Program Handbook

College	College of Clinical Pharmacy
Department	
Program Title	Doctor of Pharmacy (Pharm D)

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1 Introduction

On behalf of the Dean Dr. Abdul Aziz Almulhim, all faculty and staff of the college, we welcome the students of Pharm D at the College of Clinical Pharmacy, King Faisal University Al-Ahsa

The current book in your hand is compiled to provide the students information regarding the college and the Department, as well as about the faculty academic and research areas.

This book will provide you all the rules regulations, eligibility requirements regarding acceptance in the program and how to apply for that.

Moreover, the book is to help the scalars to understand their rights while being a UG student and also about various rules regulations pertaining to academic administration such as course registration, deletion and various other rules regarding grievances and complaints. Academic advisory system is also briefly described here.

We have tried to introduce the program in terms of various course offered for Pharm D program, with brief introduction to courses. However, the students should discuss the details of each courses with the their concerned academic advisor, prior to course registration, and selection of their research topic.

We again welcome you at our home of learning: one of the best colleges of pharmacy in the Kingdom.

2 College Name

College of clinical pharmacy

King Faisal University was founded in 1975 G (1395 H). The main campus is located in the City of Hufof while the branch was in the City of Dammam. Later in 2010, the Dammam Campus was upgraded as independent university, as Dammam University, and now its named as Imam Abdur Rahman University.

King Faisal University includes 16 colleges. The College of Clinical Pharmacy at King Faisal University Al-Ahsa was established according to the Royal decision 167/ 8 on 29 / 3 / 1423 H for the improvement of the health services and the advancement of the pharmacy profession through education and research, to cope with the educational policy of the kingdom. The college consists of three academic Departments, Pharmaceutical Sciences, Biomedical Sciences and Pharmacy Practice.

The study has been commenced in the academic year of 1425 / 1426 H (For Male Section) and the number of the students who joined the college in the first year reached twenty five students and an the academic year 1429/1430 h (For Female Section) the number of the students who joined the college in the first year reached Thirty students. The college offers a very advanced curriculum that follows the semester system for six years. The last year includes field training in the hospitals and community pharmacies to cope with the development of the pharmacy profession in the world with the emphasis on the clinical pharmacy sciences. Subsequently the curriculum was revised and developed on 2010, 2010 and in 2022.

The graduate of the college gets a Doctor of Pharmacy (Pharm. D.) degree so that he perform his role as a professional pharmacist in the hospitals and the governmental and community pharmacies as well as a distinguished researcher in the pharmaceutical sciences.

The College developed its first medium Term Strategic Plan 2012-2016, where the establishment of Postgraduate programs at the college were first time visioned, both in the areas of Pharmaceutical Sciences as well as in Clinical Pharmacy. More than 80% of strategic goals and objectives of first strategic

plans were achieved, including accreditation of its Pharm D program by CCAPP (Canada and Certification by ACPE (USA).

Subsequently Second Strategic Plan: 2016-2021 was developed, mainly focusing on achievement of PG program establishment and expansion in its research domain. By the end of second strategic plan, major goals of Master program in Pharmaceutical Sciences as well as Accreditation of Pharm D program by NCAAA were achieved.

While being working on achievements of mission, goals and objectives of third Strategic Plan-2021-2024, the Leadership, faculty and staff of COCP and Department of Pharmaceutical Sciences are striving to get its Master's Program in Pharmaceutical Sciences accredited by NCAAA.

The College has enough well qualified and experienced faculty and staff; visionary and enthusiastic leadership, and ample facilities for quality education and scientific research for both under and postgraduate studies, and sufficient collaborative arrangements for under and postgraduate field trainings.

Deans of the College

Dr.Ahmed Al-Shoaibi: 2003-2006

Dr. Mohammed Al-Wesali: 2006-2010

Dr. Ibrahim Alhaider: 2010-2016

Dr. Bandar Aldhubiab: 2016-2023

Dr. Abdulaziz Saleh Almulhim: 2023- to date

3 Department Name

3..1 Department of Pharmaceutical Sciences

The Department is responsible for teaching and research both at undergraduate and postgraduate levels in the areas of Pharmaceutical & Medicinal Chemistry, Pharmacology, Basic and clinical Pharmaceutics and Pharmacognosy and natural products. The Department is privileged to have 21, well qualified and experienced faculty members, 15 students and research labs.

Mission:

The mission of the Department is to excel in Pharmaceutical Sciences' **education** and **research** through collaboration with other departments and programs (IPE), to prepare **life- long learners** (students) having basic and applied knowledge required for **discovery, development, and rational use of pharmaceutical agents** (all courses) for **prevention and treatment of diseases** (patient care)

Goals & Objectives:

- Provide challenging and quality course work in Pharmaceutical Sciences to prepare life long learners
    - Develop integrated courses: ILO', blue printing, course plan with s
    - Apply students centered learning: Case based teaching
    - Library assignments and projects
    - Assessments: case based, assessing higher learning
    - Initiate proposal for PG courses
- Recommend, recruit, develop and retain experienced faculty
    - Assist recruitment committee
    - Support Faculty development program:
        - Departmental staff development program
        - COCP and University Level programs
        - National and International
    - Provide excellent Administrative and collegial environment
    - Orientation of new faculty
    - Meetings SOPs
    - Facilities for students and staff
    - Social gatherings
- Collaborate with other Departments and programs for IPE and Research
    - IPE
    - Research
- Contribute to COCP and KFU mission in teaching, research and Community Engagement
    - Research targets:
        - KFU research grant target
        - National (KACST)
        - International
        - Students research
- 4.2 Community Engagement
        - Community research: through students
        - Service learning in different courses

- Community Service:
    - Educate/assist Community/Hospital pharmacists through Lectures

Both didactic and experiential teaching strategies are adopted by our faculty members, including class room teaching using multimedia support, small group discussions, laboratory experiments, tutorial sessions and use of online support through Web CT. Our academic staff models the values, ethics, and attitudes of the profession for undergraduates and is dedicated to helping each student achieve his or her career objectives in the pharmaceutical sciences.

The department is actively involved in research and currently has funding from University as well as from KACST to support number of ongoing research projects.

Various new academic projects are in the pipeline including postgraduate degree program in pharmaceutical sciences.

Serial	Course Code	Course No.	Subject	Units	Contact hours
1	PS-1	2010111	Fundamentals of Pharmaceutics	(2 + 1)	**5**
2	PS-2	2010112	Pharmaceutical Organic Chemistry-1	(3+ 1)	**6**
3	PS-3	2010121	Physical Pharmacy	(2 + 1)	**5**
4	PS-4	2010122	Pharmaceutical Analytical Chemistry	(2 + 1)	**5**
5	PS-5	2010123	Pharmaceutical Organic Chemistry-2	(3 + 0)	**3**
6	PS-6	2010124	Pharmacology-1	(2 + 0)	**2**
7	PS-7	2010211	Pharmacology-2	(2 + 1)	**5**
8	PS-8	2010212	Medicinal Chemistry-1	(3 + 0)	**3**
9	PS-9	2010213	Pharmacognosy	(2 + 1)	**5**
10	PS-10	2010221	Pharmacology-3	(3 + 0)	**3**
11	PS-11	2010222	Medicinal Chemistry-2	(3 + 0)	**3**
12	PS-12	2010223	Pharmaceutical Dosage Forms.	(2 + 1)	**5**
13	PS-13	2010311	Pharmacology-4	(3 + 0)	**3**
14	PS-14	2010312	Pharmaceutical Delivery System	(2+0)	**2**
15	PS-15	2010313	Medicinal Chemistry-3	(2 + 0)	**3**
16	PS-16	2010314	Biopharmaceutics	(2 + 1)	**5**
17	PS-17	2010321	Natural Products & Herbal Medicine	(2 + 0)	**2**
18	PS-18	2010421	Clinical Toxicology	(3 + 0)	**3**
19	PS-19	2010322	Industrial Pharmacy (elective)	(2+0)	**2**
20	PS-20	2010323	Principles of Drug Design (elective)	(2+0)	**2**
	Total credit hours			**56(48+8)**	**72**

3.1.1 Head of the Department

Dr. Abdulaziz Khalid Al Mouslem

Educational Qualification	: Ph.D.
General Specialty	: Pharmaceutical Sciences
Academic Rank	: Assistant Professor
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Abdulaziz Al Mouslem completed his Pharm. D degree from the College of Clinical Pharmacy (COCP) at King Faisal University (KFU) in 2012. Following graduation, he joined KFU as a teaching assistant in COCP. After gaining a year of teaching experience, Dr. Al Mouslem was awarded a full scholarship to pursue a Ph.D. in Pharmacology in the United States. In August 2020, he earned his Ph.D. degree in Pharmacology from Auburn University Harrison School of Pharmacy. Currently, Dr. Al Mouslem is the Head of Biomedical Sciences Department and an Assistant Professor in the department of pharmaceutical sciences at College of Clinical Pharmacy, KFU. Dr. Al Mouslem's primary research areas include in vitro modeling of infectious diseases focusing on bacterial biofilm formation and assessing the antibacterial/anti-biofilm activity of novel natural and synthetic agents. His research interest includes infectious diseases and metabolic syndrome. He has published several articles in peer reviewed journals and has an h-index of 7.0. Currently he is involved in teaching Pharmacology, Toxicology (Undergraduate and postgraduate) courses and Research Projects (Postgraduate) in College of Clinical Pharmacy, KFU.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Staff of the Department

Dr. Bandar E. Aldhubiab

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Minor Specialty	: Pharmaceutics
Academic Rank	: Professor
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Dr. Bandar Aldhubiab has completed his graduation from King Saud University, Riyadh, and his Doctorate from the University of Arizona, United States. Presently he is heading the Department of Pharmaceutical Sciences at the College of Clinical Pharmacy at King Faisal University, Al Ahsa. He is actively engaged in teaching, research, and administration. He was the previous Dean of the college. His constant effort has helped the college to get accreditation in the Pharm D program by various national and international agencies. His main areas of interest include pre-formulation studies, nanoformulations, drug delivery, pharmacokinetics, stability studies, bioequivalence, etc. Dr. Aldhubiab has authored more than 100 peer-reviewed articles. He has also presented many papers at national and international conferences. In addition, he is an active member of several pharmaceutical councils/forums, and a reviewer for various peer-reviewed journals in the field of Pharmaceutics.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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DR. PROMISE MADU EMEKA

Nationality	: Nigerian/British
Educational Qualification	: Ph. D
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Dr. Promise Madu Emeka graduated from University of Ibadan, Nigeria for his first degree. He obtained his postgraduate degree in pharmacology/Toxicology with MSc from the University of Lagos Nigeria where he later obtained his Doctorate in pharmacology/Toxicology as well. Currently, he is involved in teaching Pharmacology in the College of Clinical Pharmacy, KFU. His major research interest has been pharmacological and toxicological evaluation of drug and drug products. During his academic stint in the University of Lagos, he supervised more than 30 postgraduate thesis including PhD thesis. He has attended many workshops and training in the area of his specialty and presented scientific papers. He has also within his academic journey published many national and international research studies as part of his profile in peer reviewed journals.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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DR. MOHAMED A. MORSY

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Professor Mohamed A. Morsy holds a Bachelor in Pharmaceutical Sciences (Assiut University, Egypt), PhD in Pharmacology (Graduate School of Pharmaceutical Sciences, Kumamoto University, Japan; 2004), and a Diploma in Clinical Pharmacy (Minia University, Egypt). He spent about 30 years teaching Pharmacology to Medical, Pharmacy, Dental, and Nursing under- and post-graduates. He contributed to writing many chapters in international books. He has more than 150 national and international publications in the field of Pharmacology. He is a reviewer in more than 60 international journals, e.g., European Journal of Pharmacology, Pharmacy and Pharmacology, Frontiers in Pharmacology, and Clinical and Experimental Pharmacology and Physiology. He is also a reviewer for many conferences, research grants, and scientific promotions. He supervised nine master's and PhD theses. In addition to a 4-year PhD scholarship in Japan, he was awarded a grant (2007) to initiate joint research for screening of inducers of molecular chaperone at Sojo University, Japan. He was also awarded many grants as Principal-Investigator. His major research interest is hepato-, gastro-, and nephro-protective/curative agents, as well as screening potential anti-inflammatory, anticancer, and antitubercular agents. He shared in many national and international conferences. He was awarded many prizes, e.g., Prof. Dr. Fouad Saqib's Prize in Hepato-Gastroenterology (2011, 2019), the Academy of Scientific Research and Technology, Egypt, and 6th Place in the Distinguished Faculty Member Award, Nqati, 3rd edition (2018), King Faisal University, Saudi Arabia. According to the classification of Stanford University, USA, his name was included in the list of the 2% of the most distinguished and influential scientists in the world (2020-2023) in Elsevier. He is a member of many professional organizations, including American Society for Pharmacology and Experimental Therapeutics, Saudi Biological Society, and Egyptian Society of Pharmacology and Experimental Therapeutics.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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DR. MAHESH ATTIMARAD

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Dr. Mahesh Attimarad is graduated from Al-Ameen College of Pharmacy and completed his doctorate in Pharmaceutical and Analytical Chemistry at Rajiv Gandhi University of Health Sciences, Bangalore, India. He teaches text and practical based courses including: Advanced Pharmaceutical techniques for PG students , Pharmaceutical Organic Chemistry, Pharmaceutical Analytical chemistry and Medicinal Chemistry for UG students at College of Clinical Pharmacy, KFU. He is actively involved in the research and received few research grants from KFU. His major research interests include Development of new analytical methods for drug molecules for estimation in pharmaceutical formulations and body fluids (blood and urine), Microwave assisted synthesis of organic compounds, and Design and synthesis of NSAIDs and Screening for anti-inflammatory and analgesic activities. He has many national and international publications in peer reviewed journals to his credit and serves on the editorial board of several international journals.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Sree Harsha

Nationality	: Indian
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Dr. Sree Harsha, a distinguished professor and esteemed faculty member in the Department of Pharmaceutical Sciences at King Faisal University in Saudi Arabia, holds a prominent position within the realm of pharmaceutical technology and cutting-edge drug delivery systems. With a rich history of research, including over 250 peer-reviewed papers addressing topics like lung targeting, topical drug delivery, and mucoadhesive drug delivery systems, he is a recognized expert in his field. Dr. Harsha has also authored more than 20 book chapters, including "Targeted Drug Delivery System" and "Microspheres." His contributions extend beyond research; he actively serves as an Ad-Hoc reviewer for prestigious journals and has been named to Stanford University's list of the World's Top 2% Scientists since its inception in 2021, 2022,2023, 2024. Dr. Harsha's dedication to professional development is evident through his participation in numerous seminars and workshops on pharmaceutical technology and public health issues, both nationally and internationally. He has earned Best Oral and Poster awards at DUPHAT conferences in 2023 and 2021. Dr. Harsha's academic journey includes a Master of Pharmacy Degree (ranked top 5) and a Doctor of Pharmacy in Pharmaceutics from Rajiv Gandhi University of Health Sciences, Bangalore, India. He also holds a Bachelor of Pharmacy from Bangalore University. With over 20 years of experience teaching bachelor and master's students, he has played a pivotal role in shaping the future of pharmaceutical scientists. His remarkable accomplishments include student project mentorship, securing grants from national and internal funding agencies, and holding more than 10 patents, making him a eminent personality in the pharmaceutical sciences, both locally and internationally.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Anroop B. Nair

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Dr. Anroop Nair has a bachelor's degree in Pharmacy from MGR Medical University in India, a master's degree in Pharmaceutics from Birla Institute of Technology in India, and a Ph.D. in Pharmaceutical Technology (Jadavpur University, India). He completed a postdoctoral fellowship in noninvasive drug delivery in the Department of Pharmaceutics at the University of Mississippi, United States. He has over 20 years of experience teaching undergraduate and Master's students. He has a multidisciplinary research background with more than two decades of research experience in drug delivery systems. He completed over 50 research projects funded by various agencies with success. He has over 200 publications in international peer-reviewed journals. Dr. Nair is currently working on various drug delivery projects with the goal of improving therapeutic clinical efficacy. Dr. Nair has been named to Stanford University's list of the World's Top 2% Scientists since its inception in 2020. He was named third (2019) and fourth (2018) in the Outstanding Faculty Award, Nqati, at King Faisal University in Saudi Arabia. He is a member of several pharmaceutical councils/forums and a reviewer for several peer-reviewed journals.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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DR. TAMER MOHAMED SHEHATA

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Dr. Tamer shehata is a professor of pharmaceutics and industrial pharmacy; he was born in Egypt. He received his bachelor and master degree from Faculty of pharmacy, Zagazig University, Egypt. He got his PhD degree from Faculty of pharmacy, Okayama university, Japan in 2009. He is working as professor in the department of pharmaceutical sciences, COCP, KFU, KSA. He is a coordinator of the master program of Pharmaceutical Sciences, a member of the postgraduate committee and a member of the KFU scientific council. Dr. Tamer is interested in developing various pharmaceutical dosage forms such as liposome, niosomes and nanoemulsion. He has a good experience in animal handling and cell culture. He got high skill in utilizing FTIR, DSC, Malvern zetasizer, Agilent Fiber optics dissolution system and Franz diffusion apparatus. He has several publications in nanotechnology and targeted drug delivery systems. He is reviewer in several internationally highly reputed journals.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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DR. HANY EZZAT KHALIL AHMED

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General Specialty	: Pharmacognosy [Natural Products Chemistry]
Academic Rank	: Associate Professor

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Dr. Hany Ezzat Khalil Ahmed is an associate professor of pharmacognosy. He got his Ph.D., in Pharmaceutical Sciences (Pharmacognosy) Faculty of Pharmacy, Hiroshima University, Japan; Minia University, Egypt, under the title of "Phytochemical and Biological Studies of Montanoa bipinnatifida, Family Asteraceae, Cultivated in Egypt". He has gained an experience in a wide range of isolation of naturally occurring compounds from plants using normal and advanced tools of chromatography as well as interpretation of the isolated compounds during his Ph.D. studies in Hiroshima University in Japan. In addition, He has gained an experience in biological investigation of the identified compounds and the extracts such as; antihyperglycemic, antioxidant, gastroprotective actions, DPPH assay, Multi drug resistance assay, A549 cytotoxicity assay, anti-leishmanial assay and routine antimicrobial activities. His main interest is discovery of novel biologically active compounds that could be used to develop new therapeutic medical agents. He has supervised 4 master students, Faculty of Pharmacy, Minia University, Minia, Egypt. He has published many papers in national and international journals.

As a part of his administrative responsibilities, he was the assistant manager of the CIQAP (continuous improvement for quality assurance and accreditation project) of the faculty. He was also a board member of a special Pharmaceutical and Herbal Products, Crisis management and Quality assurance units as well as the executive manager of a portal in the Faculty of Pharmacy, Minia University, Minia, Egypt.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Christophe Tratrat

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Dr. Christophe Tratrat earned his Magistère Inter-Universitaire de Chimie in 1996 from the Ecole Normale Supérieure/Université Pierre et Marie Curie of Paris and his Doctorate in Medicinal Chemistry in 1999 from the Faculty of Pharmaceutical and Biological Sciences in Paris, working in the group of Professor Henri-Philippe Husson on the synthesis of pharmacologically active heterocyclic compounds. Patents in the discovery of synthetic compounds as promising anti-cancer agents were registered after his thesis completion. After nearly two years as Research Associate in the laboratory of Professor Anthony G.M. Barrett at Imperial College in London devoted to combinatorial chemistry in solid-phase methodology for the generation of diverse libraries of natural-product-like molecules, he joined the group of Professor Yves Troin at Ecole Nationale Supérieure de Chimie de Clermont-Ferrand, where he was involved in efforts toward the asymmetric synthesis of quinolizidine and indolizidine natural products. He held the position of Assistant Professor of Chemistry at Notre Dame University in Lebanon from 2004 to 2010. He was then appointed as Assistant Professor and currently Associate Professor to the Faculty of Clinical Pharmacy at King Faisal University. He is currently involved in teaching pharmaceutical organic chemistry, medicinal chemistry and drug design courses. His research interests include synthetic methodology, heterocyclic chemistry and computer-aided drug design. Several research grants were awarded to Dr. Christophe, particularly 3 from King Abdel-Aziz City for Science and Technology (KACST), an American refereed research proposal funded with 500 thousand $ each. Dr. Christophe has authored over 45 published articles in prestigious peer-reviewed international journals in the field of drug discovery, and several US patent applications have been granted.

Research Activity

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Dr. Maged El-Sayed Mohamed

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Dr. Maged Elsayed Mohamed has received his PhD degree from the school of Biological Sciences, University of Bristol, United Kingdom in 2009 in plant molecular biology and biotechnology and their applications in the field of medicinal plants and pharmaceutics. Science his PhD, Dr. Mohamed has been engaged in teaching Pharmacognosy, natural products chemistry, plant molecular biology and related subjects. The main research area for Dr. Mohamed is natural products, how to produce them in nature or and using molecular biology, genetic engineering and plant tissue culture techniques; pathways for production natural products; methods for isolation, identification and chemical structure elucidation of natural products. One of the main research areas Dr. Mohamed works in is the area of plant volatile and essential oils. Another area of research falls in Dr. Mohamed's scientific attention is drug discovery and natural products repositioning. Dr. Mohamed attended many scientific conferences and has many publications nationally and internationally. Also, he has one US patent and several US patent applications have been filed and their registrations are in progress. Dr. Mohamed is a member of many societies such as phytochemical society of Europe and American society of pharmacognosy. Dr. Mohamed has more than 5 year experience in quality control, assurance and management in higher education. He had many workshops as a trainee and a trainer and performed many peer reviewing visits in Zagzig University, Egypt. He was the vice-manager of the quality management unit in the faculty of Pharmacy, Zagazig University, Egypt for 3 years and now he is the coordinator of the quality management unit in the college of Clinical Pharmacy, University of King Faisal.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Katharigatta N. Venugopala

Nationality	: Indian
Educational Qualification	: M. Pharm, PhD, FRSC
General Specialty	: Pharmaceutical Chemistry
Academic Rank	: Professor
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Dr. Katharigatta Narayanaswamy Venugopala is graduated in Pharmacy with first class from Bangalore University, completed M.Pharm (Pharmaceutical Chemistry) from Rajiv Gandhi University of Health Sciences, Bangalore with second rank and obtained Ph.D (Pharmaceutical Chemistry) from Rajiv Gandhi University of Health Sciences, Bangalore with international peer reviewed publications. Dr. Venugopala has worked as research associate at Department of Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore on crystallography and done his Postdoctoral Fellowship at University of KwaZulu-Natal, South Africa on synthesis of natural cyclic depsi-peptide analogues as anti-TB agents. He also worked as NRF Innovation postdoctoral research scholar at Durban University of Technology on Identification of heterocyclic lead compounds for antitubercular activity against MDR and XDR strains.

