioning of the kidneys and their regulation of fluids/electrolytes/pH. G. Describe the function of the glomerulus and glomerular filtration. H. Describe the reabsorption of fluids and electrolytes, the reabsorption of glucose and effect of pH on the reabsorption of various anions and cations, and the counter current multiplier. I. Describe the functioning of the GI tract including the major functions involved with each segment, propulsion and mixing of food, digestion and absorption and the secretory function of the GI tract. J. Describe the endocrine control of physiologic processes including hypothalamic-pituitary hormones, thyroid hormones, adrenal hormones, insulin and glucagon, estrogen, progesterone, and testosterone. K. Describe the factors associated with male and female reproduction, pregnancy and lactation, and control of the bladder.

A brief Course Description			
Course Name	**Genetics /Genomics**		
Course Code	**MBS 171M**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**2nd Year/ 3rd Level**		
Credit Hours	3		
Contact Hours	**Lecture: 3**	**Lab/Tutorial**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**HFSB 102-1**		
Co-Requests:	**None**		
Course Objectives:	A. Describe the processes and results associated with single-gene inheritance and the assortment of genes. B. Describe the processes involved in mapping genes by recombination, and the consequences of gene-gene interactions C. Describe the genetic consequences of viral infection and bacteria (pathogenicity islands, resistance transfer, etc). D. Articulate the genetic basis for of transcription, translation, replication, and the importance of fidelity (including repair). E. Describe the basic methods of gene isolation and manipulation.		

	F. Define the role of genomes and genomics in controlling the complexities of biological control and homeostasis and the consequences of loss of homeostasis. G. Detail mechanism of genetic mutation, and how such mutations are repaired. H. Define the fundamental elements of population genetics, quantitative genetics, and evolutionary genetics, including areas of overlap and areas of distinction, and how these sub-disciplines underpin biological diversity.

A brief Course Description			
Course Name	**Pharmaceutical Organic Chemistry (1)**		
Course Code	**PHS 202**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**2nd Year/ 3rd Level**		
Credit Hours	4		
Contact Hours	**Lecture: 3**	**Lab/Tutorial 3**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**None**		
Co-Requests:	**None**		
Course Objectives:	A. Describe the nature of chemical bonding in defining the structure, physical properties, and reactive properties of organic compounds. B. Define the structure and properties of the standard organic functional groups, and how they contribute to the overall properties of the molecule. C. Describe mechanistically basic organic reactions leading to substitution, addition, elimination, or lysis. D. Define the conformational attributes of cycloalkyl systems and how those conformers.		

	E. Apply fundamental stereochemical characterization to molecules and explain how stereoisomerism contributes to structural characterization and chemical reactivity. F. Describe the structure and reactivity of alkenes, alkynes, alcohols, ethers, and carbonyl compounds. G. Describe how infrared spectroscopy, nuclear magnetic resonance spectroscopy, and mass spectrometry are used to determine chemical structure.

A brief Course Description			
Course Name	**Pharmacy Calculations**		
Course Code	**PHS 221M**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**2nd Year/ 3rd Level**		
Credit Hours	1		
Contact Hours	**Lecture: 1**	**Lab/Tutorial**	**Training: 1**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**HFSM 101-1**		
Co-Requests:	**None**		
Course Objectives:	A. Demonstrate a mastery of prerequisite fundamental mathematical calculations. B. Understand international systems of units (e.g., metric) and measurements specific to pharmaceutical sciences. C. Interpret prescription orders and perform appropriate calculations for prescription preparation. D. Apply fundamental concepts associated with density, specific gravity, and specific volume to calculations associated with pharmaceuticals. E. Apply fundamental concepts associated with expressions of concentration to calculations associated with pharmaceuticals.		

	F. Perform fundamental calculations of doses including considerations of patient specific factors in making calculations. G. Identify the importance of isotonicity and buffer strength in pharmaceutical preparations. H. Perform calculations associated with electrolytes in pharmaceutical preparations. I. Articulate proper methods for converting stock solutions to final pharmaceutical products.

A brief Course Description			
Course Name	**Introduction to Pharmacy Practice and Health Care Systems (1)**		
Course Code	**CPP 211M**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**2nd Year/ 4th Level**		
Credit Hours	1		
Contact Hours	**Lecture: 1**	**Lab/Tutorial:**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**None**		
Co-Requests:	**None**		
Course Objectives:	A. Describe the importance of ethics in pharmacy practice. B. Describe the role of the pharmacist in the following areas: • patient-centered care. • systems management. • public health. C. Discuss the behaviors that a pharmacist must demonstrate when "caring" for patients. D. Outline what a pharmacist must do in order to provide "patient-centered care." E. Outline drug use, access, the pharmaceutical industry, and the supply chain in Saudi Arabia. F. Describe the human, physical, medical, informational, and technological resources that		

	are used to assure the safe, accurate, and time-sensitive distribution of medicines and also to improve therapeutic outcomes. G. Identify strategies for improving public health and how a pharmacist can promote wellness. H. Define medication adherence and describe how a pharmacist can improve medication adherence.

