501211 Pharmaceutical Organic Chemistry (4:3-1)

Prerequisite: 101115

This course covers the basic principles of organic chemistry, allowing the student understand the language of organic chemists. A broad overview of the properties and characteristics of organic molecules is provided, and several key reactions and reaction mechanisms are discussed.

501241 Analytical Chemistry for Medical Sciences (3:2-1)

Prerequisite : 101103

Analytical chemistry involves separating, identifying, and determining the relative amount of components in a sample of matter, Qualitative analysis reveals the chemical identity of species in the sample. Quantitative analysis establishes the relative of these species. It has played a vital role in the development of science, it has different applications throughout industry, medicine and all the science, therefore we should introduce a wide range of techniques of modern analytical chemistry to teach those laboratory skills that will give students confidence in their ability to obtain high quality analytical data.

501242 Physical Pharmacy (1) (2:2-0)

Prerequisite : 101103

This course aims at introducing the student to the different physical aspects related to drugs in different forms such as solid, liquid, gas, or disperse systems.

501256 Pharmacognosy (2:2-0)

Prerequisite : 503102

The course includes taxonomical classification, morphological, anatomical description of natural drugs; the methods for collection, drying and preparation, storage and preservation, the chemical constituents and uses.

501311 Medicinal Chemistry (1) (3:3-0)

Prerequisite : 501211

The course introduces the student to the role of physical and chemical properties in relation to biological activity. Also it explains the various metabolic processes that drug (s) undergo in our biological system. We deal with Autonomic nervous system (cholinergic, adrenergic, agonist and antagonists). Diseases like Alzheimer, Asthma and glaucoma are included.

501312 Medicinal Chemistry (2) (3:3-0)

Prerequisite : 501311

The course deals with the chemistry, structural activity relationships, drug receptors or enzymes interaction to induce pharmacological activity (ies) in the area of antihistaminic, diuretics, cardiovascular system, central nervous systems endocrine and others.

501317 Phytochemistry (1) (2:2-0)

Prerequisite : 501211

This course intends to study the principles of medicinal plants, to furnish the chemical bases of the modern phytotherapy underlining the steps, the fundamental techniques of phytochemical screening, the biosynthesis and the chemical and chemical-physics properties of the principal classes of natural mixtures used in therapy.

501321 Pharmacy Ethics & Jurisprudence (2:2-0)

Prerequisite : Second Year

This course enables the student to understand the basic legislation which controls his/her work as pharmacist in various pharmaceutical areas, and the ethics which formulates the pharmacist relationship with the patient, colleagues, and other health personnel to deliver his pharmaceutical services in good way.

501345 Physical Pharmacy (2) (3:2-1)

Prerequisite : 501242

The student will be further introduced to the different physical aspects related to materials whether solids, liquids, gases, solutions or disperse systems. Building this kind of knowledge is vital to having the proper foundation to prepare rationally designed and well made stable dosage forms. It is also essential to build the capacity to understand, to deal with and attempt to avoid causes of instability.

501346 Pharmaceutical Dosage Forms Compounding Calculations (4:3-1)

Prerequisite : 501345

This course aims to introduce the student to the different pharmaceutical dosage forms including their way of preparation, properties and stability whether during formulation or during storage and dispensing. Different types of calculations which can be encountered in compounding a prescription will be addressed and examples will be solved. An attempt to relate information taken in Physical Pharmacy 2 to those dealt with in this course will be made in order to try and connect the pure scientific aspects of the topic to its implementation in practice during formulation and dispensing of a certain dosage form.

501351 Pharmacology (1) (3:3-0)

Prerequisite : 502236

This course deals with the general & basic pharmacological principles that enable the student to evaluate and use drugs effectively and safely. The autonomic and the central nervous systems in addition to other systems are discussed.

501352 Pharmacology (2) (3:3-0)

Prerequisite : 501351

This course is a continuation to pharmacology 1 with emphasis on anti microbial agents, anti inflammatory drugs, respiratory & gastrointestinal agents along with other topics are also encountered.

501413 Instrumental Analysis (3:2-1)

Prerequisite : 501241

The student should be able to differentiate between quantitative and qualitative analyses. Understand the applications and the use of instrumental techniques in purity analysis, assay methodology and structural elucidation.

501414 Phytochemistry (2) (3:2-1)

Prerequisite : 501317

This course is a continuation of Phytochemistry 1.

