MSc Program in Pharmaceutical Sciences at the University of Petra

Course Description

501706 Pharmaceutical Dosage Form (3 Credit Hours)

This is a graduate course emphasizing on the fundamental concepts of drug formulation (solid and liquid forms) and development, including discussions of the crucial physicochemical and biopharmaceutical characteristics necessary for drug absorption.

501721 Pharmaceutical Microbiology (3 Credit Hours)

This course covers the aspects of microbiology from the pharmaceutical industry point of view including microbial contamination and spoilage of pharmaceutical products, modes of growth of microorganisms, sources of biological variation and lack of reproducibility, preservative efficacy in pharmaceutical and cosmetics industries, sterile dosage forms, and other relevant topics.

501722 Analytical Techniques & Quality Control (3 Credit Hours)

This course covers the most important instrumental analytical methods for quality control pharmaceuticals and for analysis of drugs in biological fluids. Special attention is focused on HPLC, GC, TCl, CE, MS, AS and ELISA. The course will help students 1) effectively understand the principles of most of the analytical techniques, 2) understand with the implementation of quality assurance in analytical techniques, 3) able to analyze the data obtained from such analytical techniques

501723 Pharmacology (3 Credit Hours)

This course is designed to provide graduate students with a useful orientation to pharmacology and to present them with the latest research developments in major areas of pharmacology.

501724 Phytochemistry (3 Credit Hours)

This course deal with the modern analytical methods for the quality control of tannins, cardiac glycosides, flavonoids, alkaloids, lignans, phenolic carboxylic acids and other natural compounds.

501725 Medicinal Chemistry (3 Credit Hours)

This course deals with the essentials structural requirements and structural modification for selected area in cardiovascular, central disorders and cancer with emphasis on recent publications in the above mentioned area.

501710 New Drug Development & Approval Process (2 Credit Hours)

This course provides an overview of the new drug development and the approval process from test tube to new drug application review, with an emphasis on preclinical research and clinical studies conducted by the drug's sponsor followed by how a drug sponsor can work with regulations and guidance information to bring a new drug to market, from clinical trials to postmarketing surveillance.

501712 Drug Delivery Systems (2 Credit Hours)

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.

501713 Preformulation (2 Credit Hours)

This is an advance course deals with the physiochemical properties and parameters including pKa, salt formation, stability assessment, solid state formation and stabilization that have to be determined in order to achieve a successful drug preparation.

501715 Pharmaceutical Biotechnology (2 Credit Hours)

This course focuses on novel biological products classified as pharmaceuticals, and on the use of biotechnology in pharmaceutical development. Particular emphasis is on the following themes: recombinant-DNA-based products, production of vaccines and other immunopharmaceuticals.

501716 Selected Topics in Pharmacology (2 Credit Hours)

This course is used typically for the presentation and discussion of new information in pharmacology that is not covered under other courses.

501717 Drug Design (2 Credit Hours)

This course provides the fundamental basis in drug design with more emphasis on the current advances in molecular pharmacology, receptor cloning and selective chemical reactions in drug design and development.

501718 Development of Herbal Pharmaceuticals (2 Credit Hours)

This course describes the main steps of manufacture and quality control of herbal drug preparations from starting material up to the finished product, and gives an overview of the current scientific and legal requirements for marketing authorization in Europe.

501719 Clinical Pharmacy and Therapeutics (2 Credit Hours)

This course includes lectures on the pathophysiology and medical management of different disease states supplemented with case studies. The main objective is to enable the student to practice pharmacy effectively in clinical setting.

501720 Experimental Design & Data Analysis (3 Credit Hours)

This course is designed to help students to develop skills in designing scientific experiments followed by data presentation and analysis using computer programs.
The course will help students 1) effectively design experiments amendable for statistical analysis, 2) plotting data, 3) develop understanding of significance testing and hypotheses, 4) perform common statistical analyses on experimental data, and 5) interpret results of analysis.

501727 Biopharmacy & Pharmacokinetics (3 Credit Hours)

This is a graduate course on the factors influencing the absorption, distribution, excretion and metabolism of drugs. Topics include compartmental/noncompartmental pharmacokinetics, renal clearance, hepatic clearance, protein binding and drug dosage regimen design and bioavailability and bioequivalence.

501731 Clinical Pharmacokinetics & TDM (2 Credit Hours)

This course is designed to provide the student with an understanding of the role that pharmacokinetics and pharmacodynamics play in rational therapeutics. The emphasis of this course will be on the clinical application of pharmacokinetics and pharmacodynamics concepts to individualize patient drug therapy in order to achieve the best possible outcome/s.

501777 Seminar (1 Credit hour)

This seminar course is designed for pharmaceutical sciences with guidance to research in connection with graduate thesis.

501799 Research (9 Credit hours)

This course can be divided into several hours/semester in order to form a formal research for the preparation and completion of the thesis for the Master of Science degree under the direction of the student's supervisory committee.