Dr. Venugopala got 14 years of teaching experience at undergraduate and postgraduate level, supervised and co-supervised B.Tech (Hons), M.Pharm, M.Tech and PhD research projects and presented over 30 research papers at national and international conferences and published over 280 research papers in national and international journals with 15 US Patents. He was involved in multidisciplinary research projects and worked with universities such as Universidad Nacional de Córdoba, Argentina, Université de Rennes, France, Indian Institute of Science Education and Research, India, Istituto Italiano di Tecnologia, Italy and University of Barcelona, Spain. His research area is on design and synthesis of heterocyclic/cyclic depsi-peptide compounds for analgesic, anti-inflammatory, antioxidant, anticancer, anti-TB, anti-viral and antimalarial activity.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Rashed M. Almuqbil

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General Specialty : Pharmaceutical Sciences

Academic Rank : Consultant - Assistant Professor

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Rashed M. Almuqbil has completed his Pharm.D degree from the College of Clinical Pharmacy (COCP) at King Faisal University (KFU) in 2011. Following graduation, he joined KFU as a teaching assistant in COCP. After gaining more than a year of teaching experience, Dr. Almuqbil was awarded a full scholarship to pursue the Ph.D. degree in Pharmaceutics from the United States of America. In August 2021, he earned his Ph.D. degree from the Department of Pharmaceutical Sciences, School of Pharmacy, Virginia Commonwealth University. Currently, Dr. Almuqbil is an Assistant Professor in the Department of Pharmaceutical Sciences at College of Clinical Pharmacy, KFU. Dr. Almuqbil's primary research areas focus on in-vitro/in-vivo translatable research on Nanoparticle Drug Delivery Systems (NanoDDS) to overcome biological barriers and to provide an optimized treatment approaches for several diseases. Dr. Almuqbil has published several papers in peer-reviewed journals and has an h-index of 8.0. Currently, he is involved in teaching Fundamentals of Pharmaceutics, Pharmaceutical Dosage Forms, and Advanced Pharmacokinetics (Undergraduate and Postgraduate Courses) and Research Projects (Postgraduate) in the College of Clinical Pharmacy, KFU.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Ahmed Saad Alnaim

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Ahmed Saad Alnaim completed his Pharm. D degree from the College of Clinical Pharmacy (COCP) at King Faisal University (KFU) in 2013. He joined the COCP at KFU as a teaching assistant. After one year of experience as a teaching assistant, Dr. Alnaim was awarded a full scholarship to pursue his Ph.D. in Pharmaceutics in the United States (US). In August 2022, he earned his Ph.D. degree in Pharmaceutics from Auburn University Harrison College of Pharmacy. Currently, Dr. Alnaim is an Assistant Professor in the department of pharmaceutical sciences at the College of Clinical Pharmacy at KFU. His research interest includes improving drug delivery systems in cancers and other diseases. Currently, he is involved in teaching Pharmaceutical science courses (Undergraduate and Postgraduate) and Research Projects (Postgraduate) at the College of Clinical Pharmacy, KFU.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Sara Aldossary

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Dr. Sara Aldossary holds a BSc pharmaceutical sciences from the king saud university and obtained her PhD in Neuroscience pharmacology from the University of leicester. She has worked in several clinically relevant research areas, publishing papers that attempt to understand the physiological mechanisms and molecular pharmacology underlying chronic pain. Currently, she is involved in teaching pharmacology courses (Undergraduate) and Research Projects (Postgraduate) at the College of Clinical Pharmacy, KFU.

Research Activity

ORCID ID

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Dr. Senthil Kumar Joghee Bheeman

Nationality	: Indian
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Dr. JB Senthil Kumar graduated from TN Dr. MGR Medical University, Chennai, India for his B.Pharm and M.Pharm (Pharmaceutical Chemistry) degrees. He then moved to Dr. BR Ambedkar Center for Biomedical Research (ACBR) at the University of Delhi, North Campus, as a Junior Research Fellow and subsequently awarded Ph.D (2014) in Medicinal Chemistry. He also completed his postdoc training (2018-2021) from Special Centre for Molecular Medicine, Jawaharlal Nehru University, India.

Currently, he is teaching Pharmaceutical Organic Chemistry in College of Clinical Pharmacy, KFU.

Dr. Kumar has published his research work in reputed international journals. His primary research interest focuses on developing, identifying, and optimizing small molecules from natural and synthetic origin to modulate biological functions and pathways for therapeutic benefits in neurological disorders, particularly Parkinson's Disease.

Research Activity

Google Scholar	ORCID ID	Scopus ID

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Dr. Nancy Safwet Abdel Daium Younis

Nationality	: Egyptian
Educational Qualification	: Ph. D, Pharmacology, BCPS
General Specialty	: Pharmaceutical Sciences
Academic Rank	: Associate Professor
Tel: / Ext	: +966-135898602
Mobile	: 0547045757
E-Mail	: nyounis@kfu.edu.sa

Dr. Nancy Safwat Younis is an associate professor in the Pharmaceutical sciences department with a Pharmacology specialty. She received her Msc and PhD degrees from Faculty of pharmacy, Zagazig University, Egypt. She worked as a research assistant in the Physiology and Pharmacology department, school of Medicine, Bristol University UK for 3 years. During that time, she obtained a grant from the British heart foundation to work on a specific type of channel in the heart. Furthermore, Dr. Nancy is an American board of Pharmacotherapy specialist which was equalized by a master in clinical pharmacy. At present, she is teaching numerous courses for both undergraduate (Pharmacology and Pharmacogenomics) and postgraduate (Pharmacogenomics, principles of drug action, Pharmacology, Physiology among other courses) studies in College of Clinical Pharmacy in KFU. Dr. Nancy is a member of several committees such as academic affairs committee, quality management committee and postgraduate committee. She is interested in identifying various pharmaceutical actions of naturally occurring compounds in numerous pathological conditions within the heart, kidney and liver. She has a good experience in cell line, animal handling, Western blot and PCR. She has several publications in highly respectable journals. She participated in numerous international conferences, for instance, she was a speaker and poster presenter in ACCP Annual Meeting on October 7–10, 2017, in Phoenix, Arizona, USA. Dr. Nancy has published several research papers in prestigious peer-reviewed international journals in the field of Pharmacology. She is a reviewer in several international journals. She is a member of many professional organizations, including American Society for Pharmacology and Experimental Therapeutics, and Egyptian Society of Pharmacology and Experimental Therapeutics.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Sukainh Aiyash AlHerz

Educational Qualification : PhD Medicinal Chemistry

General Specialty : Pharmaceutical sciences.

Academic Rank : Assistant Professor

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I got my B.Sc. degree in Pharmaceutical Sciences from King Saud University in 2008. Following graduation, I worked as an inpatient pharmacist in the National Guard Hospital in Alhasa from 2008 to 2011. In 2011, I joined King Faisal University as a teaching assistant in the College of Clinical Pharmacy. During my work as TA, I've participated in the translation of the first strategic plan of the college and other committees' activity in addition to teaching microbiology, analytical chemistry lab and other courses. Then through a full scholarship given by KFU, I joined the Medicinal Chemistry PhD program in the University of Toledo in 2015 and got the degree in 2020. In the research scope I focused on identifying NAADP binding protein by optimizing biological assays for that purpose. At the academic level currently, I am working as a course instructor of a course entitled "Principles of Drug Design" and "Medicinal Chemistry-3" for bachelor program of Clinical Pharmacy and Pharmaceutical Chemistry for master degree.

******

Dr. Enas Gad

Nationality : Egyptian Educational Qualification : PhD

General Specialty : Pharmaceutical Sciences

Academic Rank : Professor Assistant

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E-Mail : egadelrab@kfu.edu.sa

Dr.Enas.s.Gad is a professor assistant at the department of Pharmaceutical sciences. She graduated with a B.Sc. at the Faculty of Pharmacy, Suez Canal University in 2010 (Excellent with honor), then hired in the medical center of the university. She earned master's degree (Pharmacology and Toxicology) in 2015 from SCU as well as PhD at Cairo University, in 2020. In 2020, She had been promoted as Lecturer of Pharmacology and Toxicology in 2020. In 2022, she worked at King Faisal University as professor assistant. She worked as the vice manager of the Quality Assurance Unit for about 2 years. She had PharmD about two years ago. She had many publications after the PhD. She trained in the MUP company and had lots of experience regarding the research. She had the egyptian leadership certificate after training for about 8 months. She has a lot regarding laboratory skills. She attended lots of international conferences as a speaker or attendant. She is a member of ACCP association since 2012.

******

Dr. Nouf Saleh Alwadei

Nationality	: Saudi
Educational Qualification	: B.PharmSci., MS.PharmSci., Ph.D
General Specialty	: Pharmaceutical Sciences
Academic Rank	: Assistant Professor
Tel	: +966-135899059
Mobile	: +96659184344
E-Mail	: Nalwadei@kfu.edu.sa

Dr. Nouf Alwadei completed her Bachelor's degree in Pharmaceutical Science from King Saud University (Riyadh, KSA) in 2010. After graduation, she worked as a pharmacist in both inpatient and outpatient pharmacy settings at Aramco Hospital (Al Khafji, KSA). In 2011, she joined King Faisal University as a teaching assistant at the College of Clinical Pharmacy (COCP). She then received a full scholarship to pursue her Master's and Ph.D. degrees in Pharmaceutical Sciences in the United States of America. Dr. Alwadei obtained her Master of Science in Pharmaceutical Science from Chapman University (Irvine, CA), where her thesis focused on developing nano co-delivery systems to combat cancer drug resistance. In 2023, she completed her Ph.D. in Pharmaceutical Sciences at Chapman University (Irvine, CA) with her dissertation concentrating on the role of Cytochrome P450 enzymes in human diseases. Her research interests include developing nano-drug delivery systems for targeting various diseases, studying the impact of hepatic ischemia-reperfusion (IR) injury and other liver diseases on Cytochrome P450-mediated hepatobiliary and brain disposition of drugs, and exploring pharmacokinetics-based targeted drug delivery approaches. She was honored with membership in The Rho Chi Society. Currently, she is involved in teaching Fundamentals of Pharmaceutics and Physical Pharmacy at COCP. She also serves as a member of the Study Plan Committee and Academic Affairs Committee at COCP.

Research Activity

Google Scholar	ORCID ID	Researcher ID

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Dr. Abdulmalek A. Balgoname

Nationality : Saudi

Qualification : Pharm D

Academic Rank : Teaching Assistant

General Specialty : Pharmaceutical Sciences

Mobile : + 00966564499724

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An ambitious Pharm. D. graduate, recently joined the academic field who is interested in Pharmaceutical Sciences, especially the area of Medicinal Chemistry and Drug Design. He is currently involved in a graduate program in a fact-based environment to expand his experience in Pharmaceutical sciences. His goals include delivering optimal, evidence-based patient care and improving health care systems toward eliminating medical errors by using updated primary sources and new guidelines that are consistent with the developing way of life to face the new changing obstacles.

Interests:

Medicinal Chemistry: Synthesis, development, analysis, of bio active molecules that might have good health outcomes by modifying their drug like properties through various chemical process.

Drug Design: Visualization, modeling, simulations, analysis of molecular structures.

******

Dr. Abdulrahman Ibrahim Altaysan

Nationality : Saudi
Qualification : Pharm D
Academic Rank : Teaching Assistant
General Specialty : Clinical Pharmacy
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Email : aaltaysan@kfu.edu.sa

Abdulrahman Altaysan holds a Bachelor's degree in Doctor of Pharmacy (Pharm.D) from the College of Clinical Pharmacy, King Faisal University, 2017. He presented one poster presentation at DUPHAT2019 (Dubai International Pharmaceuticals & Technologies Conference & Exhibition). In addition, he also worked with Dr. Sree Harsha, Associate professor in pharmaceutics, on a paper titled "preparation and evaluation of metformin nanoparticles". He participated in many health-related community campaigns. It is worth mentioning that he was working at Almana Hospital before joining King Faisal University as a teaching assistant in 2018. Lastly, he is planning to pursue a Ph.D. Program shortly. His interest in Pharmacology.

******

Dr. Yomna Abdelaziz Ahmed Mohamed Ali

Nationality	: Egyptian
Educational Qualification	: Ph. D
General Specialty	: pharmaceutical Chemistry/ Medicinal Chemistry
Academic Rank	: Associate Professor
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Dr. Yomna Abdelaziz Ahmed graduated from University of Mansoura, Egypt. She obtained her postgraduate degree in pharmaceutical Chemistry/ Medicinal Chemistry with MSc from Mansoura University where she later obtained her Doctorate in pharmaceutical Chemistry/ Medicinal Chemistry as well. Currently, she is involved in teaching Pharmaceutical Chemistry in the College of Clinical Pharmacy, KFU.

My areas of expertise cover medicinal chemistry, computerized docking programs, organic chemistry, analytical chemistry & therapeutic drug monitoring of drug products.

She has an experience in academic teaching including on-line learning using Microsoft teams, academic advising regarding as best academic advisor in Delta university, control affairs, quality of education (vice principle of quality assurance unit, experience in strategic plan, community service) ,and research that aims to create innovative tools for the understanding, diagnosis and cure of human diseases. She has also within her academic journey published many national and international research journals.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

******

Dr. Sulafa Abdulla Al Sahlawi

Nationality	: Saudi
Qualification	: MSc, Pharm D
Academic Rank	: Teaching Assistant
General Specialty	: Clinical Pharmacy
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Sulafa Al Sahlawi holds a bachelor's degree in Doctor of Pharmacy (Pharm.D) from College of Clinical Pharmacy, King Faisal University, 2017. In 2020, she received a Master of Science degree in Experimental Pharmacology and Therapeutics from University College London. Her thesis was on assessing the delivery of human Glucagon-Like Peptide (GLP-1) using an Adeno-Associated Virus (AAV) vector. Al Sahlawi is currently working as a teaching assistant at the department of pharmaceutical sciences where she is actively engaged in teaching, research, and lab demonstrations. Her main areas of interest include gene therapy, translational neuroscience, and clinical pharmacology.

******

Dr. Dimah Alghannam

Nationality	: saudi
Educational Qualification	: Pharm D
General Specialty	: Pharmaceutical Sciences
Academic Rank	: Teaching Assistant
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Dimah Alghannam holds a first honor Bachelor's degree in Doctor of Pharmacy from College of Clinical Pharmacy, King Faisal University, 2023. After her graduation, she worked as a community pharmacist in Al-Dawaa pharmacy. In 2024, Dimah joined COCP family as a teaching assistant at Pharmaceutical Sciences Department. Her interests are in Medicinal Chemistry and Drug Design.

3..2 Department of Biomedical Sciences

Mission:

The mission of the Department is to excel in Biomedical Sciences' **education** and **research** through collaboration with other departments, programs and the community to prepare **life- long** , having basic and applied knowledge required for development of diagnostic and therapeutic strategies for **prevention and treatment of diseases**

Goals & Objectives:

- Provide challenging and quality course work in Biomedical Sciences to prepare life long learners
    - Develop integrated courses: ILO', blue printing, course plan with s
    - Apply students centered learning: Case based teaching
    - Library assignments and projects
    - Assessments: case based, assessing higher learning
    - Initiate proposal for PG courses
- Recommend, recruit, develop and retain experienced faculty
    - Assist recruitment committee
    - Support Faculty development program:
        - Departmental staff development program
        - COCP and University Level programs
        - National and International
    - Provide excellent Administrative and collegial environment
        - Orientation of new faculty
        - Meetings SOPs
        - Facilities for students and staff
        - Social gatherings
- Collaborate with other Departments and programs for IPE and Research
    - IPE
    - Research
- Contribute to COCP and KFU mission in teaching research and Community Engagement
    - Research targets:
        - KFU research grant target
        - National (KACST)
        - International
        - Students research
    - Community Engagement
        - Community research: through students
        - Service learning in different courses
        - Community Service:
            - Educate/assist Community/Hospital pharmacists through Lectures
            - Consultation services

The Department of Biomedical Sciences comprises faculty members from diverse biomedical and biological disciplines. Our mission is to train students in all aspects of biomedical sciences to prepare them become competent pharmacists and productive members of the society. Our department offers courses in Anatomy, Histology, Physiology, Pathophysiology, Biochemistry, Microbiology, Immunology and Molecular Biology. In addition, we are dedicated to basic research in life sciences, applied biomedical research and medical education.

Serial	Course Code	Course No.	Subject	Units	Contact Hours
1	BMS-1	2020111	Physiology-1	(2+1)	**5**
2	BMS-2	2020112	Anatomy and Histology-1	(1+1)	**4**
3	BMS-3	2020113	Biochemistry-1	(2+0)	**2**
4	BMS-4	2020121	Physiology-2	(2+0)	**2**
5	BMS-5	2020122	Anatomy and Histology-2	(1+1)	**4**
6	BMS-6	2020123	Biochemistry-2	(2+0)	**2**
7	BMS-7	2020211	Pathophysiology-1	(2+0)	**2**
8	BMS-8	2020212	Clinical Biochemistry and Nutritional Support	(2+1)	**2**
9	BMS-9	2020213	Molecular Biology	(2+0)	**2**
10	BMS-10	2020221	Pathophysiology-2	(2+0)	**2**
11	BMS-11	2020222	Immunology	(2+0)	**2**
12	BMS-12	2020223	Microbiology	(3+1)	**6**
13	BMS-13 (elective)	2020421	Pharmaceutical Biotechnology	(2+0)	**2**
		Total credit hours		31 (25+6)	**43**

3.2.1 Head of the Department

Dr. Ahmed Saad Alnaim

Nationality	: Saudi
Qualification	: Ph.D.
Academic Rank	: Assistant Professor
General Specialty	: Pharmaceutical Sciences
Mobile	: +966568999767
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Ahmed Saad Alnaim completed his Pharm. D degree from the College of Clinical Pharmacy (COCP) at King Faisal University (KFU) in 2013. He joined the COCP at KFU as a teaching assistant. After one year of experience as a teaching assistant, Dr. Alnaim was awarded a full scholarship to pursue his Ph.D. in Pharmaceutics in the United States (US). In August 2022, he earned his Ph.D. degree in Pharmaceutics from Auburn University Harrison College of Pharmacy. Currently, Dr. Alnaim is an Assistant Professor in the department of pharmaceutical sciences at the College of Clinical Pharmacy at KFU. His research interest includes improving drug delivery systems in cancers and other diseases. Currently, he is involved in teaching Pharmaceutical science courses (Undergraduate and Postgraduate) and Research Projects (Postgraduate) at the College of Clinical Pharmacy, KFU.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Mohammed Monirul Islam

Nationality : American

Educational Qualification : MSc., Ph. D

General Specialty : Biochemistry and Molecular biology

Academic Rank : Assistant Professor

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Mobile : 0550429251

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Dr. Mohammed Monirul Islam graduated from the Department of Biochemistry, University of Dhaka, Bangladesh with a B.Sc. degree in Biochemistry in 1999. Dr. Mohammed earned his M.Sc. degree in Biochemistry in 2000 from the same university. As a Ph.D. student at the Rutgers university, USA, Dr. Mohammed had the unique opportunity to train under two respected faculties. He began in the laboratory of Dr. Julie Williams as a technician before his acceptance to the Rutgers graduate program in Cellular and Molecular Pharmacology. As senior laboratory technician and graduate student, he studied the interaction between sleep and immune response in the Drosophila model system. As a fourth year graduate student, funding issues resulted in the termination of Dr. William's research and required his transition to the laboratory of Dr. Li Cai. This switch involved moving from Drosophila to working with chicken embryos and learning a whole new battery of techniques and a new field. In May 2012 he obtained his Ph.D. from Rutgers University, USA in Cellular and Molecular Pharmacology with a dissertation titled "Regulation of Foxn4 during retina development". In July 2012, Dr. Mohammed joined Dr. Chun-Li Zhang's lab in the department of Molecular Biology at UT Southwestern Medical Center in Dallas, TX as a postdoctoral fellow. His research at the Zhang lab focused on the regulation of nuclear receptor TLX (Nr2E1) expression in neural stem cells during brain development using a mouse model system. Mohammed's research interests involve the understanding of complex transcriptional networks controlling the fate of the NSCs and regeneration of neurons from neural stem cells (NSC) for replacement therapies. Dr.Mohammed is a past member of the American College of Clinical Pharmacy (ACCP) as well as the New York Academy of Sciences (NYAS).

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Muhammad Shahzad Chohan

Nationality	: Pakistani
Educational Qualification	: M.B.B.S. M. Phil
General Specialty	: Anatomy
Academic Rank	: Assistant Professor
Tel: / Ext	: +966-3-5895447
Mobile	: +966-535334928
E-Mail:	: mshwhan@kfu.edu.sa

Dr. Muhammad Shahzad Chohan completed graduation from Nishtar Medical College. Multan. Pakistan and post graduation from University of Health Sciences. Lahore. Pakistan in the specialization of Anatomy. Currently, he is involved in teaching Anatomy and Histology, Physical Assesment and First Aid in College of Clinical Pharmacy, KFU. He has highly motivated Professional experience in teaching of Gross anatomy, Histology, Embryology and Neuro Anatomy. He has excellent written and verbal communication skills. He can work well in dynamic team-oriented environment. He is aggressive to learn and work with new technologies.

His major research interest has been histological observations of herbicide in the tissues of liver, spleen and adrenal glands. Recently his interest shifted towards the observation of adverse effects of streptomycin on tissues of liver and kidney and reversal of these adverse effects by Nigella Sativa. He attended the national and international conferences, workshops and seminars. He has also published national and international publications in reputed journals.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Shinu Pottathil

Nationality	: Indian
Educational Qualification	: MSc,PhD
General specialty	: Medical Microbiology
Academic Rank	: Associate Professor
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Dr. Shinu Pottathil is an associate professor at the Department of Biomedical Sciences, King Faisal University. He holds a PhD in medical microbiology and a master's in medical microbiology. He has over fifteen years of teaching experience in undergraduate (medicine, pharmacy, and nursing) and graduate courses. During his Ph.D., he worked on devoloping a novel drug susceptibility assay for rapid detection of drug-resistant *Mycobacterium tuberculosis* directly from clinical suspected pulmonary tuberculosis cases. Dr. Shinu also introduced a novel method for the direct microscopic detection of *Mycobacterium tuberculosis* and other acid-fast bacilli directly from blood-tinged sputum samples. His major research interests include the development of newer techniques for the detection of tubercle bacilli from clinical specimens, the development of novel drug susceptibility testing methods for the detection of drug-resistant bacteria, and the analysis of molecular mechanisms of drug resistance prevailing in bacteria. In this context, he has presented his research results at various national and international conferences. Additionally, he contributed chapters to four books and published seventy research papers in various journals of international repute. He is also a life member of various professional bodies like the Indian Association of Medical Microbiologists and the National MSc Medical Teacher Association. He is a reviewer for many high-impact factor journals like Thorax, Pharmaceuticals, Journal of Clinical Medicine, Frontiers in Molecular Biosciences, and BMC Microbiology among others.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Aminur Rahman

Nationality : Swedish

Educational Qualification : MSc., Ph. D

General Specialty : Biochemistry and Molecular biology

Academic Rank : Assistant Professor

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Dr. Aminur Rahman is an Assistant Professor at the Department of Biomedical Sciences at the College of Clinical Pharmacy, King Faisal University, Saudi Arabia. With a Ph.D. in Biology from Örebro University, Sweden, Dr. Rahman has contributed significantly to research on bioremediation, environmental sustainability, and the development of advanced bio-based materials for the adsorption and removal of contaminants.