501415 Medicinal Chemistry (3) (3:3-0)

Prerequisite : 501312

The course deals with the chemistry, mechanism of action(s), stability and structural aspects of drugs used in treatment of cancer and bacterial and viral infections.

501421 Industrial Pharmacy (4:3-1)

Prerequisite : 501346

This course is designed to familiarize the student with the design, development, manufacturing, processing problems and evaluation of stable and bioavailable various uncoated and coated tablets, hard and soft capsules, microcapsules using up-to–date technology and modern excipient. The course also covers some pharmaceutical operations used in pharmaceutical industry, such as mixing, drying, milling and particle size analysis.

501442 BioPharmacy (2:2-0)

Prerequisite : 501346

Biopharmaceutics deals with the study of the interrelationship of the physico-chemical properties of the drug, the dosage form and the route of administration with the clinical response observed after the administration of the drug.

501443 Pharmacokinetics (3:3-0)

Prerequisite : 501442

This course deals with the study of the time course of drug liberation, absorption , distribution, metabolism, excretion and response (LADMER process) and the relation of these with the onset, intensity and duration of action of drugs. The theoretical aspect of pharmacokinetic involves the development of various mathematical relationships(one or two compartment models) to stimulate the above rate processes after using different route of administration.

501444 Pharmaceutical Microbiology (3:3-0)

Prerequisite : 501346+502346

This course is designed to provide the student with the basic information of the pharmaceutical aspect of microbiology which include: commonly used disinfectants antiseptics and preservatives, methods of sterilization, microbial contamination and spoilage of pharmaceutical products, aseptic area and aseptic processing and employing microorganisms in different assays.

501445 Non-Prescription Drugs (3:3-0)

Prerequisite : 501346+501352

This course is designed to provide the student with basic information on the most common self diagnosed conditions, recognize the active ingredients utilized in various over the counter (OTC) drugs, assist the self medicating patient in selecting the most suitable drug or the most appropriate course of action, Ensure that the patient is aware of the necessary information for safe and effective use of the drugs, Describe the side effect and precautions of OTC drugs. Recommend the proper dosage and instructions related to use of OTC drugs.

501452 Pharmacology (3) (2:2-0)

Prerequisite : 501352

This course is a continuation to pharmacology 2.

501513 Pharmaceutical Marketing (3:3-0)

Prerequisite : Third Year

By the end of this course the student should have a better understanding of sale concepts and techniques, with special emphasis on pharmaceutical detailing & selling in pharmacies. This course will also introduce the students to the principles and concepts of marketing. It also puts some emphasis on pharmaceutical promotion & personal selling.

501524 Communication Skills in Pharmacy (2:2-0)

Prerequisite : Third Year

Communication Skills in Pharmacy Pre-Requisite: Fourth Year Pharmacy Communications is a course designed to teach prospective pharmacists the skills of effective communication with patients including medications and health.

501525 Drug Delivery Systems (2:2-0)

Prerequisite : 501421

This course is designed to provide the student with the physical and biological principles which apply to the design, development and evaluation of drug delivery systems. Specific examples of modern systems such as transdermal preparations, liposomes, dandromers, implants, monoclonal antibodies, and site-targeting systems are discussed.

501526 Clinical Pharmacy (1) (3:3-0)

Prerequisite : 501452

The aim of this course is that upon its completion the students will be able to:

1. Understand the philosophy and concepts of clinical pharmacy practice. Its inception, development and the role of the clinical pharmacist within the medical team. Also, the grounds for evidence-based approach in clinical practice.
2. Learn about the most common diseases in terms of their etiology, pathophysiology, clinical presentation, and disease management strategies.
3. Learn in-depth about the clinical use of drugs, therapy monitoring, drug interactions, adverse drug reactions, and therapy regimen adjustement in certain circumstances.
4. Develop a systematic thinking process to assess patient information, identify drug therapy problems and to effectively recommend the most appropriate therapy.
5. Learn about patient education/counseling and the strategies to enhance their compliance to therapy.
6. Analyze and solve case-scenarios, which will be given to emphasize the material covered throughout the course.

501527 Clinical Pharmacy (2) (3:3-0)

Prerequisite : 501526

This course is a continuation of Clinical Pharmacy 1 and It illustrates certain diseases such as management of peptic ulcer, Parkinson, epilepsy and the chemical mediators of the central nervous system and their relation to these diseases.

