

First Term

PHARMACOLOGY I (PHRS 301)

Course Description:

This course is the first course in a series of three Pharmacology courses. This course is an essential building block in the education of a pharmacy student and is designed to introduce first professional year pharmacy students to the concepts of pharmacology. The course emphasizes fundamental principles and current concepts of the discipline, which includes overviews of the physiological, biochemical, and anatomical foundations of the interaction of drugs and chemicals with the biological systems. The course provides a systematic study of the effects of drugs on different organ systems and disease processes, the mechanisms by which drugs produce their therapeutic and toxic effects, and the factors influencing their absorption, distribution and biological actions. Drugs acting on the autonomic nervous system, cardiovascular system, anti-inflammatory and drugs affecting blood coagulation will be covered in the current course. Attention is focused on drug mechanism(s) of action, pharmacodynamics, toxic effects and important interactions with other drugs, generally following an introduction or review of the basic biology underlying the topic of discussion. While the course emphasizes basic pharmacology rather than applied therapeutics, appropriate clinical material may be necessarily included at times to elucidate essential pharmacologic concepts.

MEDICINAL CHEMISTRY I (PHRS 304)

Course Description:

Medicinal Chemistry I (PHRS-304) provides the chemical basis for the interdisciplinary field of therapeutics. The health care team looks up to the pharmacist as its only member with a chemical expertise. Therefore, it is vital that the pharmacist retains this expertise in the chemistry of drugs. This course is devoted to the study of synthetic entities including Beta-blockers, Diuretics, Angiotensin, Converting Enzymes and other additional topics that will be covered. It familiarizes the student with the chemistry of organic medicinal agents necessary for effective professional practice. While geared to furnish relevant information on the chemistry of drugs in contemporary use, sufficient emphasis is also placed on basic principles enabling the practitioner to maintain competence in drug chemistry throughout his/her professional career. This course also relates to and/or serves as a foundation for other courses in the Pharmacy Curriculum.

PHARMACEUTICS I (PHRS 307)

Course Description:

This core course focuses on understanding the physicochemical principles of medications and their applications to the design and development of different pharmaceutical dosage forms. The covered basic principles in this course include drug development and regulatory process, physicochemical and biopharmaceutical considerations in dosage form design, solutions and buffers, rheology, interfacial phenomena, colloidal systems, suspensions, and emulsions. In addition, semisolid dosage forms including ointments, creams, pastes, gels and magmas are also covered.

PHARMACEUTICAL CALCULATIONS (PHRS 309)

Course Description:

This course is designed to teach the fundamentals of pharmaceutical calculations that are required in the compounding and dispensing of a prescription. Students will apply appropriate mathematical concepts using typical situations that are encountered during the practice of the profession of pharmacy. The course will emphasize on aspects of basic mathematics and logical skills needed to perform pharmaceutical and clinical calculations essential to ensure that the right dose and strength of a medication or nutritional preparation are given to the right patient at the right time. The pedagogy for this course is predominately didactic lectures and practical sessions.

INTRODUCTION TO PHARMACY

Course Description:

This course provides the Pharm.D. student with an introduction to the healthcare delivery system profession of pharmacy. The environment in which healthcare is rendered, and interdisciplinary care with a focus on the roles of the pharmacist. Students will learn about a variety of career opportunities.

This course also facilitates an understanding of professionalism to embracing the responsibility of a pharmacist in society and the health care system, with a focus on personal and professional development through providing tips for appropriate CV and job interview preparation.

INTRODUCTORY PHARMACY PRACTICE EXPERIENCE I (PHRP 300)

Course Description:

An Overview of the IPPE Curriculum:

The students at the College of Pharmacy, KSAU-HS will receive at least 345 hours of Introductory Pharmacy Practice Experience (IPPE) and more from courses throughout the three years P-1 to P-3. These comprise course recitations, simulations and direct assignments to pharmacy service, individually assigned experiences and assignments in patient care areas. The domains of this IPPE curriculum includes: Professionalism, Service Learning, Shadow Learning, Patient Care, Practice Skills, and Professional Development. Professionalism and Shadow Learning are emphasized in the early experiences while the others are emphasized throughout the three-year curriculum. Early development of professional skills by students in classroom and in the various practice sites is a major objective.

In the first professional year, students of IPPE-I (PHRP 300) will be divided to groups and will be introduced to the pharmacy operation system in its dispensing, repackaging, clinical and administrative components through short term rotations. They also will be introduced to patient care services including obtaining drug history, drug information retrieval including journal club and retrieving and interpreting information from patients' charts.