Before joining King Faisal University, Dr. Rahman was a postdoctoral researcher in Japan and Sweden. Additionally, he holds several patents and has supervised numerous graduate and undergraduate students. , contributing to the scientific community through publications in high-impact journals.

At King Faisal University, Dr. Rahman is a dedicated educator of teaching courses in biochemistry, metabolism, and nutrition. Also, Dr. Rahman is actively involved in several committees, helping with the administrating works.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Moustafa Sarhan

Nationality : Egypt

Qualification : PhD (Molecular biology)

Academic Rank : Assistant Professor

General Specialty : Biomedical Sciences

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Dr. Moustafa received his PhD degree from the Graduate School of Natural Science and Technology, Okayama University, Japan in 2008 in Molecular biology. Dr. Mostafa has been engaged in teaching molecular biology and related subjects for undergraduate and postgraduate students at Al-Azhar University, Egypt. The main research area for Dr. Mostafa in Japan was the role of transcription factors during embryonic development, how they control precise developmental timing using molecular biology, genetic engineering and tissue culture techniques. Dr. Moustafa received a JSPS postdoctoral fellowship for two years at Okayama University Japan (2008-2010) to understand the molecular mechanism of the transcription factor Blimp-1 to repress or activate its target genes. Currently, Dr. Moustafa's scientific attention is drug discovery from animal venoms to mainly discover novel peptides as antivirals and anticancer from different taxa of venomous animals; Scorpions, Spiders, honey bee, Wasps, Cone snails, Snakes…etc. In this context, He also received a postdoctoral fellowship at Medical School of Kobe University, Japan (2015-2016) to discover antiviral peptides from the animal venoms against HCV. Currently, Dr. Moustafa is an Assistant Professor in the department of biomedical sciences at the College of Clinical Pharmacy at KFU.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

Dr. Mahmoud Gamil El Sebaei Abdelhamid

Nationality	: Egyptian
Educational Qualification	: PhD
General Specialty	: Biochemistry
Academic Rank	: Professor
Tel: / Ext	: +966-13-589….
Mobile	: +966-550416516
E-Mail	: mabdelhamid@kfu.edu.sa

Dr. Mahmoud Gamil El Sebaei Abdelhamid has received his PhD degree from the Faculty of Veterinary Medicine, University of Mansoura, Egypt, in 2011 in molecular biology and biotechnology and their applications in the field of infectious diseases diagnosis. Since his PhD, Dr. El Sebaei has been engaged in teaching biochemistry, chemistry of nutrition, clinical biochemistry, microbial biochemistry, molecular biology, and related topics. He completed an externship at the University of Veterinary Medicine Hannover Foundation, Germany, at the Institute of Biochemistry. Foundation in the fields of cell tissue culture (COS-1, Caco-2 cells), transfection of COS-1 cells with SI-cDNA in a plasmid vector, cell lysis and immunoprecipitation of SI, determination of sucrase-specific activity from SI immunoprecipitants, and SDS-PAGE and Western blot analysis for sucrase-isomaltase (SI) using monoclonal antibodies. The main research areas for Dr. El Sebaei include gene expression and cytokines, tissue culture techniques, and the chemistry of redox status. Biomarkers and gene expression of antioxidant enzymes, as well as diagnostic and prognostic biomarkers of diseases and cancer. One of the main research areas Dr. El Sebaei works in is the area of medicinal plants and their extracts, repositioning how to use them in the management of diseases and pathological disorders. Dr. El Sebaei attended many scientific conferences and training workshops and has many publications in prestigious peer-reviewed international journals. Also, he has 3 US patent applications, and their registrations are in progress. Dr. El Sebaei is a member of the Society of Biochemistry and Molecular Biology, Egypt. He holds the position of Professor of Biochemistry at Mansoura University, Egypt. He was appointed as assistant professor to the College of Veterinary Medicine, King Faisal University, in 2017, and is currently assistant professor to the College of Clinical Pharmacy at King Faisal University. He is currently involved in teaching biochemistry and clinical biochemistry courses. Several research grants were awarded to Dr. El Sebaei. He created a website using artificial intelligence to help diagnose malnutrition diseases.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Wafaa Ezz Elarab Ahmed

Name	: Wafaa Ezz Elarab Ahmed
Educational Qualification	: Ph D
General Specialty	: Biomedical sciences
Academic Rank	: Associate professor
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Dr. Wafaa Ezz Elarab received her Bachelor of Science degree in Pharmacy from Assiut University in Egypt. She then went on to pursue a Master of Science degree in Pharmaceutical Microbiology from Minia University in Egypt, she received her PhD in Microbiology and Immunology from Mansoura University in Egypt. In addition to her PhD, Dr. Ezz Elarab also completed a two-year diploma in Business Administration from Mansoura University in Egypt. This diploma gave her the skills and knowledge she needed to manage her own research projects and to collaborate with other researchers and industry partners. Dr. Ezz Elarab's education experience has given her a strong foundation in the theoretical and practical aspects of microbiology and immunology. She has also developed the skills and knowledge necessary to conduct independent research and to collaborate with others to translate her research into new and innovative products and services. Right now, she is working as Associate professor of microbiology and immunology, department of biomedical sciences, COCP, KFU, KSA. Dr. Wafaa is a member of student service committee, member in post-graduated committee and academic affairs committee faculty. She is interested in PCR techniques, biofilm assay, and bacterial quorum sensing, In addition to immunological and cell line researches. She has several publications in microbiology and nanotechnology.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Sana Nafees

Nationality	: Indian
Educational Qualification	: Ph. D
General Specialty	: Toxicology
Academic Rank	: Assistant Professor
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Dr. Sana Nafees graduated from Aligarh Muslim University, India, for her first degree. She obtained her postgraduate degree in Toxicology from Jamia Hamdard, New Delhi, India, where she later obtained her Doctorate in Toxicology as well. Currently, she is involved in teaching physiology in the College of Clinical Pharmacy, KFU. Her major research interest has been cancer biology, Physiology, Pharmacology/Toxicology, and therapeutic interventions. She has attended many workshops and training sessions in her specialty and has presented scientific papers. She has published many national and international research studies, review articles, and book chapters in peer-reviewed journals in her academic career.

Research Activity

Google Scholar	ORCID ID
	

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Dr.Sulaiman Alshehri

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Qualification : BSc (Pharmaceutical Sciences)

Academic Rank: Teaching Assistant

General Specialty : Biomedical Sciences

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Sulaiman graduated from College of Pharmacy in King Saud University back in 2015. He received Bachelor of Sciences in pharmaceutical sciences. Since then, he worked as an outpatient pharmacist in King Abdulaziz Medical City in Riyadh for almost a year, before joining King Faisal University as a teaching assistant at College of Clinical Pharmacy. As a faculty member of the Biomedical Sciences department, he worked with few of his colleagues in teaching the practical of Physiology, Biochemistry, and Microbiology courses. He is currently working towards obtaining a graduate degree in microbiological sciences in the United States of America. His research interests includes pathogenesis mechanisms, Immunoglobulin-antigen reactions, and resistance of antimicrobial agents.

3..3 Department of Pharmacy Practice

The Department of Pharmacy Practice (PHPR) in the College of Clinical Pharmacy is the core academic department of the *Doctor of Pharmacy (Pharm. D.)* program. The department is strongly committed to train the Pharm. D. graduates to participate in *Direct Patient Care* as an effective team member in health care system as lifelong experts in therapeutic planning, intervention and rational use of medicines. This is achieved through a structured academic program and excellence in teaching with special focus on clinical training in the areas of drug information, institutional pharmacy practice training, internal medicine, critical care, ambulatory medicine, cardiology, outcomes research, infectious disease, pharmacokinetics/pharmacodynamics, managed care, emergency/ ambulatory care and community pharmacy training. The interaction with experienced faculty, departmental environment and clinical rotations build strong foundations for the professional degree students.

Mission:

The mission of the Department is to excel in **education** and **research in clinical pharmacy** through collaboration with other departments, programs and community, to prepare **life- long learners** having knowledge and skills required for evidenced based patient centered care for **prevention and treatment of diseases.** The department is also committed to improve the health of the community through provision of pharmaceutical care services to fill the gaps in patient care.

Goals & Objectives:

1 Provide challenging and quality course work and experiential education to prepare life-long learners
   - Develop integrated course plan: ILO', blue printing,
   - Apply students centered, service learning and Case based teaching
   - Library assignments and projects
   - Assessments: case based, assessing higher learning levels of students

- Develop, implement and continuously improve Experiential learning programs of the Department
   - Preceptors training
   - Sites development
   - Improvement of manuals
- Recommend, recruit, develop and retain experienced faculty both for didactic teaching and preception
   - Assist recruitment committee
   - Support Faculty development program:
      - Departmental staff development program
      - Preceptors training program
      - COCP and University Level programs
      - National and International
- Provide excellent Administrative and collegial environment
   - Orientation of new faculty
   - Meetings SOPs
   - Facilities for students and staff
   - Social gatherings
- Collaborate with other Departments and programs for IPE and Research
- Contribute to COCP and KFU mission in teaching research and Community Engagement
   - Research targets:
      - KFU research grant target
      - National (KACST) and International
      - Students research
   - Community Engagement
   - Provision of Pharmaceutical Care/Clinical Pharmacy Services in various health care settings

- Service learning in different courses
- Community/practice based research
- Community Service: Educate/assist Community/Hospital pharmacists through Lectures

Serial	Course Code	Course No.	Subject	Units	Contact Hours
1	PP-1	2030111	Pharmacy Orientation	(2+0)	**2**
2	PP-2	2030221	Pharmaceutical Care-1	(0+1)	**3**
	PP-3	2030231	Institutional Pharmacy Practice Experience-1	(0+2)	**6**
3	PP-4	2030311	Therapeutics-1	(4+1)	**6**
4	PP-5	2030312	Pharmaceutical Care-2	(2+1)	**5**
5	PP-6	2030321	Therapeutics-2	(3+1)	**6**
6	PP-7	2030322	Pharmaceutical Care-3	(2+0)	**2**
7	PP-8	2030323	Institutional Pharmacy Practice	(1+0)	**1**
8	PP-9	2030324	First Aid and Emergency Medicine	(0+1)	**3**
9	PP-10	2030325	Scientific Writing	(2+1)	**5**
10	PP-11	2030331	Institutional Pharmacy Practice Experience-2	(0+2)	**6**
11	PP-12	2030411	Law and Ethics in Pharmacy Practice	(1+0)	**1**
12	PP-13	2030412	Therapeutics-3	(3+1)	**6**
13	PP-14	2030413	Therapeutics-4	(3+1)	**6**
14	PP-15	2030414	Evidence Based Practice	(1+0)	**1**
15	PP-16	2030415	Clinical Pharmacokinetics	(2+1)	**5**
16	PP-17	2030416	Total Parentral Nutrition	(1+0)	**1**
17	PP-18	2030417	Pharmacoeconomics	(1+0)	**1**
18	PP-19	2030421	Therapeutics-5	(3+1)	**6**
19	PP-20	2030422	Pharmacy management	(2+0)	**2**
20	PP-21	2030423	Pharm.D. Seminar	(0+1)	**3**
21	PP-22	2030424	Self care and Non-prescription Drugs	(2+0)	**2**
22	PP-23	2030425	Drug Information Services	(2+0)	**2**
23	PP-24	2030426	Pharmacoepidemiology	(2+0)	**2**
24	PP-25	2030427	Pharmacogenomics (elective)	(2+0)	**2**
25	PP-26	2030431	Advanced Pharmacy Practice Experience-1	(0+5)	**5**
26	PP-27	2030511	Advanced Pharmacy Practice Experience-2	(0+15)	**45**
27	PP-28	2030521	Advanced Pharmacy Practice Experience-3	(0+15)	**45**
	Total credit hours			88 (40+48)	**184**

3.3.1 Head of the Department

Dr. Haytham Abdulaziz Wali

Nationality : Saudi
Qualification : PharmD, BCIDP
Academic Rank : Assistant Professor
General Specialty : Clinical Pharmacy / Infectious Diseases
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Dr. Haytham Wali is a board-certified infectious disease pharmacist (BCIDP) and a clinical assistant professor of infectious diseases pharmacotherapy in the Department of Pharmacy Practice at King Faisal University College of Clinical Pharmacy in Al-Ahsa, Saudi Arabia. He completed his Doctor of Pharmacy (PharmD) degree at King Abdulaziz University Faculty of Pharmacy in Jeddah, Saudi Arabia, in 2011. Then, he completed the Certificate of Advanced Pharmacy Practice Studies (CAPPS) program at MCPHS University in Boston, Massachusetts, United States, in 2015, and the Advanced Clinical Pharmacy Practice Graduate Certificate program at The University of Arizona College of Pharmacy in Tucson, Arizona, United States, in 2018. He did his Post-graduate Year One (PGY1) pharmacy residency at Carondelet St. Joseph's Hospital in Tucson, Arizona, United States, in 2020. Finally, he did his PGY2 infectious diseases residency at Piedmont Columbus Regional in Columbus, Georgia, United States, in 2021. His areas of interest include antimicrobial stewardship, antimicrobial resistance, antimicrobial dosing in special populations, and clinical microbiology. Dr. Wali is a member of the American College of Clinical Pharmacy (ACCP), the Infectious Diseases Society of America (IDSA), the Society of Infectious Diseases Pharmacists (SIDP), the American Society of Health-system Pharmacists (ASHP), and the Saudi Society of Clinical Pharmacy (SSCP). Dr. Wali has several publications in peer-reviewed journals. He is also an ad hoc reviewer for several scientific journals, including Antibiotics, Journal of Clinical Medicine, the European Journal of Medical Research, the European Journal of Pediatrics, the International Journal of Infectious Diseases, the Journal of Clinical Nursing, and PloS One. Dr. Wali is the recipient of the 2023 Distinguished Junior Investigator Award by the Saudi Society of Clinical Pharmacy.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

Scan me or Click on me (Ctrl+Enter)

Dr. Abdulaziz Saleh Almulhim

Nationality : Saudi

Qualification : Residency, Fellowship in Clinical Research in Human Therapeutics

General Specialty : Internal Medicine

Academic Rank : Associate Professor

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Dr. Abdulaziz S. Almulhim holds a Bachelor degree in Doctor of Pharmacy (PharmD) from College of Clinical Pharmacy, King Faisal University, 2011. Dr. Almulhim completed his Postgraduate Year-1 and Year-2 training in Northwest Medical Center, Tucson, Arizona, and Banner University Medical Center-South, Tucson, Arizona, respectively. He also completed his Fellowship in Clinical Research in Human Therapeutics. His major research of interest is Internal Medicine, Infectious Diseases, and Pharmacy Practice. He is a Board Certified Pharmacotherapy Specialist (BCPS). He is the Chairman of the Experiential Education and Community Engagement Committee. He is a member in the Curriculum, Quality Management and Academic Affairs Committees. He is the Head of the Department of the Pharmacy Practice.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Afzal Haq Asif

Nationality : Pakistani

Educational Qualification : M.B;B.S., M.Phil.

General Specialty : Pharmacology & Therapeutics

Academic Rank : Associate Professor

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Dr. Afzal completed his M.B.B.S. from Nishtar Medical University, Multan, in 1984, followed by a residency in Internal Medicine and Cardiology/CCU at Nishtar Medical University Teaching Hospital. In 1995, he obtained an M.Phil. in Pharmacology & Therapeutics from the Postgraduate Medical Institute at the University of Punjab, Lahore, Pakistan, and subsequently embarked on a career in teaching and research in Pharmacology and Therapeutics.

Dr. Afzal has held positions as Assistant Professor, Professor, and Head of the Department of Pharmacology and Therapeutics at the Postgraduate Medical Institute, as well as at various prestigious medical schools in Pakistan. His academic portfolio includes teaching courses in Therapeutics, Pharmacology, Physiology, and Toxicology, along with developing training programs for the college. Currently, he teaches Therapeutics to Pharm D students. He has been member of American College of Clinical Pharmacy (ACCP) in the past.

He has served as Head of Quality Assurance, Curriculum Development, and Experiential Education committees at the college, and has acted as a consultant reviewing Pharm D curricula and quality assurance processes for several pharmacy programs in the Kingdom. Presently, he is the Coordinator of the Committee for Quality Assurance and Curriculum Development at the college and also works as a consultant at the Deanship of Development and Quality Assurance of the university. He is presently member of American Society of Quality (AHe is currently a member of the American Society for Quality (ASQ).

Dr. Afzal's research interests include nephrotoxicity of drugs and protective strategies, as well as internal medicine. He is a member of a research group focused on developing novel pharmaceutical formulations for various drugs. He has approximately 60 publications to his credit.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Sulaiman Mohammed Almohaish

Nationality : Saudi

Qualification : Pharm.D., BCPS.

Academic Rank : Assistant Professor

General Specialty : Clinical Pharmacy

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Dr. Almohaish completed his pharm.D. degree at King Faisal University (KFU) back in 2013. He then joined the College of Clinical Pharmacy as a faculty member and received scholarship to continue his education. He completed his PGY1 & PGY2 residency training at the University of Arizona Hospitals. He also completed a fellowship program in neurocritical care and postdoc program in neuroscience at Virginia Commonwealth University. During his scientific journey, he designed, conducted, and participated in several clinical trials with different universities funded by drug companies, the USA National Institution of Health, and the USA Department of Defence. He is a licensed clinical pharmacist in the United States and Saudi Arabia, and is a board-certified pharmacotherapy specialist. Further, he is an author of several published research articles and book chapters. His research focus is on quality improvement in pharmacy practice, critical care therapy management, biomarkers, and academic improvement. He is currently a member of the study plan committee, academic affairs committee, experiential education and community engagement committee, a coordinator of the Advanced Pharmacy Practice Experience at the College of Clinical Pharmacy at KFU, and a pharmacy preceptor of the intensive critical care unit rotation at King Fahad Hospital.

Research Activity

Google Scholar	ORCID ID

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Maitham Abdullah Al-Hawaj

Nationality : Saudi

Education Qualification : Ph D

General Specialty : Pharmacotherapy

Academic Rank : Assistant Professor

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Dr. Maitham A. Al Hawaj has completed his Bachelor of Pharmacy from King Saud University (KSU), College of Pharmacy, Riyadh, Kingdom of Saudi Arabia (2005). He has graduated with PhD degree in Pharmacotherapy from Virginia Commonwealth University (VCU), School of Pharmacy, Department of Pharmacotherapy and Outcomes Science, Richmond, Virginia, USA (2012). After completing his bachelor degree, Dr. Al Hawaj had have worked for two years as teaching assistant in King Faisal University (KFU), College of Clinical Pharmacy, Hofuf, Saudi Arabia. Upon obtaining his PhD degree, Dr. Al Hawaj has been appointed as assistant professor in Department of Pharmacy Practice at KFU College of Clinical Pharmacy. Dr. Al Hawaj's research interest includes pharmacotherapy of different diseases.

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Dr. Monther Abdolmohsain Alsultan

Nationality : Saudi

Qualification : Pharm.D., MSCR., PhD.

Academic Rank : Assistant Professor

General Specialty : Clinical Pharmacy

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Dr. Alsultan completed his pharm.D. degree at King Faisal University (KFU) back in 2013. He then joined the College of Clinical Pharmacy as a faculty member and received a scholarship to continue his education. He completed his Master of Science in Clinical Research at the Medical University of South Carolina. He also received his Ph.D. in Pharmacotherapy at Virginia Commonwealth University in 2023. His research focus is pharmacotherapy of various diseases, exploring optimal medication therapy strategies and improving patients outcomes. In addition, Dr. Alsultan has research interest in pharmacy digital health, aiming to integrate technology into pharmacy practice to enhance healthcare delivery, support clinical decision-making and

improve patients safety. He is currently a member of the experiential education and community engagement committee, and a coordinator of the Introductory Pharmacy Practice Experience, and a pharmacy preceptor of the pharmacy digital health rotation at the College of Clinical Pharmacy at KFU.

Dr. EL Walid EL Hassan

Nationality : Sudanese

Educational Qualification : M. Pharm., MSc. D

General Specialty : Clinical Pharmacy

Academic Rank : Clinical Lecturer

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Dr. Hassan got his bachelor degree in 2002 from AL Ahliyya Amman University , and in 2005 he got his masters in clinical pharmacy from Jordan University of Science and Technology (J.U.S.T.). After that, he worked at the American hospital in Dubai for 2 years and joined Tawam Hospital (in affiliation with John Hopkins) for 5 years. He got his American Board certification from the American Pharmacist Association speciality (pharmacotherapy) in October 2013 and renewed it in December 2021.

Additionally, he has written a number of research publications that have been published.

Currently, he serves as the preceptor for the internal medicine rotation at King Fahad Hospital and is a member of many committees.

His areas of expertise are: Internal medicine, Patient Counseling , Medication reconciliation

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Amal Abu Alhumus

Nationality	:Jordanian
Education Qualification	: Master degree
General Specialty	: Clinical Pharmacy
Academic Rank	: Lecturer
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Dr. Amal Khalil Ahmad Abu Alhommos completed her graduation from Jordan University of Science and Technology, Jordan (2002) and post graduation from Jordan University of Science and Technology, Jordan in 2004. She has been teaching Clinical Pharmacy at College of Clinical Pharmacy, King Faisal University, KSA since 2015 until now. She has more than 5 years of teaching experience at Al Isra University, Pharmacy Faculty,Jordan. She has also worked as hospital pharmacist at King Abdullah In Irbid/Jordan for 6 months and King Hussein Cancer Center In Amman for 6 months.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Dalia El-Maghraby

Nationality	: Egyptian
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Dr.Dalia A. Elmaghraby holds a Bachelor degree in Pharmaceutical sciences 2002, Diploma in biotechnology, 2003 and Pharm.D 2009 from Faculty of Pharmacy , Alexandria University, Egypt. She is a Board Certified nutrition Specialist (BCNSP). Dr. Elmaghraby worked as a senior clinical pharmacist in different departments such as parenteral nutrition, ICU, hematology and as a coordinator for in oncology clinical pharmacy departments at Main Alexandria University Hospital. In 2011 Dr.Elmaghraby joined King Faisal University as a Clinical Lecturer and Preceptor in department of Pharmacy practice. She has a good experience in chemotherapy I.V admixture, TPN tailoring and preparations . Dr. Elmaghraby is a registered clinical pharmacist I in Egypt and Saudi Arabia .