501528 Research Project (2:0-2)

Prerequisite : Dept. Approval

This project aims to get the student acquainted with the scientific method and how to develop a research project. The aim is to train students to carry out independent research in Pharmacy. The project can be theoretical or practical in nature.

501531 Toxicology (3:3-0)

Prerequisite : 501452

This course offers an authoritative introduction to the modern science of toxicology. The study covers the general principles of toxicology, Its historical aspects, classification of toxic substances, chemical disposition of drugs and toxic xenobiotics in biological systems, organ toxicology, specific topics in toxicology, risk management & risk assessment, and finally the clinical toxicology, which involves poisoning cases with proper treatments.

501560 Selected Topics in Pharmacology (3:3-0)

Prerequisite : 501452

This course is designed to describe certain topics in pharmacology such as immuno-pharmacology, prenatal and pediatric pharmacology, geriatric and dermatological pharmacology and basic and clinical evaluation of new drugs.

501561 Clinical Pharmacokinetics (3:3-0)

Prerequisite : 501443

This subject is emphasis on the monitoring of drug therapy, using serum drug concentrations as a guide. The plasma drug concentrations as well as the changes in plasma drug concentrations which occur over time can be predicted by the using of pharmacokinetics and biopharmaceutics principle. The monitoring process must be applied rationally to specific patient.

501562 Drug Information Systems (3:3-0)

Prerequisite : 501352

The course includes the application and the use of computers in retrieving information related to drug substances, in addition to the information related to toxic substances especially those related to drug products.

501563 Quality Assurance of Drugs (3:3-0)

Prerequisite : 501421

The course includes studying Good Manufacturing Practice (GMP), pharmaceutical industry, GMP and the law, documentation, labels, cleanliness, cross contamination, elements of Quality Control, personnel and instrumentation control.
new possible modifications.

501569 Cosmetics (3:3-0)

Prerequisite : 501346

This course deals with the different cosmetic preparations while addressing the method of preparation, the purpose of the product and drawing attention to any stability problems that can be encountered during manufacturing. The course will emphasize the benefits of cosmetic products while differentiating between their real values and those that are claimed to exist for marketing purposes.

501570 Herbal Medicine (3:3-0)

Prerequisite : 501414

The course includes the study of the therapeutic effects of the natural constituents in plants and the relation between the chemical structure of these constituents and the therapeutic actions on diseases.

501572 Advanced Industrial Pharmacy (3:3-0)

Prerequisite : 501421

This course is designed to familiarize the students with the organization structure of pharmaceutical manufacturing companies, duties and responsibilities of various departments, such as, research & development, production, quality affairs and marketing. The course also covers the stages of new drug development and approval process by FDA. .In addition, it includes the design and development of various dosage forms, advanced drug delivery systems and packaging of these dosage forms.

501574 Pharmaceutical Care Practice (3:3-0)

Prerequisite : 501526

This course is designed to introduce pharmacy students to the concepts and principles of pharmaceutical care practice. It aims at preparing them to claim responsibility for providing all patients' drug-related needs and accept accountability for this commitment. It introduces students to a thinking framework, which aids them organize their knowledge of drugs and diseases, integrate it with patient-specific data and make informed evidence-based clinical decisions. Case studies are given throughout the course to allow students develop their analytical skills of identifying and prioritizing drug therapy problems, specifying goals of therapy and designing effective care plans to achieve definite outcomes and improve patients quality of life. The course also discusses topics such as professional ethics and standards, evidence-based clinical practice and drug information sources for pharmacists. It highlights skills such as interview skills, communication skills, documentation skills and case presentation skills, and gives students the chance to train in them throughout the course.

501575 Clinical Nutrition (3:3-0)

Prerequisite : 502435

This course is designed to provide the pharmacy student with a useful orientation to pharmacology in order to give the basic information concerning general principles, theories & facts about drugs in terms of specific effects on bodily systems, clinical uses, and adverse effects.

501584 Methods of Drug Design (3:3-0)

Prerequisite : 501312

The course covers the various physical, chemical, biochemical and receptors, concepts that are utilized in the construction of a drug. The students are stimulated to think of certain.

