

## Course Description

Course code	Course Name	Brief Course Description
0205620	Advanced Pharmaceutical Chemistry	This course covers new pharmaceuticals among heterocyclic compounds integrating heterocyclic chemistry and drug discovery. This course deals also with advance applications of structure and theory to the study of organic heterocyclic compounds and their nomenclature, preparations and reaction mechanisms. It also explains the concepts and terms of combinatorial chemistry.
0205621	Biostatistics and Research Methodology	Biostatistics and research design provide students with advanced knowledge in research methodology and statistical methods used in health related subjects. It encompasses the design of pharmaceutical and medical studies. It involves the collection, summarization, and analysis of data from those studies; and the interpretation of, and inference from, the results. The course provides an introduction to selected important topics in bio statistical concepts and reasoning
0205622	Advanced Pharmaceutical Analysis	In this course students will gain key skills in the specialized area of pharmaceutical analysis, including good measurement and scientific practice, evaluation interpretation of data, and other professional and organizational skills. The Pharmaceutical Analysis course is designed to provide an overview of basic methods of pharmaceutical analysis including UV-visible, IR and NMR spectrophotometry, fluorescence, TLC and GC and HPLC. Methods of extraction of drugs from biological and pharmaceutical matrices are presented. Establishment of standards and specifications required for regulatory approval of drugs
0205623	Biopharmaceutics and Pharmacokinetics	The major objective of the course is to provide the student with fundamental foundational understandings of the principles of biopharmaceutics and pharmacokinetics that can be applied to drug therapy and dispensing. <i>Biopharmaceutics</i> is the science that examines the interrelationships between physicochemical properties of a drug, the dosage form, specific formulation, and route by which it is administered on the one hand, and the rate and extent of drug absorption into the systemic circulation, distribution to the tissues where it produces its actions (desired and undesired), and elimination from the body on the other hand. This will enable the students to design, monitor and modify dosage regimen. It also enables them to develop interrelationship between formulation factors and pharmacokinetic aspects of drug absorption, distribution, metabolism, and excretion.
0205624	Drug Discovery and Design	This course emphasizes general principles of drug design and drug action from an organic chemical perspective. Students will be mostly involved in discussing the whole process of drug discovery starting from lead identification and optimization until getting the drug into the market. One more aspect that this course will focus

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		on is the role of computer in drug design, shedding some light on important topics in molecular modeling such as molecular graphics, molecular mechanics and dynamics, docking, CoMFA, and structural similarity.
0205625	Pharmaceutical Biotechnology	As advances in technology accelerates, treatment strategies will soon involve the use of the traditional chemical entities (i.e. drugs) as well as recombinant proteins and genetic material (RNA, DNA). This course offers the students comprehensive information and insights in pharmaceutical biotechnology and the development of biopharmaceuticals in pharmaceutical industry. The students will gain an understanding in both scientific knowledge of designing and producing novel biologics.
0205626	Advanced Pharmaceutical Technology	The course of Advanced Pharmaceutical Technology is design to provide a comprehensive knowledge of the major topics in Pharmaceutical Technology. During the course, the students will acquire basic knowledge of pre-formulating and formulation of drugs. Learn about the pharmaceutical unit operations, quality control and quality assurance of pharmaceutical dosage forms.
0205627	Advanced Drug Delivery	The course of Advanced drug delivery Technology is designed to provide significant trends and cutting-edge advances in drug delivery system, including controlled drug delivery for specific therapeutic agents and their applications, this course also provides a well-balanced framework for understanding every major aspect of drug delivery, including drug development, production, dosage forms, administration, and therapeutic developments. In addition, the course covers advance in controlled drug delivery, muco-adhesion and bio-adhesion, aerosol drug delivery system, microencapsulation (Liposomes and Nanoparticles), transdermal drug delivery, and various implants techniques. The students will gain understanding of practical pharmaceutical dosage applications, making this an indispensable knowledge for classroom use as well as for professional reference in practice or industry.
0205628	Natural Products Chemistry	This course aims to provide the students with the advanced knowledge and current updated information of the biosynthetic pathways of secondary metabolites, methods of extraction, separation, isolation, and identification of the active natural constituents contained in natural biomasses and products. Through this course the chemical, synthetic, pharmacological as well as SARs aspects of the main identified natural active constituents will be covered. Also the course will include some current hot topics and new trends in natural products - drug discovery: approaches, phyto-analysis, phyto-pharmaceutical and phytotherapy. The latter components of the course will be

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		delivered via lectures and discussions of research projects (seminars) performed by students.
<b>0205629</b>	Drug development and Regulatory Affairs	The course of Drug Regulatory Affairs is an introductory course that focuses on the development and commercialization of drugs, biologics, and medical device products as well as examining the rules and guidelines needed to effectively manage the FDA regulatory process, ICH guidelines and WHO in order to maintain quality system compliance.
<b>0205630</b>	Seminar in Pharmaceutical Technology	The course of seminar in Pharmaceutical Technology is designed to practice learned comprehensive knowledge of the major topics in Pharmaceutical Technology. During the course the students will present advanced knowledge of using the technology to preformulating and formulation of drugs, pharmaceutical unit operations and manufacturing, packaging and quality control of pharmaceutical dosage forms.
<b>0205631</b>	Seminar in Drug Design Action	This course emphasizes general methods in drug design and discovery. Basically this course focus on two main areas: (1) traditional techniques in medicinal chemistry; (2) computer-aided drug design. Students will be mostly involved in self-learning process where they present oral talks on the most recent topics in the aforementioned areas, discussing specific methods that are commonly employed in drug design and discovery areas (e.g. SAR, QSAR, molecular modeling, molecular mechanics and dynamics, docking, homology modelling, CoMFA, and structural similarity).
<b>0205691/2/3</b>	Thesis (1, 2, 3)	This course has been designed to enable student to develop an integrated knowledge base critical understanding of the theoretical principles, concepts and practical skills relating to the pharmaceutical sciences research. Students are required to carry out a research project drug discovery, Organic Synthesis and Medicinal Chemistry, pharmaceutical biotechnology, pharmacology, drug delivery, dosage-form formulation and pharmacokinetic assessment. A detailed knowledge of these specific scientific areas is acquired by developments at the forefront of the subject, in preparation for progress to practice in the market.