Currently she is precepting the intern students during APPE Oncology rotation. Providing pharmaceutical care services to patients ,suggesting suitable interventions to the healthcare team and supervise clinical research projects.

Her major research of interest is adult oncology, clinical nutrition and Pharmacy Practice.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Sahar Ibrahim

Nationality : Egyptian
Qualification : Master in Clinical pharmacy / BCPS
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Dr. Sahar holds a bachelor degree in pharmaceutical sciences (BSc Pharm) from Faculty of pharmacy, Alexandria University, 2006. Dr. Sahar pursued her post graduate studies, she holds a Diploma of hospital and clinical pharmacy from the Faculty of pharmacy, Alexandria University in 2009. She also holds a postgraduate (Pharm.D) degree, Faculty of pharmacy, Alexandria University in 2011. In 2020, she gained her American Board Certification as a Pharmacotherapy Specialist (BCPS) .The Board of Pharmacy Specialties is the premier post-licensure certification agency.

Dr. Sahar started her professional experience in 2006 as a teaching assistant in Pharmacognosy department, Faculty of Pharmacy, University of Alexandria. In 2007 she started her career in hospital pharmacy, where she was employed as a hospital pharmacist in Sharq -Al Madina hospital (Egyptian ministry of health); a specialized medical center located in Alexandria, Egypt. In 2011 she worked as CCU clinical pharmacist till late 2014, when she joined COCP as a clinical lecturer assigned to Therapeutics-1 & Therapeutics-2 practical laboratory which covers patient cases in cardiology and internal medicine.

She is the cardiology and CCU preceptor during the internship of final year students (APPE) in King Abdul-Aziz national guard hospital (KANGHA) and prince Sultan Cardiac center (PSCCH). She also supervises students' graduation projects.

Her area of interest is pharmacy practice, clinical cardiology, cardiovascular health and patient centered care.

Research Activity

Google Scholar	ORCID ID

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Dr.Amira Samir Radwan

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Amira Radwan holds a Bachelor degree in Pharmaceutical Sciences from College of Pharmacy, Alexandria University, Egypt, and also a Doctor of Pharmacy degree (Pharm D), which is equivalent to a Master Degree in Clinical Pharmacy from Alexandria University, 2015. She is a Board-Certified Pharmacotherapy Specialist (BCPS). She joined the College of Clinical Pharmacy at King Faisal University, working as a lecturer and a clinical preceptor in the Pharmacy Practice department. She is responsible for the pharmacy interns in the Cardiology department and the Coronary Care Unit. Her major research of interest is Cardiology Medicine, Infectious Diseases, and Pharmacy Practice.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Abdullah M Al Hamid

Nationality : Saudi

Qualification : BSc, MSc, Ph D.

Academic Rank : Assistant professor

General Specialty : Clinical Pharmacy

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Dr Abdullah Al Hamid is an assistant professor in clinical pharmacy and pharmacy practice at King Faisal University, Saudi Arabia. He has 15+ years' experience in clinical pharmacy where he has practiced in a variety of settings in primary, secondary and tertiary care. Moreover, Dr Abdullah has worked as assistant professor in clinical pharmacy and patient safety at the University of Hertfordshire and University of Birmingham, UK for five years before joining King Faisal University. Dr Abdullah has broad research experience in the field of clinical pharmacy and its intersection with other disciplines. Hence, Abdullah has published 60+ publications in the field of patient and medication safety including 35+ peer reviewed articles. His articles are interdisciplinary and cover a wide range of topics related to observational studies, experimental studies, systematic reviews/metanalyses, mixed-method research and artificial intelligence/machine learning. Abdullah has been external examiner for various international universities for undergraduate and postgraduate programmes. He has been actively involved as a member of editorial board and as a reviewer for peer reviewed international journals in pharmacy.

Research Activity

Google Scholar	ORCID ID

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Dr. Mohamed A. Albekery

Nationality: Saudi
Qualification: Pharm.D., SSC-PhP, ASHP-PhP, SSC-Nep
Academic Rank: Assistant Professor
General Specialty: Clinical Pharmacy
Specific Speciality: Nephrology Pharmacotherapy
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Dr. Mohamed A. Albekery is a Clinical Assistant Professor of Nephrology Pharmacotherapy in the Department of Pharmacy Practice at the College of Clinical Pharmacy, King Faisal University, and serves as a Nephrology Clinical Pharmacy Consultant at the National Guard Health Affairs in Al-Ahsa, Saudi Arabia.

Dr. Albekery completed his Pharm.D. degree at King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) in Riyadh, Saudi Arabia, in 2017. Then, he completed his Post-Graduate Year One (PGY1) pharmacy residency program at King Abdulaziz Medical City, Riyadh, Saudi Arabia, in 2019, which is accredited by the Saudi Commission for Health Specialties (SCFHS) and the American Society of Health-System Pharmacists (ASHP). Finally, he completed his PGY-2 Nephrology pharmacy residency program at King Abdulaziz Medical City, Riyadh, Saudi Arabia, in 2020.

Dr. Albekery holds an ASHP teaching certificate and a Training of Trainers certificate issued by SCFHS. He has actively published in nephrology-focused peer-reviewed journals and has presented on various nephrology-related topics at multiple conferences.

Dr. Albekery is a member of the Saudi Society of Clinical Pharmacy (SSCP), the Scientific Research Honor Society (Sigma Xi), a scientific committee member of the Saudi Critical Care Pharmacy Research (SCAPE) Platform, a member of several other committees, and a surveyor for the SCFHS training programs and centers accreditation.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID

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Dr. Amal Khalil Suleiman

Nationality : Denmark, Dominican

Qualification : BA Pharmacy, MSc. Clinical Pharmacy, PhD. Clinical Pharmacy

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General Specialty : Clinical Pharmacy

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Dr. Amal K Suleiman has completed her Bachelor of Pharmacy from ASU University, College of Pharmacy, Amman, Kingdom of Jordan (2001). Earned her M.Sc. degree in Clinical Pharmacy in 2006 from USM University. Dr. Suleiman was awarded a full scholarship to pursue the Ph.D. degree in Clinical Pharmacy and earned her Ph.D. degree in Clinical Pharmacy from the same university in 2010. Universiti Sains Malaysia (USM) is ranked TOP 100 in the QS World University Rankings by "Pharmacy" subject, and TOP 15 in Asia and “Number One" of the top public universities in Malaysia. Since graduating, Dr. Suleiman has held several positions at research institutions and private industry. In 2012 she served as the Head of the Clinical Pharmacy Department in Prince Noura University. Her constant effort has helped the college to get accreditation in the Pharm D program and developing the college's strategic plan as well as the courses syllabus and study plan. She supervised more than 24 master's and PhD theses in the area of Clinical Pharmacy studies, reviewer in more than 20 international journals, e.g., International Journal of Emergency Medicine, Scientific Reports, BMC Health Services Research, BMC Nursing, BMC Public Health. Invited for over 30 times as an external PhD examiner. Currently, Dr. Sulieman is an Associate Professor in the Department of Pharmacy Practice at College of Clinical Pharmacy, KFU. Her research interests mainly are in the area of (clinical pharmacy), health outcomes and in the variability of adherence between treatments and what links there may be between treatment adherence and the beliefs and opinions that people hold about their treatments. Other research interests include initiating patient outcomes in pharmaceutical care utilizing survey research design. This has expanded to include behavioral decision making in addition to health-related quality of life.

Research Activity

Google Scholar	ORCID ID	Scopus ID

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Dr. Mohammed Abdulazaq Alabdulwahed

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Mohammed Abdulrazaq Alabdulwahed holds a Bachelor degree in Doctor of Pharmacy (Pharm.D) from College of Clinical Pharmacy, King Faisal University, 2015. Dr. Alabdulwahed completed his Advanced Pharmacy Practice Experience (APPE-2) at John Hopkins Aramco Healthcare, Dhahran, Saudi Arabia and King Abdulaziz National Guard Hospital, Alahsa, Saudi Arabia. After the completion of his Pharm.D degree he secured a job at King Abdullah Specialist Children Hospital, Riyadh, Saudi Arabia. Also, he completed Practical Training for Summer Employment Program B and Summer Training Program B for college students with Johan Hopkins Aramco Healthcare in Dhahran, Saudi Arabia.

Research Activity

Google Scholar	ORCID ID	Scopus ID

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Dr Mansour M. Alotaibi

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Dr Alotaibi completed his PharmD degree in 2010 from the College of Clinical Pharmacy, King Faisal University. He joined the College of Clinical Pharmacy at King Faisal University (KFU), Saudi Arabia as a teaching assistant in 2011, then moved to the United States to pursue his graduate studies in pharmacy administration. After earning his Master's degree in pharmacy administration in 2015, Dr Alotaibi re-joined the college as a lecturer and was actively involved in teaching several courses. In 2017, he joined Cardiff School of Pharmacy and Pharmaceutical Sciences in the United Kingdom as a PhD student. Dr Alotaibi now works as an assistant professor in the Department of Pharmacy Practice, College of Clinical Pharmacy, KFU, and as a part time pharmacist at the university's polyclinic center. He participated in several international conferences and published many articles in prestigious national and international journals. Dr Alotaibi's research interests include expanding the role of pharmacists, community pharmacy services, medicines optimization, healthcare outcomes, and health policy. Dr Alotaibi invented a new device to treat xerostomia. The device is designed to deliver medications in an innovative way, and a notice of allowance was received from the United States Patent and Trademark Office. In Jan 2024, Dr Alotaibi was appointed as the Vice Dean of Student Affairs.

Research Activity

Sci profile	Scopus ID

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Dr. Sufyan Mohammed Alomair

Nationality	: Saudi
Qualification	: Pharm D
Academic Rank	: Teaching Assistant
General Specialty	: Clinical Pharmacy
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Sufyan Alomair holds a Bachelor's degree in Doctor of Pharmacy (Pharm.D) from the College of Clinical Pharmacy, King Faisal University, 2017. He presented two poster presentations at DUPHAT and GCC conferences. Also, he received the first-place award in the research contest at Qassim University. He participated in many health-related community campaigns. It is worth mentioning that he was working at Almoosa Specialist Hospital and Almanaa General Hospital before joining King Faisal University as a teaching assistant in 2018. Lastly, he is planning to pursue a PGY-1 Pharmacy Practice Residency shortly. His interests are Internal medicine,

Psychiatry, Cardiology, Ambulatory care, and Academia. He is a Board Certified Pharmacotherapy Specialist (BCPS).

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Dr. Nosiyba M Abdullah

Nationality	: Sudanese
Qualification	: Master in Clinical pharmacy/ BCCCP
General Specialty	: Clinical pharmacy
Academic Rank	: Clinical lecturer
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Dr. Nosiyba M. Abdullah holds a Bachelor degree of Pharmacy (BSc) from College of Clinical Pharmacy, Omdurman Islamic University, 2010. Dr. Nosiyba completed her Master Degree in Clinical Pharmacy from University of Khartoum, 2014. She became board certified critical care pharmacist (BCCCP) in 2021. She joined Ibn Sina university as a teaching assistant in the department of pharmaceutical sciences 2013.Then She Worked as Critical Care Clinical Pharmacist at Almoosa Specialist Hospital 2015-2017. After that, she joined the College of Clinical Pharmacy at King Faisal University. She is working as a clinical preceptor responsible for pharmacy interns in Critical Care Unit, Providing pharmaceutical care services to patients and suggesting suitable interventions to the healthcare team in Saud Newbinjalawy Hospital, Currently she is an instructor of a courses entitled "Pharmaceutical care 2 & Pharmaceutical care 3" presented to undergraduate Pharm D students. Her major research of interest is Critical care, Infectious Diseases, Nephrology and Pharmacy Practice.

Dr. Khalifa Yousef K Alrajeh

Nationality	: Saudi Arabian
Educational Qualification	: PharmD, Graduate Certificate in Advanced Pharmacy Practice, MSCR, PhD
General Specialty	: Pharmacotherapy/Pharmacogenomics
Academic Rank	: Lecturer (Assistant Professor to be prompted)
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Dr. Khalifa Yousef Alrajeh obtained his PharmD from King Faisal University, Saudi Arabia. He completed a Graduate Certificate Program in Clinical Pharmacy Practice and a Master of Science in Clinical Research (MSCR) from the Medical University of

South Carolina, USA. He then earned his PhD in Pharmacotherapy with a research focus on Pharmacogenomics from Virginia Commonwealth University, USA. Currently, he is involved in teaching Pharmacotherapy and precepting students in their advanced pharmacy practice experience (APPE) in the College of Clinical Pharmacy, KFU. His major research interest has been in personalized medicine and pharmacogenomics, with emphasis on identifying population-specific genetic variants influencing medication responses in underrepresented populations, including Saudi population. During his doctoral research at Virginia Commonwealth University, he utilized techniques such as TaqMan SNP assays via real-time PCR for genotyping while integrating genetic data with clinical findings to personalize heart disease (HD) medications. He has attended multiple scientific conferences and presented research posters with a focus on genetic polymorphisms affecting HD medication's safety and response (i.e., CYP2C19, SLCO1B1, ABCG2, CYP2C9, and other clinically relevant pharmacogenes). He has also published several peer-reviewed articles in peer-reviewed journals including Pharmacogenomics, Personalized Medicine, and Future Pharmacology, establishing himself as a specialist in the rapidly evolving field of precision medicine.

Research Activity

Google Scholar	ORCID ID	Scopus ID

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Dr. Marwah Eissa Alnewais

Nationality : Saudi
Educational Qualification : Professional Doctorate, Postgraduate Year 1 Residency, Postgraduate Year 2 Residency, Academic and Research Fellowship
General Specialty : Pharmacy Practice
Academic Rank : Assistant Professor
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Dr. Marwah Alnewais is a board-certified ambulatory care pharmacist, a certified diabetes educator, and a licensed pharmacy consultant with expertise in clinical pharmacy practice, education, and research. She specializes in managing chronic diseases, including diabetes, hypertension, dyslipidemia, obesity, and cardiovascular risk reduction, with a focus on optimizing medication therapy and improving patient outcomes in ambulatory care settings.

Dr. Alnewais earned her PharmD from King Faisal University in Alahsa and completed an advanced pharmacy practice certification at the Medical University of South Carolina (MUSC) in the United States. She then completed a PGY1 pharmacy practice residency and a PGY2 ambulatory care pharmacy residency at the MUSC Hospital System. To further enhance her expertise, she pursued an academic and research fellowship at the MUSC College of Pharmacy, where she was actively involved in didactic teaching, experiential education, scholarly activities, student mentorship, participation in college- and university-level committees, and curriculum development.

Dr. Alnewais's research interests include optimizing pharmacotherapy for chronic diseases, innovation in academia, and addressing social determinants of health and health disparities in clinical research. She is dedicated to advancing pharmacy services through evidence-based research and pharmacist-led interventions.

Research Activity

Google Scholar	ORCID ID	Scopus ID	Researcher ID
			57218901207

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Dr. Fatimah Fouad Al Doughan

Nationality : Saudi

Qualification : Pharm D

Academic Rank : Teaching Assistant

General Specialty : Clinical Pharmacy

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I am Fatimah Al Doughan, graduated from the College of Clinical Pharmacy at King Faisal University, 2016. Joined the family of the college of clinical pharmacy at KFU as a Teaching Assistant, 2017. I work in the pharmacy practice department as I supervise the intern student during their clinical rotation. We discuss important topics and clinical cases, as well as we, join clinical rounds, and propose some interventions if needed. I am also responsible for practical labs as we discuss clinical cases related to the theoretical lectures.

Furthermore, I am interested in research. My research interest had started when I was a student as I worked on three research projects and participated in many national and international conferences. This passion for research continues till now as I have published many papers. Besides my research interest, I am an artist, and I have participated in many art competitions and galleries.

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Dr. Maha Sami Alkhaldi

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Maha Alkhaldi holds a Bachelor degree in Doctor of Pharmacy (Pharm.D) from College of Clinical Pharmacy, King Faisal University, 2017. Alkhaldi, joined College of Clinical Pharmacy, King Faisal University, 2018 as a teaching assistant at the department of pharmacy practice. She supervises Pharm.D interns in Advanced Pharmacy Practice Experiences (APPE) rotations. Currently, precepting drug information interns at Drug and Poison Information Center, College of Clinical Pharmacy, KFU. Furthermore, she is actively involved in the practical lab sessions of Therapeutics courses. She has been a member of learning resources committee since 2018. Her area of interests included pharmacy practice.

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Dr. Najla Salah Alshakmobarak

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Najla S. Alshakmubarak holds a bachelor's degree in Doctor of Pharmacy (Pharm.D) from College of Clinical Pharmacy, King Faisal University, 2015. Dr. Alshakmobarak completed her master's degree in clinical pharmacy from Institute of Pharmacy & Biomedical Sciences (SIPBS), Strathclyde University. Initially, she undertook a literature review and created a protocol for exploring the differences and similarities between the models used in independent prescribing in community pharmacies using a mixed method approach, but because of the pandemic the project ended up focusing on the transition of care instead. Her research project ended up being entitled *Transition of Care from Hospital to Community Pharmacies: A Literature Review and a Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis.* Her major research of interest is cardiology and pharmacy practice. She has been a member of Alumni Committee since 2016. she works as a teaching assistant in the pharmacy practice department; this is combined with her work as a clinical preceptor with oncology and cardiology students at the National Guard Hospital.

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Dr. Saja Ibrahim A Alhawas

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Saja Ibrahim Alhawas holds Bachelor's degree in doctor of pharmacy from College of Clinical Pharmacy, King Faisal University, 2017. Now she works as teaching assistant in a pharmacy practice department and supervised clinical pharmacy interns on pediatric rotation at the hospital.

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Dr. Sarah Alhussain

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Qualification : Pharm D

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Sarah Al Hussain gained a Doctor of Pharmacy (Pharm.D) degree from College of Clinical Pharmacy, King Faisal University, 2014. She joined King Faisal University in 2014 as a Teaching Assistant. Al Hussain pursued her postgraduate studies in the United Kingdom, where she received a Master of Science (MSc) degree in Clinical Pharmacy from the University of Strathclyde, Glasgow, 2020. Throughout her tenure, she has been working as a clinical preceptor for APPE students in Internal Medicine, Pediatrics, and Drug Information. Sarah has also been involved in the delivery of Therapeutics and Pharmaceutical Care practical classes for undergraduate students. Her current interest areas include Infectious Diseases, Internal Medicine, and Pharmacy Practice.

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Dr. Sarah Ibrahim Alamer

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Sarah Alamer holds a Bachelor's degree in Doctor of Pharmacy (Pharm.D) from the College of Clinical Pharmacy, King Faisal University (KFU), 2014. Sarah joined the College of Clinical Pharmacy, KFU as a teaching assistant in 2014. She is working as a clinical preceptor responsible for pharmacy interns. She also joins some practical classes of clinical courses (Therapeutics and pharmaceutical care). She participates in many committees in the college (Alumni committee, Learning resources committee, Objective structured clinical examination (OSCE) committee, and Community engagement committee) Sarah presented a poster at the international conference on pharmacoepidemiology & therapeutics risk management, Prague, Czech Republic, 2018. She completed her master degree in clinical pharmacy at the University of Brighton, UK, 2020. Her area of interests included drug information, pharmaceutical care, and pharmacy practice.

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Dr. Sulafa Abdulla Al Sahlawi

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Sulafa Al Sahlawi holds a bachelor's degree in Doctor of Pharmacy (Pharm.D) from College of Clinical Pharmacy, King Faisal University, 2017. In 2020, she received a Master of Science degree in Experimental Pharmacology and Therapeutics from University College London. Her thesis was on assessing the delivery of human Glucagon-Like Peptide (GLP-1) using an Adeno-Associated Virus (AAV) vector. Al Sahlawi is currently working as a teaching assistant at the department of pharmaceutical sciences where she is actively engaged in teaching, research, and lab demonstrations. Her main areas of interest include gene therapy, translational neuroscience, and clinical pharmacology.

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Dr.Sarah Saad Alnaim

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Dr.Norah Abdulmohsen Albanyan

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4 Program title

Doctor of Pharmacy (Pharm D)

Program Mission:

To prepare graduate scientists who are excellent in the application of sound, critical, analytical and innovative scientific approaches to research in pharmaceutical industries and problem-solving in the core areas of pharmaceutical sciences.

Program Goals:

To prepare excellent graduate scientists who possess strong foundational coursework and cutting-edge research skills that advance knowledge in the core areas of the pharmaceutical sciences in an ethical and professional manner.

To provide excellent opportunities for graduate students to develop and acquire new capacities in the conceptualization, design, conduct, analysis, interpretation and scientific communication of postgraduate research in pharmaceutical sciences.

Degree:

Doctor of Pharmacy (Pharm D)

Admission Requirements:

The students seeking admission to Pharm. D program are required to complete a 40 weeks preparatory program offered by the deanship of Preparatory year. The Preparatory Year is a learning process by which an individual is encouraged and enabled to fully develop his or her potential. The preparatory year program trains the prospective students for Pharm .D course by putting a focus on required competencies in English language, Mathematics and Science. Upon successful completion of the preparatory year the students are admitted to the Pharm. D program.

Health Colleges of the University lay down the admission requirements for preparatory year. The admission requirements for Pharm. D program are clearly specified by the College of Clinical Pharmacy.

Eligibility Criteria for Admission in Preparatory Year for Pharm. D. program

1. High School Diploma (the science section) or equivalent with a minimum score of 90%.
2. A score of 90% or more in Science subjects, i.e. Chemistry, Physics, Biology and Mathematics.
3. Qualifying the placement examination organized and conducted by National Center for Assessment in Higher Education
4. Qualifying the learning ability evaluation test for Health Colleges.
5. Medical fitness certificate.
6. Qualifying Personal interview

Preference will be given to recent graduates. The students should fulfill any other conditions announced by the University Council at the time of admission.

Preparatory year courses are taught in four quarters, each quarter consists of ten weeks. The Study Plan is customized to prepare the students for Pharm. D program at College of Clinical Pharmacy.

Study plan for Preparatory year

Quarter	Hours	Courses							
		English	Learning Skills	Fitness and Health	Information Technology	Mathematics	Biostatics	Physics Chemistry Biology	**Total**
1	Credit	05	1	--	1	--	--	--	07
	Contact	20	2	--	2	--	--	--	24
2	Credit	05	--	1	1	--	--	--	07
	Contact	20	--	2	2	--	--	--	24
3	Credit	05	--	--	--	2	1	1	09
	Contact	20	--	--	--	3	2	4	29
4	Credit	05	--	--	--	--	1	2	08
	Contact	20	--	--	--	--	2	4	26

Note: Students failing any course or securing a grade less than "C" in English language will be allowed to repeat the course only once to improve the final grades.