A brief Course Description			
Course Name	**Biostatistics**		
Course Code	**MASC 264**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**2nd Year/ 4th Level**		
Credit Hours	2		
Contact Hours	**Lecture: 2**	**Lab/Tutorial: 1**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**None**		
Co-Requests:	**None**		
Course Objectives:	A. Define the basic mathematical concepts associated with statistics, and how they apply to the analysis of data derived from the study of biological systems. B. Articulate the different types of biostatistical studies, and the attributes of valid study design, and data acquisition (data integrity) and interpretation of results. C. Apply fundamental concepts of probability to biostatistical analysis. D. Define how a hypothesis is developed and how it is tested using appropriate biostatistical methods. E. Apply the principles of confidence intervals, response variables, correlation, and regression to interpreting biostatical study results.		

A brief Course Description			
Course Name	**Pathophysiology (1)**		
Course Code	**MBS 252M**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**2nd Year/ 4th Level**		
Credit Hours	3		
Contact Hours	**Lecture: 3**	**Lab/Tutorial:**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☐ College Requirement ☒ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**MBS 101M, MBS 141M**		
Co-Requests:	**None**		
Course Objectives:	A. Describe the processes involved in inflammation and compare and contrast them with healing. B. List and describe the common abnormal responses of the immune system, including reasons for occurrence (if known) and consequences to the tissue/organs involved. C. Compare and contrast normal cell functioning from that seen in neoplasms. D. Describe the changes responsible for converting normal cells to cancerous cells. E. List and describe the common causes of acid-base and electrolyte imbalance and their effect on normal bodily function. Specifically describe how the body attempts to compensate for acid-base and electrolyte imbalance. F . List the common congenital and genetic disorders. And describe the causative factors (if known) and the natural consequence of the disorder. G. Describe how various diseases affect pregnancy. And list and describe the		

	major complications that may affect the mother and the fetus during pregnancy. H. Describe the effects of aging on the major body functions including the effects of immobility on blood coagulability, bone turnover, muscle function and joint flexibility. I. Describe how stress and pain can influence normal physiology. J. Describe how continued use of common substances of abuse, acute and chronic exposure to environmental hazards affect normal physiologic functioning. K. List normal laboratory values used in the diagnosis of disease and what values are considered abnormal. L. Describe the major pathologies of the blood, lymph, musculoskeletal and skin.

A brief Course Description			
Course Name	**Introduction to Medical Microbiology**		
Course Code	**MBS 262M**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**2nd Year/ 4th Level**		
Credit Hours	4		
Contact Hours	**Lecture: 3**	**Lab/Tutorial: 3**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**MBS 171M**		
Co-Requests:	**None**		
Course Objectives:	. Identify the role of host-parasite relationships in infectious diseases. B. Identify the factors controlling the epidemiology of infectious diseases. C. Describe the fundamentals of antibiotics in relation to basic cell structures. D. Identify the basic processes and laboratory tools associated with clinical diagnostic microbiology. E. Define the role of innate and cellular immunity in disease prevention and in response to overt disease. F. Describe the etiology of common bacterial diseases (respiratory, GI, STD) G. Describe the etiology of common fungal diseases (systemic and superficial). H. Describe the etiology of common viral diseases (respiratory, GI, STD, vector-based). I. Apply basic microbiology laboratory techniques to the identification of bacterial pathogens and their susceptibility to antibiotics. J. Apply basic microbiology laboratory techniques to culture fungi and viruses.		

A brief Course Description			
Course Name	**Pharmaceutical Organic Chemistry (2)**		
Course Code	**PHS 203**		
College	**College of Pharmacy**		
Department/ Program	**Doctor of Pharmacy (Pharm D) Program**		
Year / Level:	**2nd Year/ 4th Level**		
Credit Hours	4		
Contact Hours	**Lecture: 3**	**Lab/Tutorial: 3**	**Training:**
Language	**English**		
Track (Select)	☐ University Requirement ☒ College Requirement ☐ Department Requirement ☐ Elective Course		
Pre-requisites Course:	**PHS 202**		
Co-Requests:	**None**		
Course Objectives:	A. Define the chemical characteristics of dienes and aromatic compounds and their standard reactions including mechanisms. B. Define the chemical characteristics of carbonyl compounds including aldehydes, ketones, carboxylic acids and dicarbonyl compounds and their standard reactions including mechanisms. C. Define the chemical characteristics of amine containing compounds and their standard reactions including mechanisms. D. Define the chemical characteristics of phenolic compounds and aryl halides their standard reactions including mechanisms.		

	E. Define the chemical properties of carbohydrates and their standard reactions and synthesis. F. Define the chemical properties of lipids and their standard reactions and synthesis. G. Define the chemical properties of amino acids and proteins and their standard reactions and synthesis. H. Define the chemical properties of nucleic acids and their standard reactions and synthesis. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web-based reference material, changes in content as a result of new research in the field).