501585 Pharmaceutical Analysis (3:3-0)

Prerequisite : 501413

This advanced course focuses on methods development based mainly on isolation and/or chromatography separation (HPLC, GC), coupled to suitable detection method, to proceed in qualitative and quantitative analyses. The course presents an overview of modern techniques used widely in pharmaceutical industry for analysis of drug substances and drug products.

501586 Selected Topics in Pharmacy (3:3-0)

Prerequisite : Dept. Approval

This course covers selected topics in pharmacy that are not fully covered in other courses. This covers the new trends in pharmaceutical sciences.

501587 Radio Pharmaceuticals (3:3-0)

Prerequisite : Dept. Approval

This course covers the basics of radiation biology followed by the application of radiopharmaceuticals in diagnosis and therapy of diseases. In addition, topics include the preparation, handling, disposition, and quality control of clinically useful radiopharmaceuticals.

501591 Biotechnology (3:3-0)

Prerequisite : Dept. Approval

Pharmaceutical Biotechnology is a science for developing new pharmaceutical products using number of different disciplines such as molecular biology, molecular genetics, biochemistry, immunology, and pharmaceutical sciences. This course should promote and familiarize the student with biotechnology techniques, products and gene manipulation.

502211 Biochemistry (1) (3:3-0)

Prerequisite : 101115

This course aims at:

- Teaching the students the chemical and physical properties of biomolecules and their major function in the biological system.
- Understanding the concept of bioenergetics and the pathways of central metabolism. And to relate the regulation of these pathways to the hemostasis of the whole organism in order to appreciate and understand metabolis.
- Knowing the fundemental aspects of enzymes and their regulation, and this in turn is necessarly preceded by lectures on protein structure.
- Understanding the structure and functions of nucleotides and more specifically the nucleic acids. It also involves a breaf introduction about DNA metabolism and its regulation and RNA transcription and regulation of gene expression.

502212 Biochemistry (2) (3:2-1)

Prerequisite : 502211

Based on Biochemistry 1, this course is designed to introduce the basic concept of anabolic reactions of the major bio-molecules; carbohydrates, lipids, proteins and nucleotides and their metabolism.

502225 Microbiology (1) (3:2-1)

Prerequisite : 503102

This course aims at introducing students to the world of microorganisms. Microbial morphology, growth, and physiology. Microbial control including physical and chemical methods will be in dealt which. The genetics of microorganisms and its applications are illustrated.

502235 Anatomy & Histology (3:2-1)

Prerequisite : 503102

The objective of this course is to provide the student with knowledge and understanding of the body parts, organs, and tissues. Basic components and functions of cells and tissue types are also studied.

502236 Physiology (4:3-1)

Prerequisite : 502235

This course aims to cover the physiological concepts of all organs/tissues and their functions with emphasis on the relationship of structure to function and how links & interaction between body systems contribute to homeostasis of the body as a whole. The student develops an understanding of normal physiological processes with special reference on situations in which diseases or disorders impair these processes.

502318 Pathophysiology (3:3-0)

Prerequisite : 502236

This course is designed to study concepts of altered health with emphasis on wound healing, cell differentiation, neoplasm, body defenses, temperature regulation, blood flow and cardiac function. Metabolism and gastrointestinal disorders, fluid and electrolytes, respiratory & renal altered functions are discussed.

502346 Microbiology (2) (2:2-0)

Prerequisite : 502225

This course aims at familiarizing pharmacy students with fungi and human parasites: their morphology, life cycle, mode of transmission and pathogenesis of parasitic diseases and their treatment.

502435 Clinical Biochemistry (3:3-0)

Prerequisite : 502212+502318

This course enables the students to understand the clinical concept of biochemistry (clinical chemistry) and the use of clinical laboratory results to differentiate between health and disease. This includes the understanding of problem solving and clinical cases of clinical.

502445 Pathology & Immunology (2:2-0)

Prerequisite : 502346+502318

This course enables the student to understand the basic mechanism of pathological diseases with the understanding of the concepts and components of the immune system, antigens recognition molecules, physiology of the immune system, innate immunity, and how the immune system plays part in the cure and/or pathogenesis of diseases.

9500101 First Aid (3:3-0)

Prerequisite : None

This course enables the students to understand the basic information of first aid in cases of emergency, in order to: preserve life, reduce suffering, and prevent deterioration of the injured individual. By having some first aid training and knowing cardiopulmonary resuscitation (CPR), the student can have a major impact to the successful outcome of a medical emergency.