Pharm. D. Program

College of Clinical Pharmacy Admission Requirements for Pharm. D Program

After successful completion of the preparatory year students are eligible to join professional Pharm. D program at the College of Clinical Pharmacy. To be eligible for consideration for Doctor of Pharmacy (Pharm. D.) program students are required to

1. Secure an overall cumulative GPA of at least 3.5 in the preparatory year.
2. Achieve a minimum grade “C” in all four English courses.
3. Complete the Preparatory year within specified time i.e. 40 weeks.

Program Learning Outcomes:

Upon completing this program, the graduate will be able to:

Knowledge and Understanding

K1	Describe essential concepts of biomedical, pharmaceutical, clinical sciences to be used in development, formulation and optimization of medications and natural remedies, for prevention and treatment of diseases.
K2	Describe the principles of evidence based, patient centered pharmaceutical care planning
K3	Outline the knowledge concepts required to identify research problem and to design and conduct appropriate plan to address those problems
K4	Recognize legal, ethical, economical and management principles needed in pharmacy practice settings

Skills

S1	Apply the knowledge of biomedical, pharmaceutical and clinical sciences in designing a cost effective patient-specific and evidence based therapeutic plan.
S2	Apply the pharmaceutical principles and methods in drug design and development, formulation, extemporaneous preparations and bioequivalence in practice, manufacturing and research.
S3	Evaluate scientific evidences retrieved by using information technology resources to be used in research and problem solving in various professional settings
S4	Design and conduct research project to address issues related to health and medication use and disseminate the results at various professional forums.
S5	Perform pharmaceutical calculations and, interpret statistical data analyses in different pharmacy practice and research settings.
S6	Communicate clearly and effectively with patients, health care professionals, administrative personnel and the public in various settings.

Values

V1	Demonstrate integrity, professionalism and self-learning skills in academics, research, industry and clinical settings.
V2	Demonstrate the spirit of a collaborative team player with a sense of responsibility, autonomy and leadership
V3	Exhibit empathy, and community engagement skills in various professional settings

Professions/jobs:

The graduate of the program will be able to occupy one of the following positions:

Professional Pharmacist involved in direct patient care in clinical setting in Hospital

Hospital Pharmacies for dispensing, supervision of compounding, IV preparations, patients' counseling and follow up

Community Pharmacist

Drug and Poison information centers Pharmacist

Pharmacist in Government regulatory bodies for medication and health care services

Teaching Assistant followed by proceeding to acquire higher qualification:

Medical representatives

Number of credit hours:

The number of credit hours required to graduate from the program is 178 credit hours.

Program Courses:

The study plan of the program includes 61 courses that cover the main areas of specialization, which include anatomy, biochemistry, physiology, pathophysiology, pharmaceutics, pharmaceutical chemistry, pharmacology, pharmacogonosy, therapeutics, pharmaceutical care, toxicology, pharmacokinetics, drug information services, pharmacy management, Pharmacoeconomics, law and ethics.

The course of program study plan courses are distributed into university requirements, college requirements, and program requirements, as follows:

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	--	--	--
	Elective	4	8	4.5
College Requirements	Required	50	127	71.25
	Elective	2	4	2.25
Program Requirements	Required	--	--	--
	Elective	--	--	--
Capstone Course/Project				
Field Training/ Internship	--	5	39	22
Residency year				
Others				
Total		61	178	100

* Add a separated table for each track (if any).

5 Laboratories and equipment

The study plan includes many courses that include practical component, so the program has many laboratories that support these courses, and these laboratories include:

The College of Clinical Pharmacy contains well-established laboratories performing a high quality research. The following laboratories feature all facilities that are required for research such as:

1- Pharmaceutics Lab: It contains fiber optic fully automated dissolution system, DSC, FTIR, Buchi Nano Spray Dryer, Malvern Zeta Sizer.

2- Pharmacognosy Lab: It contains instruments for separation and identification of natural products such as rotary evaporators, Soxhlet, oil traps and plant tissue culture unit.

3- Pharmacology Lab: It has instruments used for measuring blood pressure, ECG, as well as isolated organs perfusion system and ELISA

4- Medicinal Chemistry Lab: It contains microwave for chemical synthesis, UV lamb, melting point instrument, and computer aided drug design unit.

5- Central Lab and NMR: It contains FTIR, LC mass, GC Mass UV spectrophotometer, spectrofluorometer, atomic absorption spectrophotometer, ^{1}H-NMR and ^{13}C NMR.

6- Cell culture research lab: PCR, Western plot, Eliza reader

7-Simulation lab : It contains human manikins and mock pharmacy.

Sl. No	Lab number	Name of the lab	Courses taught
	1021 (Male section)	Analytical Chemistry lab	Pharmaceutical analytical chemistry
	1025 (Male section)	Pharmaceutics lab	Fundamentals of pharmaceutics Physical Pharmacy Pharmaceutical dosage form
	1007 (Female section)	Analytical Chemistry lab	Pharmaceutical analytical chemistry
	1003 (Female section)	Pharmaceutics lab	Fundamentals of pharmaceutics Physical Pharmacy Pharmaceutical dosage form
	2023 (Male section)	Pharmacognosy lab	Pharmacognosy
	2031 (Male section)	Biochemistry lab	Biochemistry-2 Clinical Biochemistry
	2001 (Male Section)	Physiology lab	Physiology-1
	2003 (Male section)	Microbiology lab	Microbiology
	2007 (Female section)	Pharmacognosy lab	Pharmacognosy
	2005 (Female section)	Biochemistry lab	Biochemistry-2 Clinical Biochemistry
	2025 (Female section)	Microbiology lab	Microbiology
	2015(Male and Female)	Simulation lab	Pharmaceutical care-1 Pharmaceutical care-3 Therapeutics-1,2,3,4
	2007 (Male and Female)	Anatomy & Histology lab	Anatomy and Histology-1 Anatomy and Histology-2
	2021-A (Male and Female)	OSCE lab	Pharmaceutical care-1 Pharmaceutical care-3 Therapeutics-1,2,3,4
	2009 Male and Female)	Biochemistry lab	First Aid

6 Services provided by the university

The university provides the student and teaching staff with many educational and non-educational services that the student needs during his educational journey, and these services include the following:

The central Library:

The central library is located in building No. ..... The library includes several sources of information in both hardcopy and digital forms to cover all areas of knowledge and various specializations. The library provides loan services and many electronic services. The services provided by the Central Library can be viewed through the following electronic link.

https://www.kfu.edu.sa/ar/Deans/Library/Pages/Home-new.aspx

Brief Introduction:

The Deanship of Library Affaires provides different knowledge materials to the university members : students, Teaching Staff…

Besides, the library serves it's society and participate in local, national and international manifestations, especially those related to information and books exhibitions

Our Libraries follow the 'Library of Congress' Classification Scheme which divides the human knowledge in to 21 divisions, they are as follows:

Description	Code	Description	code
General	A	Fine Arts	N
Religion, Philosophy	B- BJ	Languages	P
History	C,D,E,F	Pure Sciences	Q
Geography, Maps, and Anthropology	G	Medical Sciences	R
Social Sciences	H	Agricultural Sciences	S
Political Sciences	J	Technology	T
Law	K	Military Sciences	U
Education	L	Navel Sciences	V
Music	M	Bibliography and Library Science	Z

Circulation Services:

Books can be borrowed by Faculty members, Students, Staff and local community members.

Borrowers	No. of Books	Loan Period
Faculty Members	10	One month
Lecturers, Demonstrators and Graduate students.	7	One month
Students (Males & Females)	5	15 days
Staff/Employees	3	15 days
Others	3	15 days

Terms & Conditions for Non-KFU borrowers:

Please contact the circulation department for details.

Renewals:

Books may be renewed for up to three consecutive period unless the material required by borrower. All books should be returned by the designated date unless renewal privilege has been given. Books may be renewed by telephone or through the library website.

Non-Circulating Materials:

- Reference materials, Dictionaries, Encyclopedias etc. etc…
- Manuscripts
- Audio visual materials, Filmstrips, slides etc…

- Reserve Books
- Single copy (Arabic only)
- Copy one (Arabic only)
- Periodicals (English or Arabic)

Computer services

The Libraries at KFU provide computers for student use. The university ID is required to use this service. Printing services are provided in the computer lab located in the main floor.

Research help and consultation:

The Library at KFU offers expert guidance in all departments such as the research through the index (Horizon®), E. Library, media resources, as well as databases on compact CD.

Interlibrary loan

The central Library at king can obtain books and other materials which are not available at KFU libraries by borrowing from other library collections. We can also borrow copies of books that are currently in use by another patron. Current students, faculty member, and staff are eligible to this service free of charge.

Working Hours

Central Library	Days	Time
Girls	Monday, Wednesday	8:00 Am – 4:30 pm
Boys	Sunday, Tuesday, Thursday	8:00 Am – 4:30 pm

Medical polyclinic:

The medical polyclinic is located in building No.... , Where the Medical Clinics Center provides primary health care including:

Medical examination of patients, diagnosis of diseases, and determination of the best treatment methods.

Providing the necessary treatment for simple and common diseases.

Referring complex medical cases to Ministry of Health hospitals in coordination with them.

Treating emergency cases and providing first aid to serious cases until they arrive at the hospital.

Conducting all the medical tests that doctors need to help them diagnose various diseases.

Initial medical examination for male and female students.

Organizing health awareness and education cases.

Sick leaves: Sick leaves are granted to students after conducting a medical examination by the doctors in medical polyclinic. Sick leaves issued by another party, whether governmental or private, are

investigated by the student's college. Students who wish to obtain evidence that they have an urgent sick excuse that prevent them from taking the exams must be medically tested, at least one hour before the exam, by the medical committee in the medical polyclinic.

The services provided by the Medical polyclinic can be viewed through the following electronic link

https://www.kfu.edu.sa/ar/Departments/Medical_Srvices/Pages/Home-new.aspx

The Deanship of Student Affairs:

The Deanship of Student Affairs is one of the supporting deanships at the university, as it is considered the first and most important service center for the students. The deanship provides the students with all services related to student activities and services that contribute in creating an attractive university environment. The deanship provides housing for university students. The deanship of student affairs building include: a restaurant, clubs, and a hall to practice some sports. It also provides students with nutrition services with reasonable prices. The deanship also pays great attention to student activities that improves students skills and personality. It organizes seminars, workshops, and cultural competitions. It is interested in developing and refining students' hobbies. It organizes social activities and outdoor trips to strengthen students relationships and to help them acquire good social habits. The services provided by the Deanship of Student Affairs can be viewed through the following link

https://www.kfu.edu.sa/ar/Deans/AhsaaStudent/Pages/Home-new.aspx

7 Services provided by the program/College

// explain The various activities offered by the program and the college to students and faculty members such as : Orientation programs, student clubs, training programs, as well as academic guidance.

A comprehensive orientation program is available for commencing students to ensure thorough understanding of program requirements, registration process, code of conduct, the range of services and facilities available to them, and of their obligations and responsibilities. Every year on the first day of first semester orientation program was organized for first year students. Dean, faculty members and a representative from the students' admission and registration will attend the orientation program. A representative from the students' admission and registration will brief the support provided to the students regarding admission and registration. Academic affairs committee along with students' activity committee organizes the orientation day for the fresh students on the first day of the college. College provides the Academic counselling and advisory to all students through a level academic advisors. (https://www.kfu.edu.sa/en/Colleges/clinical_pharmacy/Pages/Academic-Advising.aspx) Academic advisors will track the personal and academic development of the students and will arrange advising/counselling sessions for needy students. The course instructors also provide additional advising to the academically struggling students and arrange remedial measures. College provides academic

advisory and counseling, for further career planning and employment advice within the college. College has a students club, which organize the different academic and non academic activities for students.

The college has Professional Development Sub-Committee as a part of Committee for Development and Quality Assurance, which is responsible for organizing professional development activities at College. The Committee also collaborate with Deanship of Academic Development for organization of specific workshops as per needs of faculty members. All faculty members newly joining the college are required to attend the college New-Faculty Orientation Program which includes general human resource orientation (e.g., benefits , use of information technology/computer orientation, etc.), as well as familiarization to the Islamic/Saudi culture/ KFU/College of Clinical Pharmacy working.

Registration of the courses:

All students need to register for the courses through the banner system. Registration process on the banner system is simple and user friendly software. Online tutorial of registration process was made available on the Students admissions and registration website.

Guidelines for Registration of Courses on the Banner system

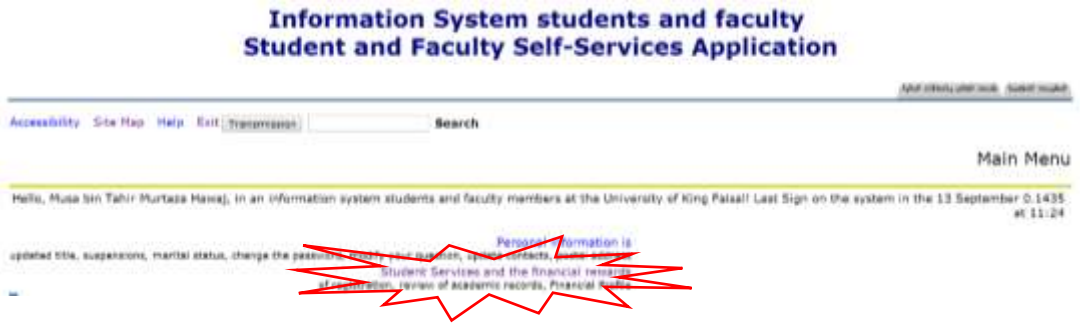
For registration of courses on the banner system, you need to keep the CRN for the courses ready, then

Open KFU website Home page (http://www.kfu.edu.sa/en/Pages/Home.aspx)

Click on Banner, It will open Login to Banner system, Click on Login

Enter your account ID (Academic number) than your pass word then Login

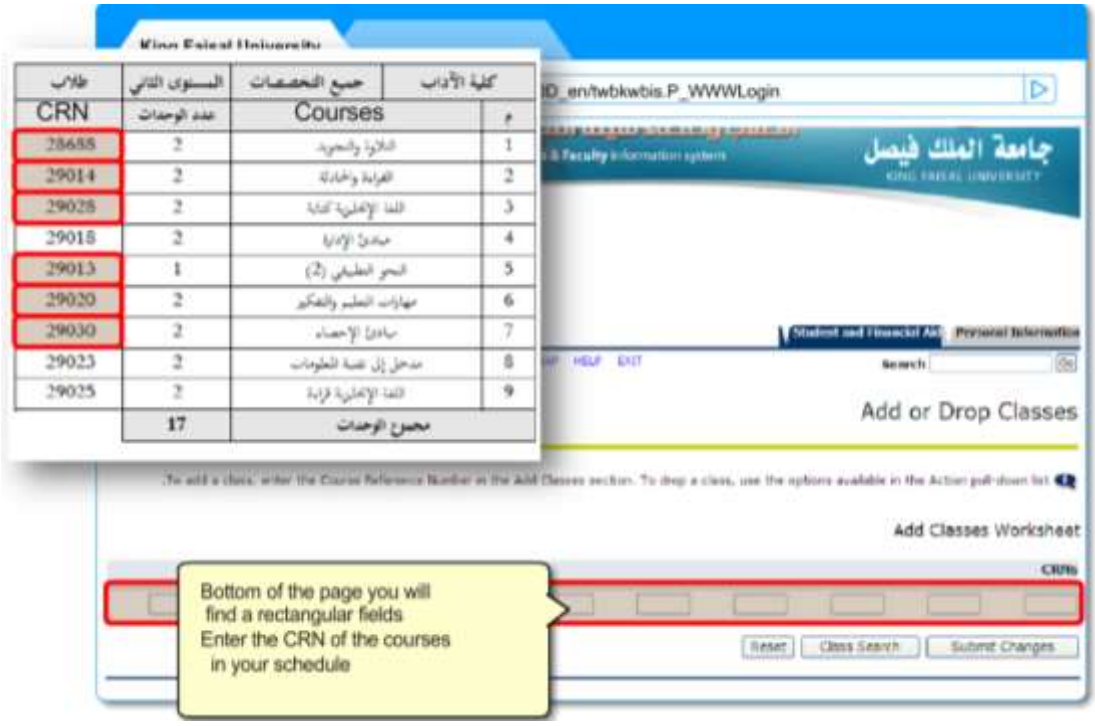
Choose Student and Financial Aid from the menu and then Registration



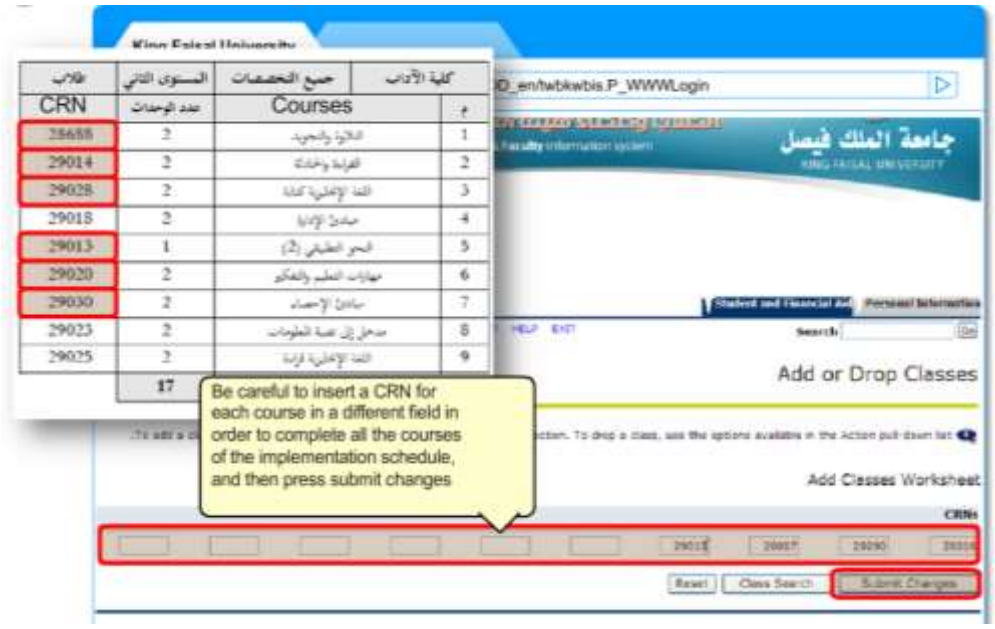
Choose Add or Drop menu from the menu

Select a term and then press Submit

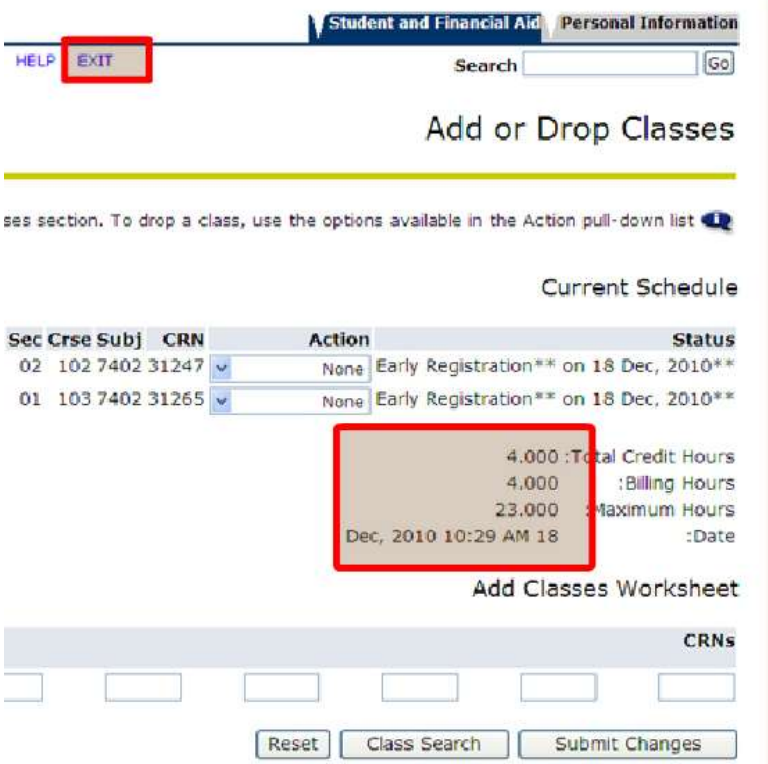
At the Bottom of the page, you will find rectangular fields. Enter the CRN of the courses in your schedule.



Be careful to insert a CRN for each course in a different field in order to complete all the courses of the implementation schedule and then press submit changes.



The system will record these courses then you make sure of the number of hours you have recorded so that they are identical to those selected from the courses.



To complete the registration procedure for the semester exit from the banner system by clicking on EXIT at the top of the page.

A video is available on the university website http://www.kfu.edu.sa/en/Deans/AdmissionRecordsDeanship/Pages/Home-new.aspx

8 Study regulations and tests

University Stage and the Executive Rules of King Faisal University

Definitions:

Article 1:

Academic year:

Two main semesters and a summer term if applicable

Academic Semester:

A period not less than 15 weeks in which students receive courses, the periods of registration and final examinations are not considered as a part of this period.

Summer Semester:

period not more than 8 weeks in which the periods of registration and final examinations are not considered as a part of this period, and the period specified for this semester is doubled.

Study level :

The indicator for the study stage according to the accredited study plans.

Study plan:

a group of compulsory optional and free courses which of the total of its units form graduation requirements that students must cross to obtain successfully the scientific degree of in the specified specialization

Course of Study:

is a module that meets the needs of the level specified in the approved Study Plan in each specialization Program. The Course has a number, a code, a title, and a description for its vocabularies distinguishes it in term of content and level from other courses, and a special file is to be saved in the department for the purposes of follow up, assessment and improvement. Some courses may have Prerequisite or concurrent courses.

The Accredited Hour

is a weekly theoretical lecture that is not less than fifty minutes, or the clinical lesson that is not less than fifty minutes, or a practical lesson which is not less than one hundred minutes.

Academic Warning

The notification directed to the student whose Cumulative average drops less than the minimum limit as it clarified in the regulation.

Semester Work Mark

The mark which is granted for works that show the student effort during the semester such as exams, researches, or other forms of classroom activity related to the course.

Final Examination

An examination held Once at the end of the study semester

The Mark of the Final Examination

The mark which obtained by the student in each course of Final Examination in the study semester

Final Mark (Total)

The total of the combination of the Semester Work Mark and the final exam mark for each course and it is calculated out of 100.

The Grade

The description of the percentage and alphabetical symbols for the final mark which obtained by the student in each course.

Incomplete grade:

It is a grade temporarily assigned for each course in case the student can not complete its requirements in the fixed time due to circumstances beyond the student's control, and it is given (IC) symbol.

