

Table (3)

Semester (3)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut.	Total		Period.	Pract./Tut.	Wr.	Oral		
Pharmaceutical Analytical Chemistry III كيمياء تحليلية صيدلانية-٣	PA 303	1	1	2	Pharmaceutical Analytical Chemistry-II	15	25	50	10	100	1
Pharmaceutical Organic Chemistry III كيمياء عضوية صيدلانية-٣	PR 303	2	1	3	Pharmaceutical Organic Chemistry-II	20	40	75	15	150	2
Pathology علم الأمراض	MD 302	1	1	2	Anatomy & Histology	15	25	50	10	100	1
Pharmacognosy II عقاقير-٢	PG 303	2	1	3	Pharmacognosy-I	20	40	75	15	150	2
Physiology I علم وظائف الأعضاء -١	MD 303	2	1	3	Cell biology	20	40	75	15	150	2
Pharmaceutics I صيدلانيات -١	PT 303	2	1	3	Physical Pharmacy	20	40	75	15	150	2
Scientific Writing الكتابة العلمية	NP 303	2	-	2	Registration	25	-	75	-	100	2
Total		12	6	18						900	

- Lect. = Lecture
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- Wr. = Written

(ت داخلي: ١٣٤٠)، (ت : ٢٤١١٣٤٠)

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Table (4)

Semester (4)

Course Title	Course Code	Credit Hours			Prerequisite	Examination Marks				Total Marks	Final Exam. Hours
		Lect.	Pract./Tut.	Total		Period.	Pract./Tut.	Wr.	Oral		
Biochemistry I كيمياء حيوية-١	PB 402	2	1	3	Pharmaceutical Organic Chemistry-II	20	40	75	15	150	2
General Microbiology and Immunology ميكروبيولوجيا عامة ومناعة	PM 401	2	1	3	Registration	20	40	75	15	150	2
Instrumental Analysis تحليل آلي	PA 404	2	1	3	Pharmaceutical Analytical Chemistry-II	20	40	75	15	150	2
Physiology II علم وظائف الأعضاء-٢	MD 404	2	--	2	Cell biology	15	--	75	10	100	2
Pharmaceutics II صيدلانيات -٢	PT 404	2	1	3	Physical Pharmacy	20	40	75	15	150	2
Communication skills مهارات التواصل	NP 404	1	1	2	Registration	15	25	50	10	100	1
Parasitology طفيليات	MD 405	1	1	2	Registration	15	25	50	10	100	1
Basic spectroscopy أساسيات التحليل الطيفي	PR 404	1	-	1	Registration	10	-	40	-	50	1
Total		13	6	19						950	

- Lect. = Lecture
- Period. = Periodical
- Pract./Tut. = Practical / Tutorial
- Wr. = Written

(ت داخلي: ١٣٤٠)، (ت : ٢٤١١٣٤٠)

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Course Content

المحتوى العلمى للمقررات الدراسية

Semester (3)

PA 303 Pharmaceutical Analytical Chemistry III

It introduces the students to redox titrations and its applications and theory and applications of electrochemical techniques (potentiometry, conductimetry and voltametric). Relevant pharmaceutical applications such as water analysis, analysis of fats, oils and cosmetics will be also introduced.

PR 303 Pharmaceutical Organic Chemistry III

Nomenclature, chemical and physical properties of compounds with active methylene and heterocyclic compounds. Chemistry of six-membered rings; pyridine. Chemistry of Five-membered ring; pyrrole, thiophene and furan. Fused heterocyclic compounds; indole, quinoline, isoquinoline. Heterocycles with two or more nitrogen atoms. Pharmaceutical applications. An introduction to the use of IR spectroscopy for structural elucidation.

MD 302 Pathology

The main aim of Pathology course is to provide the second year student with knowledge and skills for common diseases affecting body organs and system. It helps the student to understand the causes (etiology) of disease, the mechanisms of its development (pathogenesis) and the associated alterations of structure (morphologic changes) and function (clinical manifestations and complications) to be able to determine the most likely diagnosis of the disease.

PG 303 Pharmacognosy II

After completion of the course the student should have the knowledge and skills that enable the student to differentiate between different organs of through their monographs. The course comprises the study of identification of different organs through their monographs. (fruits,herbs, Subterranean organs, unorganized drugs in addition to drugs of marine and animal origin) , including identify their active constituents and adulterants describe micro- and macromorphological characteristics, benefits and precautions of their medicinal uses., side effects and contraindications and to have an overview over their phytopharmaceuticals available on the market specially the Egyptian market.

