

School	School of Pharmacy	
Major	Pre-Pharmacy	

General Education Requirements			
Code	Title	Credits	Description
ARAB200	Arabic Language and Literature	3	This course is a comprehensive review of Arabic Grammar, Syntax, major literature and poetry styles, formal and business letters.
CSCI200	Introduction to Computers	3	The course aims at making students competent in computer-related skills. It is supposed to develop basic computer knowledge by providing an overview of the computer hardware and basic components as well as hands-on practice on common software applications such as Word, Excel, Power Point, Internet and Email. The student will learn how to use the new features of Microsoft Office 2010 mainly Word documents, Excel spreadsheets and PowerPoint presentations. On the surface, MS Office 2010 looks a lot different than previous versions (no more menus_toolbars!), but by learning to understand the dramatically changed, Ribbon-based interface, you'll quickly get back on the road to productivity.
CULT200	Introduction to Arab - Islamic Civilization	3	The purpose of this course is to acquaint students with the history and achievements of the Islamic civilization. Themes will include patterns of the political and spiritual leadership; cultural, artistic, and intellectual accomplishments Prerequisites: ENGL051, ENGL101, ENGL151.
ENGL201	Composition and Research Skills	3	This course focuses on the development of writing skills appropriate to specific academic and professional purposes; the analysis and practice of various methods of organization and rhetorical patterns used in formal expository and persuasive writing; the refinement of critical reading strategies and library research techniques; and the completion of an academically acceptable library research paper. Prerequisites: ENGL150, ENGL151.
ENGL251	Communication Skills	3	The objectives of this course are to improve students' writing skills for academic purposes by developing effective use of grammatical structures; analytical and critical reading skills; a sensitivity to rhetorical situation, style, and level of diction in academic reading and writing; and competence in using various methods of organization used in formal writing.
MATH245	Statistics for Health Sciences	3	General introduction to statistical methods used in the health, biological, biomedical sciences, pharmacy and medical sciences. Topics include research methods and design, descriptive statistics, performance characteristics of diagnostic tests, graphical methods, probability, estimation, hypothesis testing, p-values, regression and correlation, and clinical trials. Prerequisite: ENGL 150

Core Requirements			
Code	Title	Credits	Description
BIOC310	Medical Biochemistry	4	Medical Biochemistry is designed to present the basics of biochemistry, thus including a study of structure of amino acids, carbohydrates, lipids, proteins, enzymes, and nucleotides, in addition to their metabolism, bioenergetics, membranes and signaling systems, integration and regulation of the major metabolic pathways, nitrogen metabolism, myoglobin, hemoglobin, and hemostasis, with emphasis on the biochemical basis of human disease. Prerequisite: BIOL 200 & CHEM 250
BIOL200	General Biology I	3	An introductory level course to energy transfer through living organisms, cell biology, membrane transportations, genetics, human physiology, evolution, and morphology and physiology of organ systems, understanding diversity with emphasis on the animal kingdom and evolution. Protozoans are also studied. Prerequisites: ENGL 150; BIOL 150, or S grade on the Biology Placement Test