Second Term

PHARMACOLOGY II (PHRS 302)

Course Description:

This course is the second course in a series of three Pharmacology courses. This course is an essential building block in the education of a pharmacy student. The course emphasizes fundamental principles and current concepts of the discipline, which includes overviews of the physiological, biochemical, pathophysiology and anatomical foundations for the interaction of drugs and chemicals with biological systems. While the emphasis of the course is on basic pharmacology rather than applied therapeutics, appropriate correlative clinical material must necessarily be included at times in order to elucidate essential pharmacologic concepts. The course provides a systematic study of drugs acting on the central nervous system, endocrine system, hematopoietic system, immunomodulatory drugs and drugs used in the treatment of asthma. Attention is focused on drug mechanism(s) of action, pharmacodynamics, toxic effects and important interactions with other drugs. While the course emphasizes basic pharmacology rather than applied therapeutics, appropriate clinical material may be necessarily included at times to elucidate essential pharmacologic concepts. The course is structured to be neither so detailed that students are overwhelmed by the volume of material to be mastered, nor so simplistic that deprive the fundamental background material essential for a broad understanding of drug mechanisms. The intent of this course is to encourage and facilitate subsequent understanding of more complex and specialized topics that will be encountered later in the curriculum during the clinical study of therapeutics.

MEDICINAL CHEMISTRY II (PHRS 305)

Course Description:

Medicinal Chemistry II (PHRS 305) is a continuation of Medicinal Chemistry I (PHRS 304). This course is designed to expose students to a review of medicinal chemistry principles as specifically related to the pharmaceutical treatment of disease. The course is presented as a series of lectures and case discussion sessions covering the structure-activity relationships, mechanism of action, and metabolism of a selected agents. Special emphasis will also be placed on the chemical basis of drugs enabling the practitioner to maintain competence throughout his/her professional career.

PHARMACEUTICS II (PHRS 308)

Course Description:

This required course emphasizes the impact of some key physical properties on the optimization of dosage forms and drug delivery formulations. The course also focuses on all issues related to drug stability and the kinetic models used for prediction of their shelf-lives. It exposes students to important issues including the various drug dissolution kinetic models and key properties of polymers as main element in the formulation of many dosage forms. All the techniques involved in the formulation, preparation, and quality control of all solid dosage forms including powders, granules, capsules, tablets, and suppositories will be thoroughly discussed.

STERILE DOSAGE FORMS (PHRS 311)

Course Description:

This course is an introduction to the attributes of sterile dosage forms; including parenteral, ophthalmic and otic preparations. It emphasizes basic principles related to preparation, dispensing and administration of parenteral medications during pharmacy practice in the extended care, hospital, and home care arenas. Current regulations and guidelines covering facility requirements, quality requirements and the pharmacist's responsibilities when compounding sterile preparations will be thoroughly covered. Complications associated with the delivery of parenteral medications will also be addressed. The various methods of sterilization and all the quality control tests for sterile products will be covered. Important issues related to handling and administration of sterile dosage pharmaceutical products will also be addressed.

PHARMACY COMPOUNDING (PHRS 312)

Course Description:

This required practical course introduces Pharm. D. students to the concepts, techniques, and equipment that are used in compounding and dispensing of pharmaceutical preparations. In addition, the laboratory provides basic knowledge to extemporaneously compounded medications that are required for optimum patient care when manufactured medication cannot provide the desired outcomes. In addition, the course will provide hands on training in basic techniques used to prepare and dispense parenteral admixtures.

COMMUNICATION SKILLS (PHRP 302)

Course Description:

Communication Skills is a two-credit hour, lecture and case discussion course offered to first year pharmacy students. It is designed to introduce the student to the role of a pharmacist as a problem solver and a patient educator. It also teaches the students how to communicate verbally, in writing and non verbally with the health care professionals caring for patients. Course content includes general communication skills in the patient care setting, patient counseling, interviewing, documentation. This course also covers the basics of conflict resolution skills and principles of running professional meetings. Application of the concepts learned in the classroom will be demonstrated by the students in case discussions.

INTRODUCTORY PHARMACY PRACTICE EXPERIENCE I (PHRP 300)

Course Description:

An Overview of the IPPE Curriculum:

The students at the College of Pharmacy, KSAU-HS will receive at least 345 hours of Introductory Pharmacy Practice Experience (IPPE) and more from courses throughout the three years P-1 to P-3. These comprise course recitations, simulations and direct assignments to pharmacy service, individually assigned experiences and assignments in patient care areas. The domains of this IPPE curriculum includes: Professionalism, Service Learning, Shadow Learning, Patient Care, Practice Skills, and Professional Development. Professionalism and Shadow Learning are emphasized in the early experiences while the others are emphasized throughout the three-year curriculum. Early development of professional skills by students in classroom and in the various practice sites is a major objective.

In the first professional year, students of IPPE-I (PHRP 300) will be divided to groups and will be introduced to the pharmacy operation system in its dispensing, repackaging, clinical and administrative components through short term rotations. They also will be introduced to patient care services including obtaining drug history, drug information retrieval including journal club and retrieving and interpreting information from patients' charts.

In the second professional year, students of IPPE-II (PHRP 400) will spend longer time, in a group, with specific preceptors providing pharmaceutical care in both the community and the clinical arms. The experiences in this course will also cover industrial, governmental, and institutional part through a short arranged visit to external partners.