MD 303 Physiology I

Physiology is the study of how the body works, specifically, how cells, tissues, and organisms function. Physiology is a biological science that provides the foundation upon which we build our knowledge of what "life" is, how to treat disease, and how to cope with stresses imposed upon our bodies by different environments. The course is focusing on advanced studies in cellular and molecular physiology, membrane biophysics and transport physiology,

respiratory physiology, neurophysiology, endocrinology, digestive physiology, physiology of metabolism, and the interfaces between these fields..

PT 303 Pharmaceuticals I

This course covers incompatibilities, buffer systems and isotonicity, surface active agents, liquid dosage forms (oral solutions, elixirs, linctures, mixtures, topical liquids; ear and nasal drops and lotions), dispersed systems (colloids and suspensions and emulsions).

NP 303 Scientific Writing

This course is designed to introduce students to the principles of good scientific writing, to be familiar with basic structure of scientific reports and research articles. It covers methods of paraphrasing, common mistakes in scientific writing, different writing styles, how to write a scientific report, proposal and manuscript, appropriate use of tables and figures in data presentation and evaluation of literature and information sources.

Semester (4)

PB 402 Biochemistry I

It is an introductory course that covers the biochemical properties and biological importance of biomolecules including carbohydrates, lipids, and proteins, nucleic acids, nucleoproteins and porphyrins, in addition to biochemistry of enzymes. Also, immunoglobulins will be covered.

PM 401 General Microbiology and Immunology

The course provides students with a combination of laboratory and theoretical experience exploring the general aspects of microbiology. It includes knowledge of microorganisms, their morphology, diversity, cell structure and function, cultural characteristics, growth, metabolism, role of microorganisms in infectious diseases and microbial pathogenesis. It also clarifies different mechanisms of transport across bacterial cell membrane, metabolic pathways and physiology of bacteria. The course also covers the principles of genetic characters including DNA and RNA structures, replication, different forms of mutation and mutagenic agents. It also explores the basic concepts of microbial growth, cultivation and reproduction. Moreover it introduces the modern concepts of medical immunology, with an emphasis on Host parasite relationship, Non-specific and specific immunity, Mechanism of protective immunity. Molecular and cellular immunology, including antigen and antibody structure, function and reaction between them, effector mechanisms, complement, and cell mediated immunity. Active and passive immunization. Hypersensitivity and in vitro antigen antibody reactions, Immuno-deficiency disorders, Autoimmunity and auto-immune disease, organ transplantation.

PA 404 Instrumental Analysis

The spectroscopic methods of analysis which include UV/Vis spectroscopy and fluorimetric methods, including principals, instrumentation and applications in pharmaceutical analysis will be introduced. Additionally, chromatographic methods for pharmaceutical analysis including TLC, HPLC, UPLC, GC and capillary electrophoresis will be also introduced.

MD 404 Physiology II

Physiology is the study of how the body works, specifically, how cells, tissues, and organisms function. Physiology is a biological science that provides the foundation upon which we build our knowledge of what "life" is, how to treat disease, and how to cope with stresses imposed upon our bodies by different environments. The course is focusing on advanced studies in cellular and molecular physiology, general mechanism of muscle contraction and excitation, general autonomic supply, their roles and abnormalities, body fluid components and hematological function and pathophysiology, cardiovascular physiology and its disorders and renal physiology and its pathophysiology.

PT 404 Pharmaceutics II

This course covers topical formulation; ointments, creams, pastes, gels, suppositories, transdermal drug delivery systems and cosmetics.

NP 404 Communication skills

The course will help students develop necessary written and oral communication and presentation skills to improve inter- and intra-professional collaboration and communication with patients and other health care providers.

MD 405 Parasitology

Part of this course will focus on parasitic infections of humans with knowledge concerning biological, epidemiological and ecological aspects of parasites causing diseases to humans. It concerns with different parasitological related diseases in in Egypt causing serious health problems. This part of the course will discuss medical helminthology, protozoology and entomology concerning their morphological features, life cycle, pathogenesis, clinical manifestations, different diagnostic techniques, the most recent lines of treatment and prevention with control strategy for each parasitic infection. Moreover, it also covers laboratory diagnosis of human parasitic infections.

PR 404 Basic Spectroscopy

An introduction to nuclear Magnetic Resonance (^1H and ^{13}C NMR) and Mass spectrometry as tools for structural elucidation of organic compounds; principal, instrumentation, factors affecting absorption, chemical shift, fragmentation, interpretation of spectra and applications in structural characterization of raw materials and drugs.