BIOL200L	General Biology I Lab	1	This lab course introduces principles of microscopy with emphasis on viewing different animal tissues and cells. A detailed study of the animal kingdom including evolution, classification, and anatomical morphology. Co-requisites: BIOL 200
BIOL360	Human Physiology & Anatomy	4	Studies the structure and function of the following body systems: blood, lymphatic, cardiovascular, respiratory, digestive, urinary, and reproductive. Prerequisites: BIOL200
BIOL360L	Human Physiology & Anatomy Lab	1	Human Physiology & Anatomy Lab
BIOL385	Microbiology	3	Characteristics of microorganisms and parasites - emphasizing mechanisms by which they cause disease in humans. Prerequisites: BIOL 200
BIOL385L	Microbiology Lab	1	Sterile techniques, media preparation, streaking, identification, isolation and purification of different bacterial strains are performed. Co-requisites: BIOL 385
BMED445	Pathophysiology	3	This course studies the mechanisms, etiologies, risk factors and complications of diseases processes. It emphasizes on the clinical signs and symptoms, history, prognosis and epidemiology of diseases. Study of pathological imbalances including cellular adaptation and injury, fluid compartment exchanges with edema and dehydration, electrolyte functions, control and imbalances, acidosis and alkalosis, nervous system injuries and responses, sensory imbalances, skeletal system injury and repair, soft tissue injury and repair, and muscle injury and dysfunction. Prerequisites: BIOL 345 & BIOL 385
CHEM200	General Chemistry	3	Basic principles of chemistry, electronic structure of the atom, chemical periodicity, molecular structure and bonding, acids and bases and the states of matter, rates of chemical reactions, and chemical equilibrium are covered in this course. Prerequisites: ENGL 150; CHEM, or S grade on the Chemistry Placement Test Prerequisites: CHEM160, ENGL101. Co-requisites: CHEM200L.
CHEM200L	General Chemistry Lab	1	The laboratory work involves hands-on experience with chemical systems. Experiments include basic calorimetry, a limited qualitative and quantitative analysis scheme, properties of gases, acid-base and redox titrations. Co-requisites: CHEM 200
CHEM250	Organic Chemistry I	3	Organic Chemistry will be classified into families, and the physical and chemical properties of each family will be discussed. Organic reactions will be viewed for their synthetic value, and Mechanistic Theory of Reactions and Structural Theory will be applied. A review of basic concepts of molecular structure, chemical bonding, molecular geometry, electronic and atomic structure, and acid-base chemistry, in addition to basic chemistry of alkanes, alkenes and alkyne families will be a main focus in this course. The value of stereochemical isomers will be stressed including conformational, geometrical and optical isomers. Prerequisite: CHEM 200.
CHEM300	Organic Chemistry II	3	This course is the bulk of under graduate organic chemistry. Mechanism in organic chemistry such as SN1, SN2, E1 and E2 and free radical chemistry will be the key focus of this course combined with comprehensive study of structure and reactivity of functional groups: the chemistry of alcohols, phenols, aromatics, ethers, aldehydes, ketones, amines, carboxylic acids, and their derivatives such as esters and amides. The strategic approach for organic chemistry synthesis, structure elucidation, and mechanistic study by spectroscopic methods will also be investigated. Prerequisite: CHEM 250.
CHEM300L	Organic Chemistry Lab	2	Basic experimental techniques in organic chemistry such as melting points, boiling points, distillation, extraction, chromatography; synthesis, separation and purification of some organic compounds. Co-requisites: CHEM 300

### Major Requirements

Code	Title	Credits	Description
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PHAR205	Quantitative Analysis	2	This course covers methods associated with quantitative analytical techniques. It emphasizes the quantitative determination of substances using spectroscopic analysis, analytical separations, chromatography, and electrochemical methods: potentiometry, voltammetry, and coulometry. Laboratory stresses use of methods and instrumental techniques for quantitative chemical analysis.
PHAR200	Introduction to Drug Information	2	This course will prepare the student to utilize, retrieve, interpret and allocate information from 1ry, 2ry and 3ry literature useful to their practice and in their future clinical rotations. The student will evaluate the literature and will learn how to critic journal article. The pharmacy student will also have the opportunity to learn how to write drug consults, hospital notes and article evaluations for journal club purposes.
PHAR250	Pharmacy Practice, History & Ethics	3	This course emphasizes upon the historical background and ethical principles of the profession of pharmacy, past and future. By the end of this course, the student will become familiar with the main events and evolution of the profession of pharmacy till the introduction of the clinical pharmacy concept. The practice section introduces students to the practice of pharmacy and to the different medicinal agents and their forms. Pharmacy students will become familiarized with common medical abbreviations used in the profession of pharmacy. Legal procedures that lead to drug marketing, drug withdrawal or recall in the United States will be defined. Ethical dilemmas are part of everyday routine for the pharmacist especially in the social environment we live in. Professional conduct and a high standard of morals are required at all times. Ethical issues relating to the practice of pharmacy will be discussed and each student will have the opportunity to participate in a debate related to sensitive matters he/she might encounter in his/her career
PHAR300	Pharmaceutical Calculations	2	This course provides the pharmacy student with information and knowledge needed to mix a medication in order to obtain a specific concentration dose, to convert measurements from the apothecary system to the metric system and vice versa, to calculate doses needed for pediatrics or adults, to mathematically adjust the dose in case of renal or hepatic compromise, etc.. The skill to do such calculations is obtained via exercises and case solving delivered in class.