In progress grade

The grade of in progress or "IP" is reserved for special cases and means that the particular course is not designed to be completed by the end of the term and the nature of that course requires to be studied through more than one term.

Semester Average

The sum of dividing the grade points by the sum of credited hours for all the courses at a particular semester. And the grade points are calculated by multiplying the grade value of the course by the credit hours of that course. The product of this multiplication will be the grade points (see appendix B).

Accumulative Average

The sum of dividing the grade points on the sum of credited hours for all the studied courses passed by the student since he joined to the University (see appendix B).

General assessment

The description of the level of scientific acquisition for the student during the period of his study at the university.

Study load

The sum of the Credit Hours that the student can register in a study semester, the top and low limit of the study load should be determined according to the executive rules of the university.

Executive Rules for Article 1

ADMISSION OF NEW STUDENTS

The following terms indicate the meanings assigned to them:

Academic record:

The record which shows the performance of the student including the studied courses, accredited hours, grades, semester average, annual average, accumulative average and academic warnings if any.

Academic Guide:

The faculty member and the like who is in charge to supervise, guide and follow up the student during his study.

The second phase examination:

A re-examination which held for student who fails in a number of the accredited hours which determined by the collage council among the annual courses assigned for health collage students, The student degree of failure in the first phase is substituted by the second phase degree provided that the student grade should not exceed acceptable (60) and he will given the symbol (D1).

Clinical session:

A period of time in which the student learns clinical cases (Pathological or not) in a specific specialization that every accredited hour should meet a week of practice.

Apology from study:

The discontinuation of the student study for his academic year or academic semester in which he registered relying on acceptable excuse and that will be considered as part of the period required for fulfilling the graduation requirements.

Postponement of study:

When the student doesn't register any courses in his academic year or academic semester he manages to postpone it upon the request of the student, the period of Postponement will not be considered as part of the period required for fulfilling the graduation requirements.

Discontinuation :

When the student doesn't register any courses in his academic year or academic semester and doesn't inform the university about that.

Termination of the record:

The termination of any relationship between the student and the university whether through dismissal, withdrawal or discontinuation.

The minimum limit of the study load:

The number of the accredited hours that student register during the study level, not less than (12) hours for the academic semester system and (20) hours for the academic year system. Regarding clinical stage in health collages the minimum limit of academic load should be (9) accredited hours taking into account the item (7/D) of the executive rules of articles (9-14).

The maximum limit of the study load:

The number of the accredited hours that student register during the study level, not more than (23) hours for the academic semester system and (40) hours for the academic year system.

Article 2:

The council of the University determines number of the students may be admitted the succeeding year, based on a proposal of the Senate of the Colleges and other related departments.

Article 3:

The following requirements have been stipulated for the admission of the new student:-

a)Must obtain a secondary school certificate or equivalent from inside or outside the Kingdom of Saudi Arabia.

b)The secondary school certificate should not be more than five years old and the council of the University may give exemption from this term if there are good reasons.

c) Should be with good conduct and behavior

d) Should successfully pass the interview conducted by the university council.

e) Should be medically fit

f) Should obtain approval from his employer allowing him to study if he is working at private or public sector.

g) Should fulfill any other terms fixed by the university council announced at the time of application.

Article 4:

The priority for applicants is for those students who comply with the all requirements according to their secondary school marks and interview level if required.

Executive Rules for Articles (2-4)

the deanship of admission and registration with the coordination of collages specify the procedures related to admission exams, personal interviews, appointments of receiving admission applications and announcing and informing the accepted students.

Beside the above conditions under article (3) the admitted student shall not be dismissed from another university for disciplinary reasons.

The priority of admission is for those students who comply with the all requirements according to their secondary school certificate that is in the same year of admission to the older until five years, and for eight years for enrollment.

each student in the university should have a university card to prove his personality, and the student should carry this card and present it upon the request especially, when he attends the theoretical lectures and practical lessons, and when he performs examinations or receiving rewards. In the case of missing the card and after investigation the reason of the missing, a new card is to grant for the student.

the deanship of admission and registration preserves a file for every student including all documents related to student admission, and statement of his educational, social and sport activities, also his academic record, any disciplinary sanctions toward him and any personal paper related to him.

8..1 STUDY SYSTEM

Article 5:

a- student should make gradual progress in his study according to the executive rules issued by the university council.

b- study plan shall be designed to consist of 8 levels at least for the university stage.

Article 6:

The Study at some Colleges may be on the basis of the full academic year in accordance with the basics and procedures stated by the university council, and the academic year is calculated by two levels.

System of Levels:

Article 7:

A study system in which the academic year is divided into two main semesters, and there may be a summer semester which forms the half of the main semester period. Graduation requirements are distributed into levels to obtain the degree according to the academic plan approved by the university council.

Executive Rules for Articles (5-7)

Beside what mentioned for Articles (5-7) the following rules shall be applied:

First: the study plan in health collages which follow the annual system should keep pace with the basis of the academic year with two study levels.

Second: the number of the levels in each collage is specified according to the collage accredited study plans.

Third: the collage study plans, study courses and accredited hours (obligatory – optional – free) are to be specified and distributed on the different study semesters, and each level has a number of accredited hours according to the accredited study plans.

Fourth: the academic load of the student is linked to the accumulative average provided that his average meets the minimum limit of the academic load as possible according the following table:

Accumulative average	The number of the accredited hours	
	Semester system	**Annual system**
Less than 2 out of 5	(12) hours maximum	**(20) hours maximum**
2 - less than 2.5	(15) hours maximum	**(25) hours maximum**
2.5 – less than 4	(19) hours maximum	**(35) hours maximum**
4 and more	**(23) hours maximum**	**(40) hours maximum**

Fifth: the councils of heath colleges specify the rules required for clinical sessions concerning their students, as follow:

the procedure of registering the students in these sessions every semester with the coordination of the deanship of admission and registration.

The conditions to convert from level into another in these sessions.

The conditions to sit in the final examinations of these sessions.

Dropping and Adding

Article 8:

The council of the university set the rules of registration, and dropping and adding of courses within the levels of the accredited study plans that insure the registration to the minimum limit of the academic load.

Executive Rules for Article (8)

First: the admission and registration deanship specifies the time table to the registration, and dropping and adding of courses.

Second: registration for the main semesters:

a-early registration: starts from the tenth week every semester and the registration is for the next semester.

b-confirming the registration: it is during the week which preceding the beginning of the academic semester except for health collages where it is upon the conditions of every collage.

c- canceling registration: the registration of the student is cancelled and he will be considered as discontinued of his study if he does not confirm his registration for all the courses before three days of the beginning of the study semester, and he will be considered as (a discontinued of the study because not confirming for the registration), and the student in this case may apply for postponing of his study

before two weeks of the beginning of this semester, and if he doesn't apply for postponing of his study, he will be considered as (a discontinued of the study).

Third: the student shall have the chance during the periods of early registration and confirming the registration to do dropping and adding in accordance with the accredited study plan of the collage and within the permissible limit of the academic load.

Fourth: registration for the summer semester:

1. the council of the collage specifies the courses that the collage wants to present in the summer semester, and that should be announced five weeks before the end of the second semester.

2.the maximum limit of the accredited hours that are permissible to register in the summer semester is (10) accredited hours, and the number of courses must not exceed (3) courses.

3. it is permissible for the student in the summer semester to add until the maximum limit of the accredited hours that are permissible to register in this semester, and he can drop any course in this semester upon the approval of his collage, and that should be in the first week of the semester.

4.the student can completely drop any course in the summer semester within the first three weeks of this semester upon the approval of the collage he follows.

Attendance and Apology of the study

Article 9:

The regular student should attend the lectures and practical courses. He would not be allowed to attend the final examination if his attendance percentage at the lectures and practical courses related to each course during the semester is less than (75%). The student who has not been allowed to attend the examinations due to the absence will be considered as fail in that course and his class work grade will be recorded and should be described as deprived (DN).

Article 10:

The college council or his authorized representative may allow the student to attend the final examination in case of submitting an acceptable excuse to the college council provided that the percentage of absence should not be less than (50%) of the lectures and practical lessons for the course.

Article 11:

The student who is absent of the final examination gains (zero mark) in that exam, and his grade value in that course is calculated based on the work points he achieved through the semester in that course.

Article 12:

If the student could not attend the final exam due to a compulsive circumstances (beyond the students' control), the college council may allow him to attend substitution exam within a period of time not exceeding the end of the next semester, and the student will be given the grade value he achieved after attending the substitute examination.

Article 13:

The student may apologize for not continuing in any semester without being considered as fail if he submits an acceptable excuse to the agency determined by the university council through a period determined by executive rules issued by university council, the student will be given the grade (W) This semester will be considered as part of the period required for fulfilling the graduation requirements.

The student may withdraw from a course or more in the semester according to the rules issued by the university council.

POSTPONEMENT OF STUDY

Article 14:

The student will be entitled to apply for postponing the study prior the end of the first week of the study due a reason acceptable to the Dean of the College provided that the postponement period should not exceed two consecutive semesters or three non-consecutive semesters throughout his stay at the University and his registration will be closed after that. The University Council may make an exception in necessary circumstances. The period of postponing will not be calculated in fulfilling the requirements of graduation.

Executive Rules for Articles (9-14)

The regular student should attend the lectures and practical courses. He would not be allowed to attend the final examination if his attendance percentage at the lectures and practical courses related to each course during the semester is less than (75%). The student who has not been allowed to attend the examinations due to the absence will be considered as fail in that course and his class work grade will be recorded and should be described as deprived (DN).

The college council or his authorized representative may allow the student to attend the final examination in case of submitting an acceptable excuse to the college council provided that the percentage of absence should not be less than (50%) of the lectures and practical lessons for the course.

The student may withdraw the educational semester without being considered fail if s/he provided an acceptable excuse to the admission and registration deanship by the recommendation of the college before five weeks of the final exams at least otherwise, the withdraw shall be according to the approval of the university council with the recommendation of the collage.

The apology of the academic year system is before the start of the final examinations of the second examinations at least by eight weeks, taking into account the calculation of the course results that student succeed in the semester.

Postponing of the study in the semester system lasts for the end of the second week of the study semester.

Postponing of the study in the annual system lasts for the end of the third week of the study semester.

The student may withdraw from a course or more according the following rules:

not to exceed the eighth week from the beginning of the academic semester for the semester system courses, and not to exceed the fifteenth week from the beginning of the academic year for the annual system courses, and the student will be given the grade (W1).

The number of the remain accredited hours shall not be less than (12) hours.

The deanship of admission and registration with the coordination of the collage manage the withdrawal cases which indicate for in items (a, b).

The specialized collage council or his authorized representative in the cases of withdrawal from the courses for whose load is less than the minimum limit (after doing the withdrawal), also, for those who were not able to register the minimum limit of the academic load.

Consent of the guardian is a must for female students in case of withdrawal from the semester.

First-year students of the collages of medicine, pharmacy and dentistry may not apologize, postpone and withdraw from a course, and the collage council may have an exception in that.

Female students, whose their husbands in a scholarship out of the kingdom and they accompany them, have an exception of postponing the study for consecutive five years maximum upon the approval of the collage council, and the female student should apply for that before the semester of postponement, and she should approve her accompaniment with her husband who is in a scholarship granted by the formal agencies. The female student whose period of postponement is more than five years is considered discontinued from study, and will be treated as a new student in case she wants to re- register at the university and the study units she had studied before will not be calculated. The case is the same with students who accompany their wives.

SUSPENSION OF STUDY

Article 15:

If the student discontinues his study for a semester without postponing, his registration will be closed. Regarding enrolled student, the registration of the enrolled student will be closed if she/he fails to attend all final examinations without an acceptable excuse.

Article 16:

The student is not considered discontinued from the semesters while he studies at another University as a visiting student.

RE-REGISTRATION

Article 17:

The student whose record has been terminated may apply for the restoration of his record under the same number before the suspension as per the following restrictions:-

Should submit the re-registration request during four semesters as from the closing date of the record.

The College Council and respective parties should approve the re-registration request submitted by the student.

If more than four semesters pass after the closing of the student's record he can apply as new student without referring to his previous academic record provided that all admission terms must be applied on him.

The re-registration shouldn't be done more than once. The university council – when necessary – can make exception for this matter.

The student should not have been dismissed academically.

Executive Rules for Article (17)

The Council of the university may approve the re-registration request

submitted by the student, even If he suspend more than four semesters after the closing of the student's record per the following restrictions:-

The suspension period must not exceed the period specified for the regular study.

The suspension should be for a valid reason accepted by the collage council.

The student should pass (50%) of the accredited hours.

His accumulated average must not less (2.5) out of (5).

Article 18:

The re-registration will not be allowed for the student whose record has been closed due to disciplinary or educational reasons and if it revealed that he had been dismissed for such reasons the record will be cancelled.

GRADUATION

Article 19:

The student will be graduated after fulfilling successfully the graduation requirements in accordance with the educational plan of the college provided that his accumulate average should not be less than accepted. The college council based on the recommendations from the respective department may determine suitable courses to be studied by the student for rising the accumulate average in case he passed all the courses but his accumulative average is less than the minimum.

Executive Rules for Article (19)

The student will be granted a certificate which shows the student's full name, university number, civil record number, place and date of birth, the collage, degree, specialization, grade after graduation, and the session of the university council provided by date that issued the approval of granting the degree for the student. The certificate shall be signed by the dean of admission and registration.

Issuing a replacement graduate certificate instead of the missing one per the following:

The student shall apply for the deanship of admission and registration to grant him a replacement graduate certificate instead of the missing one after announcement.

A seal with this words (a replacement of missing) should be put on every document issued after the missing.

3- when the students filful all the requirements of the graduation and his accumulative average is less than (2), s/he should register some courses upon the recommendation of the department council and the approval of the collage council or his authorized representative in order to rise his average and obtain the scientific degree according to his study plan.

DISMISSAL FROM THE UNIVERSITY

Article 20:

The student will be dismissed from the University in the following cases:

If he receives three warnings and above for low accumulative average (2 out of 5 or 4 out of 10), and the university council according to the recommendation of the council of the college may give a fourth chance to the student for rising his accumulative average by studying the available courses.

If he has not fulfilled the graduation requirements within maximum half of the period fixed for his graduation in addition to the period of the program. The council of the college may give an exceptional chance to the student for fulfilling the graduation requirements maximum not exceeding the double of the original period fixed for graduation.

The university Council due to exceptional cases may make an amendment for the students who are governed by the two previous items – a chance not exceeding two semesters.

Executive Rules for Article (20)

The summer semester is not within the semesters that warranties are granted for the student due to the average go down.

Student of health collages who registered in the annual system is to be dismissed from the University in case he could not raise his accumulative average to (2,00-5,00) after warning and giving him a chance for a full year to raise his accumulative average.

The deanship of admission and registration with the coordination of the collages execute the procedures of dismissing the student before the beginning of the next study semester.

The specialized committee studies the conditions which hinders the students and study exceptional cases for treatment the situations of the students according the provisions of the items (a,b) of the article (20) and perform the recommendations related to that.

Enrollment

Article 21:

The university council upon the proposal of the collages may apply the principle of study through enrollment in some of the collages and specializations that the nature of their study permits for that, and the university council sets the rules and procedures which organize that as follow:

The number of the accredited hours required for the graduation of the enrolled student shall not be less than the accredited hours required for the graduation of the regular student in specialization available for enrollment.

the enrolled student is to be treated as the regular student in term of admission, grades, transfer, dismiss and re-registration …etc, except for the lecture attendance.

The university council upon the proposal of the collages may specify the regulations required for the performance assessment of the enrolled students.

it should be provided in the academic record, graduation document and certificate that the student studied by enrollment.

Executive Rules for Article (21)

The collage council may transfer the student from the enrollment program into the regular program according to the annual rules specified for that.

The annual rules, in this case, are to be approved by the university president upon the proposal of the deanship of admission and registration.

the deanship of admission and registration shall inform the university collages about these rules after their accreditation and announcing by the university president in the annual agenda of the deanship.

8..2 EXAMINATIONS

Article 22:

The Council of the College will determine based on a proposal of the department, the mark for the semester works shall not be less than (30%) of the final grade of the course.

Article 23:

The semester works are calculated by one of the followings:-

(a) Oral or practical examinations and researches or class activities or all of them or some of them, and one written examination at least.

(b) Two written examinations at least.

Article 24:

The collage council that the course refers to- based on the recommendation of the department council-may include practical and oral exams in the final examinations, and specify the marks assigned for the final examinations.

Article 25:

The department council may based on a proposal from the faculty member who teach the course-may allow the student to complete the requirement of any course in the next semester and the mark of that course is to be recorded as incomplete (IC) and it is not included in the semester average or in the accumulative average, and it shall be included after fulfilling the requirements of that course. And if the student spent one semester without fulfilling the requirements of that course, the (IC) mark will be substituted to (F) and it is included in the semester and accumulative average.

Executive Rules for Articles (22-25)

The study plan of the collage specifies the marks assigned for the semester works and includes any practical or oral examination and the final examination, provided that, the mark of the semester works shall not be less than (30%) of the final grade of the course.

The article (25) from the regulation of study and examinations is not applied for students who do not attend the final examination.

Health collages that apply the annual plan system may held second phase examinations according to the rules specified by the collage council.

Rules required for courses which do not need examinations are to be specified in the study plan and given (NE,NP) symbols.

Article 26:

Courses of forums and research and courses that have practical or field tincture may be excluded from the provisions of the articles (22,23,24) or some of them, that is by a decision of the collage council

based on the recommendation of the department that the course refers to, and the collage council measure the achievement of the student in these courses.

Grades

Article 27:

If the study of the courses requires more than one semester, a grade of in progress (IP) is to be recorded, and the student shall be given the mark he has achieved after completing the study of the course, and if he did not fulfill the course in the fixed time, the department council may allow to be recorded (IC) grade at the student's record

Executive Rules for Article (27)

The student is given the grade (IP) for the course that needs more than one semester and the academic load is to be divided on the two semesters.

Article 28:

The grades which students achieve are calculated as the following:

Mark	Grade	Letter of grade	Value of grade Out of 5	Value of grade out of 4
95-100	Excellent +	A+	5,0	**4,0**
90-less than 95	Excellent	A	4,75	**3,75**
85-less than 90	very good +	B+	4,5	**3,5**
80-less than 85	Very good	B	4,0	**3,0**
75-less than 80	Good +	C+	3,5	**2,5**
70-less than 75	Good	C	3,0	**2,0**
65-less than 70	passed +	D+	2,5	**1,5**
60-less than 65	passed	D	2,0	**1**
Less than 60	**Fail**	**E**	**1,0**	**0**

Article 29:

The general grade of the accumulative average is to be recorded on the basis of the accumulative average as the following:

1- (Excellent) if the accumulate average is not less than 4,50 out of 5 or 3.5 out of 4.

2- (Very good) if the accumulate average is 3,75- less than 4,50 out of 5 or 2,75- less than 3.5 out of 4.

3- (Good) if the accumulate average is 2,75- less than 3,75 out of 5 or 1,75-less than 2,75 out of 4.

4- (Acceptable) if the accumulate average is 2,00- less than 2,75out of 5 or 1- less than 1,75 out of 4.

Article 30:

The first honor degree will be granted to the student scoring an accumulative average from (4.75) to (5.00) out of (5.00) or (3.75) to (4.00) out of (4.00) upon graduation. The second honor degree will be granted to the student scoring an accumulative average from (4.25) to less than (4.75) out of (5.00) or(3.25) to (3.75) out of (4.00) upon graduation.

To obtain the first or second honor degree the following should be provided:-

a)The student must not fail in any course that he has studied in the university or in other universities

b)The student must have fulfilled the graduation requirementswithin a period maximum equal to the average of the period between the minimum and maximum limit for staying in his College.

c)The student should have studied at the university he is going to graduate from more than 60% of the graduation requirements.

FINAL EXAMINATION PROCEDURES

Article 31:

The collage council may establish a committee to cooperate with departments in organizing the procedures of the final examinations, the task of this committee is to review the marks transcripts and deliver it to the specialized committee in a period not more than three days from the date of examination in any course.

Article 32:

The university collage may apply secrecy in the procedures of the final examinations.

Article 33:

the course instructor Sets exam questions and if necessary, upon the suggestion of the department president, they may be set by whom chosen by the collage council.

Article 34:

the course instructor should correct the final examinations papers of his course, and if necessary, the department president may assign a specialist or more with him to participate in the correction, also, the university council may deliver the correction to any body.

Article 35:

The person who corrects the final examination shall register the marks that students obtained in marks transcripts which prepared for that, and sign on them, then these transcripts are to be approved by the department president.

Article 36:

The student shall not be given more than two examinations in the same day and the university council may make an exception for that.

Article 37:

The student is not allowed to enter the examination after half hour of the beginning of the examination and he is not allowed to get out of the examination before half hour of the beginning of the examination.

Article 38:

Cheating, trying to cheat, breaking the instructions and the rules of conducting the examination are things expose the student to punishment according to the students' disciplinary regulations issued by university council.

Article 39:

The collage council that the course refers to – if necessary- may approve to re-correct the answer sheets in a period not exceed the beginning of the next semester.

Article 40:

The collage council - upon a recommendation of the concerned department - specifies the period of the written examination provided that, it will not be less than one hour and not more than three hours.

Article 41:

The university council sets the regulations regarding the final examinations procedures but without violation in the provisions related to articles (31-40).

Executive Rules for Articles (31-41)

First:

the marks including the mark of the semester works, the mark of the final examination and the final grade are to be registered in details by the teacher of the course in the prepared lists by the deanship of the admission and registration whether paper or electronic.

The accredited marks are sent by the concerned department to the collage dean in order to approve them, then to inform the collage council about the results.

The deanship of admission and registration is to announce the results after the end of the final examinations.

Second:

1-The student may apply to the dean of the collage or his authorized representative for re-correct his answer sheet within two weeks from announcing the results.

2- the collage council has the final decision about the student application with a period not to exceed the beginning of the final examinations of the second semester, also, the council may:

a- accept the application of the student or refuse it.

b-in case of accepting the application, the council specify the faculty member who is going to do re-correction.

c- after re-correcting the sheet, the council will reconsider it and the decision of the Council will be final.

8..3 TRANSFER

Transfer from a University to another

Article 42

The student may be transferred from outside the University based on the following restrictions:-

a) The student should have been studied at a recognized university

b) Should not be dismissed from the transferring university due to disciplinary or educational reasons.

c) The transferred student must meet the admission requirements of transfer which are determined by the university council.

Article 43:

The collage council is to equalize the courses that student studied outside the university upon the recommendation of the departments that present these courses, and the equalized courses are to be fixed in the student record, and not to be calculated in the accumulative average.

Article 44:

If it appears after the transfer of the student that he has been dismissed before due to disciplinary or educational reasons then his registry will be cancelled as from the effective date of his transfer to the University.