In the third professional year, students of IPPE-III (PHRP-500) students will be assigned to operation (inpatient and outpatient) and clinical (Drug information and counseling) sites for a longer period of time up to 3 weeks each. The student will perform all the pharmacists' tasks under the strict supervision of a pharmacist. There is no limitation to what they can do under supervision as long as it does not violate local laws and hospital regulations.

IPPE I (PHRP -300) Main Objective:

The goal of this Introductory Pharmacy Practice Experience I (PHRP-300) is to give students the chance to shadow the preceptor in the drug distribution process of both the inpatient and the outpatient areas (e.g. dispensing, compounding, and Drug Information) and introduce students to patient care activities (e.g. taking medication histories, performing medication reconciliation and learning from preceptors how to solve problems related to medications).

At each introductory practice experience site, the pharmacist designated as preceptor serves as the student's main contact. Students are likely to interact with many staff members in the department of Pharmaceutical Care.

Third Term

PHARMACOLOGY III (PHRS 303)

Course Description:

This course is the third course in a series of three Pharmacology courses. This course is an essential building block in the education of a pharmacy student. The course emphasizes fundamental principles and current concepts of the discipline, which includes overviews of the physiological, biochemical, and anatomical foundations for the interaction of drugs and chemicals with biological systems. While the emphasis of the course is on basic pharmacology rather than applied therapeutics, appropriate correlative clinical material must necessarily be included at times in order to elucidate essential pharmacologic concepts. The course provides a systematic study of anti-infective agents, including antibacterial, antifungal, antiviral and antiprotozoal drugs, anti-cancer drugs in addition to drugs used in the treatment of gastrointestinal complaints, immunomodulatory drugs and antiasthmatic drugs. Attention is focused on drug mechanism(s) of action, pharmacodynamics, toxic effects and important interactions with other drugs. While the course emphasizes basic pharmacology rather than applied therapeutics, appropriate clinical material may be necessarily included at times to elucidate essential pharmacologic concepts. The course is structured to be neither so detailed that students are overwhelmed by the volume of material to be mastered, nor so simplistic that deprive the fundamental background material essential for a broad understanding of drug mechanisms. The lectures emphasize drug classes and prototypes rather than repetitive details about individual drugs. The intent of the faculty is to encourage and facilitate subsequent understanding of more complex and specialized topics that will be encountered later in the curriculum during the clinical study of therapeutics.

MEDICINAL CHEMISTRY III (PHRS 306)

Course Description:

Medicinal Chemistry III (PHRS 306) is a continuation of Medicinal Chemistry II (PHRS 305), and Medicinal Chemistry I (PHRS 304). This course is designed to expose students to a review of medicinal chemistry principles as specifically related to the pharmaceutical treatment of disease. The health care team looks up to the pharmacist as its only member with a chemical expertise. Therefore, the pharmacist must retain this expertise in the chemistry of drugs. This course is devoted to the study of synthetic entities including, various classes of antibiotics, anti-viral, anti-fungal and chemotherapeutic agents. It familiarizes the student with the chemistry of organic medicinal agents necessary for effective professional practice. While geared to furnish relevant information on the chemistry of drugs in contemporary use, sufficient emphasis is also placed on basic principles enabling the practitioner to maintain competence in drug chemistry throughout his/her professional career. This course also relates to and/or serves as a foundation for other courses in the Pharmacy Curriculum.

DRUG DELIVERY SYSTEMS (PHRS 313)

Course Description:

The course gives an overview on the basics of controlled drug delivery with emphasis on the various basic design approaches such as matrix, reservoir, osmotic, and erodible systems. The course provides students with integrated information on the various types of per-oral, buccal, transdermal, nasal, pulmonary, vaginal and ocular drug delivery systems. It also exposes students to the advances on long acting parenterals and implantable systems in addition to the main approaches of targeting drugs to the brain. This course exposes students thoroughly to the main types of nano-particulate drug delivery systems. The course gives students an overview on the various techniques involved in the delivery of genetic materials.

IMMUNOLOGY (PHRP 303)

Course Description:

The immunology course describes basic principles needed for clinical management of various diseases caused by immune system disorders either due to its failure (immunodeficiency), abnormal action (autoimmunity, allergy) or malignant growth of cellular elements (leukemia, lymphoma).

CLINICAL MICROBIOLOGY (PHRP 304)

Course Description:

This course will introduce the students to the basic principles of clinical microbiology and infectious diseases. It will cover major groups of pathogenic bacteria, viruses, fungi and parasites as well as methods of detection and susceptibility testing. The course will also identify the common categories of antibiotics used for combating various pathogenic microorganisms.

INTRODUCTION TO PATIENT CARE (PHRP 305)

Course Description:

This two-hour weekly course will introduce the student to body systems and common diseases affecting the human body. Selected diseases will be highlighted along with the appropriate terminology used for each including diagnostic tests, selected drug therapy, basic monitoring, major drug effects, adverse events, interactions, and patient safety. The student comprehension and studying should fall back on his/her knowledge acquired in the pharmacology courses taught earlier and in the current semester.