Article 45:

The student is to be transferred in any study semester from a university to another according to the announced procedures and time of the university that the student transferred to it, according the general regulations of transfer.

Transfer from a college to another within the university

Article 46:

The student may be transferred from one college to another within the university based on the restrictions determined by university council.

Article 47:

All courses that studied previously by the student, are to be fixed in the academic record of the student who transferred from a collage into another, that include grades, the semester and accumulative averages all over his study in the university.

Transfer from one specialization into another within the collage

Article 48:

After obtaining the consent of the Dean of the College the student may be transferred from one specialization to another inside the College in accordance with restrictions prepared by university council.

Article 49:

The student's academic registry must show all courses previously studied, including grades, semester and accumulative averages throughout the study in the university.

Executive Rules for Articles (42-49)

1- The collage council may accept the transfer of the student from another university according the following restrictions:

a- The student should have studied at least two semesters in his former university with (24) accredited hours in his academic record before the transfer.

b- He should not be discontinued of his study in the collage that he wants to transfer from.

c-his accumulative average shall not be less than (3.00) out of (5.00) or what equalize that in the collages of the university, for the health collages the accumulative average shall not be less than (3.75) out of (5.00).

d- The student should study not less than 50% of the graduation requirements in King Faisal University, and the collage council may make an exception in that.

e- The student should apply for transfer by at least five weeks before the beginning of the semester he wants to transfer in.

f-any other conditions specified by the collage council.

2- The collage council may approve the transfer applications from other collages inside the university according the following restrictions:

a- The student should have studied at least two semesters in his former university with (24) accredited hours in his academic record before the transfer.

b- He should not be discontinued of his study in the collage that he wants to transfer from.

c-his accumulative average shall not be less than the limit specified by the collage council, not less than (2) out of (5).

d- The student should apply for transfer by at least five weeks before the beginning of the semester he wants to transfer in.

e-Any other conditions specified by the collage council.

3- The students of health collages (medicine collage, dentistry collage and pharmacy collage) are to be transferred at the end of the first year to the other collages if they have got (3) out of (5) in the accumulative average of the courses which specified by the collage council according the approved plans of every collage and with the consideration of the item (2/c).

4- The transfer is allowed just for one time among the collages of the university during the whole period of the study.

5- In case of Transfer from one specialization into another within the collage the followings should be considered:

a- Meet the requirements of the specialization intended to transfer to.

b- The transfer should be just for one time during the whole period of the study.

c- Any other conditions specified by the collage council.

6- The collage council may make an exception regarding the transfer from one university into another, or from one collage into another for the female students who have exceptional circumstances due to the following restrictions:

a- The female student should complete a study semester in her university or her collage.

b- The female student should attach a formal document in her application to approve the humanitarian situation, the current place of residence and the need of transmission after the admission such as (the death of the guardian, divorce, marriage, retirement of the guardian and the transmission of the guardian out of her study place).

8..4 VISITING STUDENT

Article 50:

The visiting student is a student who studies some courses at another university, or at a branch of the university to which he belongs without being transferred. The courses he studied are accredited according to the following regulations

a- A prior consent must be obtained from the student's previous College allowing him to study as a visiting student.

b- The study should be at a recognized College or University.

c- The course studied by the student outside his university must be commensurate (equivalent) in terms of words to one of the courses containing in the graduation requirements.

d- If the visiting student study stands in one of the university branches that he belongs to, he will be treated in accordance with the Article (47).

e- The university council specifies the maximum limit of the accredited hours that might be calculated from outside the university for the visiting student.

f- The courses averages that are equalized for the visiting student will not be calculated within his accumulative average and the courses would be fixed in his academic record.

g- Any other conditions set by the university council.

Executive Rules for Article (50)

The student of King Faisal University who wishes to study as a visiting student in another university must take the followings into his consideration:

The student must have academic record at King Faisal University at least of two academic semesters at the College which he has joined before applying to study as a visiting student.

A prior consent must be obtained from the student's College allowing him to study as a visiting student and to determine the courses to be studied. The College may stipulate the issue of obtaining certain average for equalizing the course. The student would be given official letter by the Deanship of Admission and Registration Affairs for starting the study.

The maximum limit of the accredited hours allowed to be calculated from outside the university is (50%) of the graduation hours of the King Faisal University.

The student is considered as a visiting student for articles he register out of his collage campus.

The deanship of admission and registration shall give the visiting student who is out of the university an academic number during his period of study in the university.

9 Academic advising and counselling services

COCP students Advising and Counseling cell

Purpose: The purpose of the cell is to council the repeaters and students left with many courses in different years. Counselor customize the courses for registration during next semester for such students in consultation with them. This will help the students to complete all courses in confined time.

Roles and responsibilities of students advising and counseling cell

Counseling cell is responsible for providing educational guidance and helping students in solving personal problems.

Educating the students regarding prerequisites.

Assisting students in registering the courses by planning schedules and recommending courses.

Customizing the courses for registration for different types of students.

Process

Academic Affairs Committee will identify repeaters and students having many courses in different years.

Distribute the form to fill the required information like, courses completed and courses to be registered, professional and personal problem etc.

Arrange a meeting with the cell members.

Collect the duly filled and signed form and forward to students admissions and registration.

Student Counseling Services

Academic counselling and advisory is the responsibility of Academic affair committee in collaboration with Students Services Committee

All students are assigned to faculty members as “academic advisors” according to the length of contact with the faculty during a particular semester.

10 Complaints and grievances.

Consideration of appeals made by students:

11.1 Objectives of establishing a unit for dealing with students’ appeals:

1. The establishment of a University community founded on mutual cooperation.

2. Establish the principles of justice as a main pillar for building an ideal community in the University.

3. To protect the rights of students in accordance with the rules and regulations of the University, the Students’ Appeals Unit investigates and resolves the complaints from students to spread a culture of justice among them.

11.2 Steps of dealing with students’ appeals:

First: Appeals Regarding Marking exam Papers for a Second Time (Second Marking):

1. Within two weeks of informing the student about the exam results, s/he may appeal to the College Dean.

2. College Council finishes consideration of the appeal before the start of exams of the following semester. In case of upholding the appeal, the College Council assigns the faculty member who will perform the second marking for the exam paper.

3. After the second marking, the College Council considers the matter and takes the final Decision.

11.3 Second: Appeals against Decisions of Standing Committee on Student Discipline:

Students have the right to appeal against the following penalties:

1. Cancelling the student's exam in one course or more and giving them an F "fail" grade.

2. Denying the student taking the exam in one course or more and giving them an F "fail" grade.

3. Suspend the student from the University for one Semester or more.

4. Dismissal from the university.

11.4 How to appeal in these cases:

1. Student has the right to appeal to the University President within 15 days of being informed of the decision.

2. In case of receiving the appeal before the end of the specified period, the University President refers the appeal again to Standing Committee on Student Discipline to reconsider the case.

3. If the committee does not uphold the appeal, the matter is left to the University Council to take the final decision.

11 Appendix A "Program Study Plan"

The Pharm. D. program is a 5 year program, four years are spent in the campus and one year for clerkship in the hospitals. The graduate of the college gets a Doctor of Pharmacy (Pharm. D.) degree so that he can do his role as a clinical pharmacist in the hospitals and the governmental and community pharmacies as well as a distinguished researcher in the pharmaceutical sciences.

First Year

First Semester

Course No.	Course Title	Cr. Hr	Prerequisite
2030111	Pharmacy Orientation	2	--
2010111	Fundamentals of Pharmaceutics	2+1	--
2010112	Pharmaceutical Organic Chemistry-1	3+1	--
2020111	Physiology-1	2+1	--
2020112	Anatomy & Histology-1	1+1	--
2020113	Biochemistry-1	2	--
	University requirement	2	--
	Total	**18**	

Second Semester

Course No.	Course Title	Cr. Hr	Prerequisite
2010121	Physical Pharmacy	2+1	**Fund. Ph ceutics (2010111)**
2010122	Pharmaceutical Analytical Chemistry	2+1	**Ph. Organic chemistry-1 (2010112)**
2010123	Pharmaceutical Organic Chemistry-2	3	**Ph. Organic chemistry-1 (2010112)**
2020121	Physiology-2	2	**Physiology-1 (2020111)**
2020122	Anatomy & Histology-2	1+1	**Anatomy & Histology-1 (2020112)**
2020123	Biochemistry-2	2+1	**Biochemistry-1 (2020113)**
2010124	Pharmacology-1	2	**Physiology-1 (2020111)**
	Total	**18**	

Second Year

Third Semester

Course No.	Course Title	Cr. Hr	Prerequisite
2010211	Pharmacology-2	2+1	**Pharmacology-1 (2010124)**
2010212	Medicinal Chemistry-1	3	**Ph. Organic chemistry-2 (2010123)**
2020211	Pathophysiology-1	2	**Physiology-1 (2020111)**
2010213	Pharmacognosy	2+1	**Ph. Organic chemistry-2 (2010123) Ph. Analytical Chemistry 2010122)**
2020212	Clinical Biochemistry & Nutrition	2+1	**Biochemistry-2 (2020123)**
2020213	Molecular Biology	2	**Biochemistry -2 (2020123)**
	University requirement	2	**--**
	Total	**18**	

Fourth Semester

Course No.	Course Title	Cr. Hr	Prerequisite
2010221	Pharmacology-3	3	**Pharmacology-1 (2010124) Physiology-2 (2020121)**
2010222	Medicinal Chemistry-2	3	**Med Chem -1 (2010212)**
2010223	Pharmaceutical Dosage Forms	2+1	**Physical Pharmacy (2010121)**
2020221	Pathophysiology-2	2	**Physiology-2 (2020121) Anatomy & Histology -2 (2020122)**
2020222	Immunology	2	**Physiology-2 (2020121)**
2020223	Microbiology	3+1	**Pathophysiology-1 (2020211)**
2030221	Pharmaceutical Care-1	1	**Pharmacology-1 (2010124) Pharma Orientation (2030111)**
	Total	**18**	

Summer semester

Course No.	Course Title	Cr. Hr	Prerequisite
2030231	**IPPE-1(Introductory Pharmacy Practice Experience in Community Pharmacy) For 5 weeks, 160 hours**	**2**	**Pharmacology-2 (2010211) Pharmaceutical Care-1 (2030221)**

Third Year

Fifth Semester

Course No.	Course Title	Cr. Hr	Prerequisite
2010311	Pharmacology-4	3	**Pharmacology-1 (2010124) Immunology (2020223) Microbiology (2020222)**
2010312	Pharmaceutical Delivery System	2	**Ph Dosage Form (2010223)**
2010313	Medicinal Chemistry-3	2	**Med Chem -2 (2010222)**
2010314	Bio-pharmaceutics	2+1	**Pharmacology-2 (2010211) Pharmacology-3 (2010221)**
2030311	Therapeutics-1	4+1	**Pharmacology-2 (2010211)**
2030312	Pharmaceutical Care-2	2+1	**Ph care -1 (2030221)**
	Total	**18**	

Sixth Semester

Course No.	Course Title	Cr. Hr	Prerequisite
2030321	Therapeutics-2	4+1	**Pharmacology-3 (2010221) Therapeutics-1 (2030311)**
2030322	Pharmaceutical Care-3	2	**Ph. Care -2 (2030312)**
2030323	Institutional Pharmacy Practice	1	**Ph care -2 (2030312)**
2030324	First Aid and Emergency Medicine	1	**Physiology-2 (2020121) Ph care -2 (2030312)**
2030325	Research Methodology & Biostatistics	2+1	**Molecular Biology (2020213) Therapeutics-1 (2030311)**
2010321	Natural Products & Herbal Medicine	2	**Pharmacognosy (2010213)**
	Elective University Required Course	2	
2010322/ 2010323	*Electives* Industrial Pharmacy /Principles of Drug Design	2	**Ph Dosage Form (2010223) / Med Chem -3 (2010313)**
	Total	**18**	

Summer semester

Course No.	Course Title	Cr. Hr	Prerequisite
2030331	**IPPE-2Introductory Pharmacy Practice Experience in Institutional Pharmacy, for 5 weeks, 160 hours.**	**2**	**IPPE-1 (2030231) Inst Pharmacy Practice (2030323) Therapeutics-1 (2030311)**

Fourth Year

Seventh Semester

Eighth Semester

Course No.	Course Title	Cr. Hr	Prerequisite
2030411	Law & Ethics in Pharmacy Practice	1	**Ph orientation(2030111)** **Inst Pharmacy Practice (2030323)**
2030412	Therapeutics-3	4+1	**Pharmcology-3 (2010221)** **Therapeutics-2 (2030321)**
2030413	Drug Information Services	2+1	**Therapeutics-1 (2030311)** **Research methodology (2030325)**
2030414	Clinical Pharmacokinetics	2+1	**Biopharmaceutics (2010314)**
2030415	Parenteral Nutrition	1	**Clinical Biochem(2020212)**
2030416	Pharmaco-economics	1	**Research methodology (2030325)**
	Elective Islamic Course	2	**--**
	Total	**16**	

Course No.	Course Title	Cr. Hr	Prerequisite
2010421	Clinical Toxicology	2	**Pharmacology-4 (2010311)**
2030421	Therapeutics-4	4+1	**Pharmacology-4 (2010311)** **Therapeutics-3 (2030412)**
2030422	Pharmacy management	2	**Inst Pharmacy Practice (2030323)**
2030423	Pharm.D. Seminar	1	**Research methodology (2030325)**
2030424	Self care & Non prescription Drugs	2	**Ph Delivery system (2010312)**
2030425	Pharmaco-epidemiology	1	**Clinical Ph kinetics (2030414)** **DIS (2030413)**
2020421 /2030426	*Elective* Pharmaceutical Biotechnology /Pharmacogenomics:	2	**Molecular biology (2020213)** **Immunology (2020222)** **Biopharmaceutics (2010314)**
		15	

Summer semester

Course No.	Course Title	Cr. Hr	Prerequisite
2030431	Advanced Pharmacy Practice Experience-1 (APPE1)	5	
	Total	**5**	

Fifth Year

Ninth semester

Course No.	Course Title	Units				Pre
		Lectures	Practical	Cr. Hr	Cont. Hr	
2030511	Advanced Pharmacy Practice Experience-2 (APPE2)	0	15	15	120	
	Total	**0**	**15**	**15**	**120**	

Tenth semester

Course No.	Course Title	Units				Pre
		Lectures	Practical	Cr. Hr	Cont. Hr	
2030521	Advanced Pharmacy Practice Experience-3 (APPE 3)	0	15	15	120	
	Total	**0**	**15**	**15**	**120**	

12 Appendix B “Course Descriptions”

Courses' Description

12..1 First Year

1st Semester

Course Name	Pharmacy Orientation			توعية صيدلانية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/week	Lec.	Lab.	Tot.
	PP-1	2030111	2+0		2	-	2
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 1st year			Prerequisite	None		

Course Description:

This course will cover the definition of pharmacy and different areas of pharmacy profession and history of pharmacy, introduction to ancient drugs, ancient Egyptian, Greek and Roman medicine, Chinese and Indian medicine, Arab medicine in Spain and modern European medicine, history and global progress in pharmaceutical education, type of different dosage forms, methods for the preparation of drugs, introduction to pharmacopoeias, formularies, regulatory control, and drug management, medical and pharmacy terminology related to body systems needed for complete understanding of other courses, objectives, scope and requirements of Pharm.D. program, introduction to various terms like pharmaceutical care, medication therapy management, role of clinical pharmacist in community and health care setting, introduction to clinical pharmacy and role of clinical pharmacist in direct patient care as effective member of inter-professional team of health care providers, , introduction to various courses, compulsory and electives included in Pharm.D. program, mode of teaching, learning and training in Pharm.D. program, like concepts of inter-professional education and service learning in clinical pharmacy problem based learning, objective structured clinical exam (OSCE), institutional pharmacy training and experiential learning, college disciplinary rules and regulation for the examination.

Course Outcomes: Upon successful completion of this course the student will be able to:

A. Describe the history of pharmacy, pharmacy profession and pharmacy education.

B. Describe objectives, scope and requirement of Pharm.D. Program and role of pharmacist as member of Inter-professional health care system

C. Derive the meaning of medical words through analysis of prefixes, roots and suffixes.

Teaching Strategies:

1. Lectures.
2. Assignments:
3. Active learning**:** Discussions, , Library visits,

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30 %	0 %	10 %	50%

Textbooks:

1- Pharmacy: An Introduction to the Profession 3rd Edition by L. Michael Posey, Abir A. Kahaleh American Pharmacists Association; 3 edition (August 26, 2019) ISBN-10: 1582122776

2- Medical Terminology for Health Care Professionals PLUS MyMedicalTerminologyLab with Pearson eText --Access Card Code Package 9th Edition Pearson; 9 edition (July 6, 2017) ISBN-10**:** 0134746279

3- Pharmacy, What It is and How It Works, Kelly. Publisher; CRC Press; Ed. 3rd 2011

Reference Book:

1. Opportunties in Pharmacy Careers, Fred Gable, Publisher; McGraw-Hill, Ed. 1st 2003.
2. Making Medicines, Brief History Of Pharmacy And Pharmaceuticals, Stuart Anderson, Publisher; Pharmaceutical Press, Ed. 1st 2005.
3. Medical Terminology: A Short Course, Davi-Ellen Chabner BA MAT, Publisher: Saunders; Ed. 5th 2008.

Course Name	Fundamentals of Pharmaceutics			أساسيات الصيدلانيات			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 5	Lec.	Lab.	Tot.
	PS-1	2010111	2+1		2	3	5
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 1st year			Prerequisite	None		

Course Description:

Lectures: This course describes Introduction to pharmaceutics, various definitions parts of prescription, abbreviation, model prescription, controlled substances, labeling techniques, weighing and measuring for compounding extemporaneous preparation and related incompatibilities. It gives and introduction to various pharmaceutical dosage forms and basic guidelines such as solid, liquid, semisolids, suspensions and emulsions.

Practical: Standards for balances, weights and volumetric devices, calculation, compounding prescription, concentration and dilutions, pharmaceutical Incompatibilities, types of labels. Lab sessions will focus on solving actual, practical problems, thus building critical thinking and problem solving skills among the students

Course Outcomes:

After completion of the course, students will be able to:

- **A.** Describe and perform calculation and compounding of extemporaneous preparation.
- **B.** Define, analyze, and overcome any pharmaceutical incompatibilities.
- **C.** Explain parts of prescription and labeling requirements of the various products and controlled substances.

Teaching Strategies:

1. Discussion
2. Lectures
3. Home assignments
4. Experiential learning (Practical part).

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25 %	0%	40%

Textbooks:

1. Pharmaceutical Calculations edition. Howard C. Ansel, , Publisher; Lippincott williams & wilkins, Ed 16th 2018.
2. A practical guide to contemporary pharmacy practice, Judith E. T, Lawrence W. Davidow Publisher; Lippincott Williams & Wilkins. Ed. 3rd 2009**.**

Reference Book:

1. **Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems,** Ansel H.C. Allen L.V. Popovich N, Publisher; Williams and Wilkins, Ed 11th 2017

Course Name	Pharmaceutical Organic Chemistry-I			كيمياء عضوية صيدلية-١			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 6/week	Lec.	Lab	Tot.
	PS-2	2010112	3+1		3	3	6
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 1st year			Prerequisite	None		

Course Description:

Lectures: General introduction, nomenclature, bonding, structural isomerism, nomenclature and alkanes, stereochemistry and its biological applications, alkyl halides, free-radical reactions, alcohols, ethers, epoxides, sulfides and their pharmaceutical applications.

Practical: Practical sessions will consist of case based discussions, focusing on development of critical thinking and problem solving skills among students. Spectrometric Identification of different organic compounds (nuclear magnetic resonance, mass spectrometry and its applications in drug metabolism and infra red spectrophotometry) will be covered.

Course Outcomes:

After completion of this course the student will be able to:

A. Define and identify chemical structures, chemical reactions of organic compounds, free radicals and their biological hazards.
B. Define the various type of bonding and its biological applications.
C. Establish relationships between the chemistry of organic compounds and their pharmaceutical applications.
D. Utilize different spectrometric methods to elucidate the structure of organic compounds by interpretation of various spectra (Practical part)

Teaching strategies:

1. Lectures.
2. Active learning.
3. Problem solving.
4. Home assignments.
5. Spectral interpretations and data analysis (Practical part).

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25 %	0 %	40 %

Textbooks:

1. Organic Chemistry, Solomons and Fryhle, Publisher; John Wiley & Sons, Inc. Ed. 12th 2017
2. Spectrometric Identification of Organic Compounds, Robert M. Silverstein, Publisher; Wiley; Ed. 8th 2014

Reference Book:

1. Organic Chemistry, Fessenden and Fessenden, Publisher; Brooks Cole, Ed. 6th, 1998.

Course Name	Physiology-1			علم وظائف الأعضاء-١			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 5/ week	Lec.	Lab.	Tot.
	BMS-1	2020111	2 + 1		2	3	5
Track	☐ Pharmaceutical Sciences ■ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 1st year.			Prerequisite	None		

Course Description:

Lectures: Physiology of the cell, muscle and nerve (Resting membrane and action pot.-structure of sk. M.F, Simple M Twitch, tetanus & clonus, blood (Erythropoiesis, anemia, W.B.Cs, Coagulation, Blood grouping, immunity), autonomic and central nervous systems (receptors, sensations, vision and hearing, equilibrium), cardiovascular system (properties, heart rate, blood pressure, ECG, cardiac output, hemorrhage & Shock) and respiration (mechanics of breathing, surfactant, lung volume & capacities, regulation of breathing, O_2 –CO_2 transport by blood, hypoxia, cyanosis, artificial breathing).

Practical: Practical lab sessions will be limited to hematological indices, determination of blood coagulation time, blood grouping and rhesus factor, measurement of blood pressure (service learning) and ECG tracing identification. Appropriate time will be assigned to case studies on anemia, including sickle cell diseases, hemophilia and blood group matching.

Course Outcomes:

Upon successful completion of this course the student will be able to :

A- Discuss functions and mechanisms regarding human cells, muscle and nerve, blood, autonomic and central nervous systems, equilibrium, cardiovascular system and respiration.
B- Correlate the normal function with common physiological disorders.
C- Determine and interpret RBC count, WBC count, Hb content, hematocrite value, coagulation time, blood grouping, and measure blood pressure and identify different ECG tracing waves
D- Interpret the given report regarding lab test performed during the course
E- Measure blood pressure of normal subjects as part of community engagement (under supervision)

Teaching Strategies:

1. Lectures. 1.1.1.1.1..12
2. Discussions. 1.1.1.1.2..12

3. Data interpretation.
4. Home assignments.
5. Service learning: visits to community, Schools.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25%	0%	40%

Textbooks:

1. Textbook of Medical Physiology, Gyuton and John E. Hall, Publisher; Elsevier Health Sciences Division, Ed. 13th 2015.
2. Guyton and Hall: Physiology Review; Saunders, Ed. 3rd 2015

Reference Books:

2. Laboratory Atlas of Anatomy and Physiology, Eder, D.J. Publisher; Mosby Inc, Ed. 7th 2011

Course Name	Anatomy and Histology-1			علم التشريح والأنسجة-١			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 4/ week	Lec.	Lab.	Tot.
	BMS-2	2020112	1 + 1		1	3	4
Track	☐ Pharmaceutical Sciences ■ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 1st year.			Prerequisite	None		

Course Description:

Lectures: General features of bones; gross anatomy of organs, muscles, vessels and nerves; anatomy of limbs; development of human embryo and teratogenicity. microscopic anatomy of the cell and tissues; histology of cardiovascular system.

Practical: Lab sessions will consist of clinical case discussions followed by identification of relevant macro and micro-structures for applicable concepts for future clinical practice.

Course Outcomes:

Upon successful completion of the course the student should be able to:

A. Describe the gross anatomy of Human skeleton, organs, muscles, vessels and nerves with clinical correlation
B. Identify of histology of cells, tissues and organs.
C. Describe the basic human embryology with clinical correlation

Teaching Strategies:

1. Lectures
2. Discussions
3. Home assignments.
4. Case discussions, during Practical sessions

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25%	0%	40%

Textbooks:

1. Clinical Anatomy by regions, Richard S, Snell. Publisher; Lippincott Williams & Wilkins. Ed.10th 2017.
2. Junqueira's Basic Histology,Text and Atlas, Luiz Junqueira, Jose Carneiro. Publisher; McGraw-Hill Medical. Ed. 14th 2015.
3. Langmans Medical Embryology, Thomas W Sadler, Publisher; Lippincott Williams & Wilkins, Ed.13th 2014

Reference Books:

1. Grant's Atlas of Anatomy, Anne M.R. Agur, Arthur F. Dalley, Publisher; Lippincott Williams & Wilkins. Ed.14th 2016.
2. Neuroanatomy: An Illustrated Color Text, Alan R. Crossman David Neary. Publisher; Churchill Livingstone. Ed. 5th 2014

Course Name	Biochemistry-1			كيمياء حيوية-١			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/week	Lec.	Lab.	Tot.
	BMS-3	2020113	2		2	0	2
Track	☐ Pharmaceutical Sciences ■ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 1st year			Prerequisite	None		

Course Description:

Lectures: It is an introductory course that covers fundamental theoretical concepts of biochemistry and applications of biochemistry in life; the chemistry of biomolecules like carbohydrates, amino acids, proteins, nucleic acids, lipids and steroids; enzymes and enzyme regulation.

Course Outcomes:

Upon successful completion of this course the student will be able to:

A- Describe the chemistry of biomolecules including; carbohydrates, amino acids, proteins, lipids, steroids and enzymes.

B- Identify the role of biomolecules in structure and functions of body systems

Teaching Strategies:

1. Lectures
2. Discussions
3. Home and library assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30 %	0 %	10 %	50 %

Textbooks:

1. Lippincott's Biochemistry, Pamela C. Champe, Publisher; Lippincott Williams & Wilkins, Ed. 5th 2011
2. Harpers Illustrated Biochemistry Victor W. Rodwell Professor of Biochemistry David Bender (Author), Kathleen M. Botham .Peter J. Kennelly . P. Anthony Weil, McGraw-Hill Education Medical; 30 edition (January 8, 2015) ISBN-10: 0071825347 ISBN-13: 978-0071825344.

Reference Books:

1. Textbook of biochemistry: with clinical correlations, Thomas Devlin, Publisher; Wiley-Liss, Ed. 7th 2010
2. Lehninger Principles of Biochemistry, David L. Nelson, Publisher; W. H. Freeman. Ed. 6th 2012

Courses' Description

First Year

2nd Semester

Course Name	Physical Pharmacy			صيدلة فيزيائية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 5/week	Lec.	Lab.	Tot.
	PS-3	2010121	2+1		2	3	5
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 1st year			Prerequisite	2010111		

Course Description:

Lectures: This course describes fundamentals of physical pharmacy, physical properties of drug molecules, rheology, adsorption, surfactants, solubility, co-solvent, effect on solubility, dissolution, pH and buffering, concept of complexation, , thermodynamics, enthalpy and free energy, reaction kinetics, drug stability.

Practical: Lab hours will be utilized for case discussions to develop critical thinking and problem solving skills . Various topics covered will be: pH, pKa, density, viscosity, surface tension, flow properties of powder and adsorption. Mathematical problems will be used to enhance students skills for various pharmaceutical calculations related to pharmacy practice

Course Outcomes:

Upon successful completion of the course, students will be able to:

A. State the physicochemical properties of drug molecules, pH, and solubility.
B. Explain the theory and applications of surfactants, surface and interfacial phenomena, rheology, adsorption, dissolution, complexation and thermodynamics.
C. Apply information regarding physicochemical properties and stability of drug molecules in designing dosage forms.
D. Apply mathematical skills to pharmaceutical calculation.

Teaching Strategies:

1. Lectures
2. Discussions.
3. Home assignments.
4. Pharmaceutical calculations

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25 %	0%	40%

Textbook:

1- Martin's Physical Pharmacy and Pharmaceuticals Sciences, P. J. Sinko, Publisher; Lippincott Williams and Wilkins, Ed. 7th 2016

2- Applied Physical Pharmacy:Mansoor Amiji, Thomas J. Cook, Cary Mobley: Publisher: McGraw-Hill Education / Medical; 2 edition (May 16, 2014)

Reference Books:

1. Physical pharmacy physical chemical principles in the pharmaceutical sciences, Martin A N, Publisher; Lippincott Williams and Wilkins, Ed. 4th 1993.
2. Drug Stability: Principles and Practices 3rd Edition Jens T. Carstensen, Marcel Dekker Inc, 2000.

Course Name	Pharmaceutical Analytical Chemistry			كيمياء تحليلية صيدلية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 5/week	Lec.	Lab.	Tot.
	PS-4	2010122	2+1		2	3	5
Track	■ Pharmaceutical Sciences ☐ Biomedical Sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 1st year			Prerequisite	2010112		

Course Description:

Introduction and applications of chemical and physical methods of analysis of pharmaceutical substances and fundamental concepts and applications of quantitative analysis utilizing different methods of instrumental analysis. These methods include colorimetry, ultra-violet spectroscopy, fluorometry, flame photomtry and atomic absorption spectrophotometry and an introduction to chromatography.

Practical: Six practical sessions, which will include testing water samples of various localities of the region and drug analysis utilizing the above mentioned methods.

Course Outcomes:

Upon successful completion of this course the student will be able to:

A. Describe different chemical and physical methods of analysis.
B. Explain the technique and applications of different instrumental methods of analysis.
C. Perform quantitative analysis of drugs
D. Analyze water samples from various localities of the city

Teaching Strategies:

1. Lectures
2. Discussions
3. Service learning (Proposed)
4. Problem solving
5. Data interpretation.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	25%	25%	0%	40%

Textbooks:

1. Fundamentals of Instrumental Analysis, Douglas A. Skoog F. James Holler Stanley R. Crouch , 6th Edition, Brooks Cole. 2006.
2. Quantitative Chemical Analysis, Daniel C. Harris, Eighth Edition, W. H. Freeman Publisher; 2010.

Reference Books:

1. Chemical Analysis: Modern Instrumentation Methods and Techniques, Francis Rouessac and Annick Rouessac, 2nd Edition, Wiley, 2009.
2. Analytical Chemistry: Theory and Practice, R. M. Verma, 3rd Edition, CBS Publishers & Distributors, 2007.
3. Quantitative Chromatographic Analysis, Thomas Beesley, Benjamin Buglio, Raymond P.W. Scott Marcel Dekker, Inc. new York, , CRC Press; 2010.
4. Spectrometric Identification of Organic Compounds 8th Edition:Robert M. Silverstein, Francis X. Webster, David J. Kiemle , David L. Bryce: Wiley; 8 edition (September 29, 2014) ISBN-10: 0470616377ISBN-13: 978-047061637

Course Name	Pharmaceutical Organic Chemistry-2			كيمياء عضوية صيدلية-٢			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 3/week	Lec.	Lab.	Tot.
	PS-5	2010123	3+0		3	0	3
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 1st year			Prerequisite	2010112		

Course Description:

Lectures: Alkenes and alkynes, aromaticity and benzene, substituted benzene, aldehydes and ketones, carboxylic acids and derivatives (amides, anhydrides, esters), amines and heterocyclic compound, the effect of chemical properties on biological activity.

Course Outcomes:

Upon successful completion of this course the student will be able to:

A. Describe and identify the chemistry of different groups of organic compounds, heterocyclic compounds, aromatic compounds.

B. Co-relate the pharmacokinetic properties of the drugs to their chemical structures.

Teaching Strategies:

1. Lectures.
2. Active learning
3. Problem solving.
4. Home and library assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30 %	0 %	10 %	50 %

Textbooks:

3. Organic Chemistry, Solomons and Fryhle, Publisher; John Wiley & Sons, Inc. Ed. 12th 2017
4. Spectrometric Identification of Organic Compounds, Robert M. Silverstein, Publisher; Wiley; Ed. 8th 2014

Reference Book:

2. Organic Chemistry, Fessenden and Fessenden, Publisher; Brooks Cole, Ed. 6th, 1998.

Course Name	Physiology-2			علم وظائف الأعضاء-٢			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/ week	Lec.	Lab.	Tot.
	BMS-4	2020121	2 + 0		2	0	2
Track	☐ Pharmaceutical Sciences ■ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 1st year.			Prerequisite	2020111		

Course Description:

Lectures: Endocrinology: (pituitary, thyroid, parathyroid, reproductive system hormones etc), mechanism of hormonal action, types of hormones, regulation of hormone secretion & hormonal effect,. Digestion: GIT secretions & motility, liver function & gall bladder function, GIT disorders. metabolism: temperature regulation, basal metabolic rate, obesity. renal physiology:, body fluids and acid base balance.

Course Outcomes:

Upon successful completion of this course the student should be able to :

A- Describe the endocrine gland function and control of hormonal secretion with function, renal physiology with body fluid and mechanisms of acid-base balance, digestive system motility and secretions and liver functions ,metabolism**.**

B- Correlate the basic physiological function with endocrine, renal, metabolic and GIT disorders.

Teaching Strategies:

1. Lectures .

2. Discussions.

3. Home and library Assignments.

4. Case studies.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30 %	0%	10%	50%

Textbooks:

1. Textbook of Medical Physiology, Gyuton and John E. Hall, Publisher; Elsevier Health Sciences Division, Ed. 13th 2015.
2. Guyton and Hall: Physiology Review; Saunders, Ed. 3rd 2015

Reference Books:

3. Laboratory Atlas of Anatomy and Physiology, Eder, D.J. Publisher; Mosby Inc, Ed. 7th 2011

Course Name	Anatomy and Histology-2			علم التشريح والأنسجة-٢			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 4/ week	Lec.	Lab.	Tot.
	BMS-5	2020122	1 + 1		1	3	4
Track	☐ Pharmaceutical Sciences ■ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 1st year.			Prerequisite	2020112		

Course Description:

Lectures: General features and anatomy of central and autonomic nervous systems; development of human embryo and teratogenicity. Microscopic anatomy of the lymphoid, digestive, respiratory systems, urinary, endocrine, reproductive and integumentary system.

Practical: Lab sessions will consist of clinical case discussions followed by identification of relevant macro and micro-structures for applicable concepts for future clinical practice

Course Outcomes:

Upon successful completion of the course the student should be able to:

A. Describe the structures of human organs, respiratory, digestive, genito-urinary and endocrine system with clinical correlation
B. Identify the histology of tissues and organs.
C. Describe basic human embryology with clinical correlation

Teaching Strategies:

1. Lectures
2. Discussion
3. Home assignments.
4. Case discussion during Practical sessions

.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25%	0%	40%

Textbooks:

4. Clinical Anatomy by regions, Richard S, Snell. Publisher; Lippincott Williams & Wilkins. Ed.10th 2017.
5. Junqueira's Basic Histology,Text and Atlas, Luiz Junqueira, Jose Carneiro. Publisher; McGraw-Hill Medical. Ed. 14th 2015.
6. Langmans Medical Embryology, Thomas W Sadler, Publisher; Lippincott Williams & Wilkins, Ed.13th 2014

Reference Books:

3. Grant's Atlas of Anatomy, Anne M.R. Agur, Arthur F. Dalley, Publisher; Lippincott Williams & Wilkins. Ed.14th 2016.
4. Neuroanatomy: An Illustrated Color Text, Alan R. Crossman David Neary. Publisher; Churchill Livingstone. Ed. 5th 2014

Course Name	Biochemistry-2			كيمياء حيوية-٢			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 5/week	Lec.	Lab.	Tot.
	BMS-6	2020123	2+1		2	3	5
Track	☐ Pharmaceutical Sciences ■ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 1st year,			Prerequisite	2020113		

Course Description:

Lectures: Metabolic pathways of biomolecules including; carbohydrates, lipids, steroids, proteins, their regulation and disorders of metabolism related to these biomolecule .

Practical: 50% of practical lab sessions will consist of discussion sessions, where students will discuss, interpret and reflect on the given lab report of biochemical tests, included in the course. Practical exam will also consist of 50% lab practical and 50% case scenarios with lab reports to be interpreted

Topics for practical sessions Knowledge about basic lab techniques with special reference to spectrophotometry. Analysis of normal and abnormal constituents of blood and urine (renal functions) including glucose, urea, creatine, creatinine, bilirubin and proteins.

Course Outcomes:

Upon successful completion of the course the student will be able to:

A- Describe the metabolic pathways and regulation of carbohydrates, proteins, lipids and steroids

B- Explain the alteration in carbohydrates, proteins, lipids and steroid metabolism as a result of disease.

C- Interpret lab results of given samples after analysis.

Teaching Strategies:

1. Lectures
2. Discussion.
3. Problem solving, Data interpretation
4. Case Study with Clinical Applications
5. Home assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25 %	0 %	40

Textbooks

1 Harper's illustrated Biochemistry, Robert K. Murray, Publisher; The McGraw-Hill Companies, Ed. 30th 2015.

2 Lubrt Stryer's Biochemistry, Jeremy Mark Berg, Lubert Stryer, Publisher; W. H. Freeman, Ed. 8th 2015

3 Lippincott's Biochemistry, Pamela C. Champe, Publisher; Lippincott Williams & Wilkins, Ed. 5th 2011.

Reference Books:

1. Lehninger Principles of Biochemistry, David L. Nelson, Publisher; W. H. Freeman. Ed. 6th 2012

Course Name	Pharmacology-1			علم الأدوية-١			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/ week	Lec.	Lab.	Tot.
	PS-6	2010124	2+0		2	0	2
Track	■ Pharmaceutical Sciences ☐ iomedical sciences ☐ harmacy Practice ☐ Elective course . ☐ niversity requirement						
Level	2nd Semester, 1st year			Prerequisite	2020111		

Course Description:

Lectures: Introduction to pharmacology, its history and its subdivisions; drugs and their origin, routes of drug administration, general principles in pharmacology: drug absorption, distribution, metabolism: enzyme induction and inhibition, elimination, excretion and clearance of drugs; essentials of drug action, nature of drug receptors and drug receptor interactions with signaling mechanisms, concept of agonist-antagonist and their types, dose response relationships, efficacy, potency and therapeutic index, variation in drug responses., adverse drug reactions;

introduction of autonomic nervous system, synthesis and metabolic pathways of neurotransmitters, cholinergic and adrenergic transmission and autonomic receptors; cholinergic, anticholinergic, adrenergic and antiadrenergic drugs, ganglionic and neuromuscular blockers, autacoids

Course Outcomes:

After completion of the course the student will be able to

A, Define, identify and describe the basics of pharmacology including:

a) General principles of pharmacodynamics

b) General principles of pharmacokinetics

B. Apply the concepts of this course in describing the system based pharmacology courses in a comprehensive manner

C. Apply the general principles of pharmacology to predict or interpret them in the clinical situations.

Teaching Strategies:

1. Lectures.
2. Discussions
3. Problem solving.
4. Case studies
5. Home and library assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	30%	0%	10%	50%

Textbooks:

1. Basic and Clinical Pharmacology Bertram Katzung, Susan Masters, and Anthony Trevor, Publisher; Lange Basic Science, Ed. 14th 2017.
2. Katzung & Trevor's Pharmacology Examination and Board Review, (Katzung & Trevor's Pharmacology Examination & Board Review) 11th Edition 2015
3. Rang & Dale's Pharmacology, Humphrey P. Rang, Maureen M. Dale, Publisher; Churchill Livingstone, Ed. 8th 2015

Reference Books:

1. Goodman and Gilman's The Pharmacological Basis of Therapeutics, Laurence Brunton, Bruce Chabner, Bjorn Knollman, Publisher; McGraw-Hill, Ed. 13th 2017.

Courses' Description

12..2 Second Year

Semester-1

Course Name	Pharmacology-2			علم الأدوية-٢			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 5/week	Lec.	Lab.	Tot.
	PS-7	2010211	2+1		2	3	5
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 2nd year			Prerequisite	Pharmacology-1 (2010124)		

Course Description:

Lectures: The students shall be provided with knowledge of the principles of cardiovascular, GIT, and respiratory drug actions, establishing an adequate scientific background when using such drugs and to be critical in coping with new drugs in their future practice. They will also be able to apply an essential knowledge base of information about each cardiovascular, GIT, and respiratory prototype drug for a better correlation of current practices in pharmacy and therapeutics. This includes the following important groups of drugs:

Drugs used in treatment of hypertension, angina, heart failure and cardiac arrhythmias, drugs used in urogenital system, diuretics, drugs used in treatment of thromboembolic diseases, bleeding disorders as well as anemia, dyslipidemias, and drugs used in treatment of GIT, and respiratory diseases.

Practical: Simulation lab sessions to strengthen the concepts of mode of drug actions. Case studies involving the drugs included in the course.

Course Outcomes:

Upon successful completion of this course, the student will be able to:

A. Describe the pharmacodynamics and pharmacokinetics of drugs acting on various organ systems including:
   a) Cardiovascular system, renal system, as well as blood and dyslipidemias.
   b) GIT. C) Respiratory system.
B. Apply this knowledge in the specific clinical situations in identifying the problem.
C. Analyze the related clinical problem and suggest a solution for it.
D. For simulation lab sessions: Analyze the response of various drugs.
E. For case studies: discuss rational selection of drugs bases upon disease processes, as well as the most common drug adverse reactions and interactions.

Teaching Strategies:

1. Lectures. Discussions, Problem solving, Case studies, Home and library assignments.
2. Experiential learning (Practical part).

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	25%	25%	0%	40%

Textbooks:

4. Basic and Clinical Pharmacology Bertram Katzung, Susan Masters, and Anthony Trevor, Publisher; Lange Basic Science, Ed. 14th 2017.
5. Katzung & Trevor's Pharmacology Examination and Board Review, (Katzung & Trevor's Pharmacology Examination & Board Review) 11th Edition 2015
6. Rang & Dale's Pharmacology, Humphrey P. Rang, Maureen M. Dale, Publisher; Churchill Livingstone, Ed. 8th 2015

Reference Books:

1. Goodman and Gilman's The Pharmacological Basis of Therapeutics, Laurence Brunton, Bruce Chabner, Bjorn Knollman, Publisher; McGraw-Hill, Ed. 13th 2017.

Course Name	Medicinal Chemistry-1			كيمياء دوائية-١			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 3	Lec.	Lab.	Tot.
	PS-8	2010212	3+0		3	0	3
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 2nd year			Prerequisite	Pharmaceutical Organic Chemistry-2)2010123		

Course Description:

Lectures: This course provides an introduction to drug actions and the chemistry and pharmacological activity of drugs acting on the autonomic nervous system and cardiovascular system. The following topics will be addressed: introduction to medicinal chemistry, drug action on enzymes, drug action on receptors, drug development, quantitative structure-activity relationship, drugs acting on autonomic nervous system, and cardiovascular system (cardiotonics, anti-arrhythmics, vasodilators, antihypertensive, anti hyperlipedemic, drugs affecting blood and diuretics).

Course outcomes:

After completion of this course, the student will be able to:

A. Explain the concept of medicinal chemistry and its role in drug discovery.
B. Describe the chemistry of different classes; such as adrenergic, antiadrenergic, cholinergic, anticholinergic, antianginal, antihypertensive, antiarrhythmic, and diuretics.
C. Correlate the chemical structure of various classes of drugs to their biological activity.
D. Describe pharmacodynamic and pharmacokinetic properties of various classes of drugs in relation to their chemical structure

Teaching Strategies;

1. Lectures. ***2.1.1.1.1..12***
2. Discussion. *2.1.1.1.2..12*

3. Home and library assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	30%	0%	10%	50%

Textbooks:

1. Essentials of Foye's Principles of Medicinal Chemistry:Thomas L. Lemke PhD S. William Zito PhD, Victoria F. Roche PhD David A. Williams PhD. LWW; First edition (June 14, 2016) ISBN-10: 1451192061ISBN-13: 978-1451192063
2. An Introduction to Medicinal Chemistry, Graham L. Patrick, Publisher; Oxford University Press Inc, New York, Ed. 5th 2013.
3. Principles of Medicinal Chemistry, T. L. Lemke, , David A Williams, Victoria F Roche, S. William Zito, Wolters Kluwer, Publisher; Lippincott Williams and Wilkins, Ed. 7th 2013.

Reference Books:

1- Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry. John H. Block, John M. Beale, Jr. Publisher; Lippincott Williams and Wilkins, Ed. 12th 2010
2- Medicinal Chemistry: An Introduction T.B., G. Thomas; Publisher; John Wiley & Sons Ltd. Ed. 2nd 2008 (2011)

Course Name	Pathophysiology-1			علم فسيولوجيا الأمراض-١			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/ week	Lec.	Lab.	Tot.
	BMS-7	2020211	2 + 0		2	0	2
Track	☐ Pharmaceutical Sciences ☐ Elective course			■ Biomedical sciences ☐ University requirement	☐ Pharmacy Practice		
Level	1st Semester, 2nd year.			Prerequisite	(Physiology-1) 2020111		

Course Description:

Lectures: Physiological basis of pathology and etiology of diseases. Inflammation and its process, cell cycle. Cellular disturbances: degeneration; regeneration and repair. Basics of neoplasm and metabolic diseases. Diseases of the cardiovascular system, diseases of the respiratory system Dermatological and sexually transmitted diseases. Parasitic and microbial diseases.

Course Outcomes:

After completion of the course, the student will be able to:

A- Describe the physiological bases of pathology of the cell, the pathophysiological basis of inflammation, the basis of neoplasia, metabolic diseases, cardiovascular diseases, respiratory disorders, skin and sexually transmitted diseases.

B- Correlate the disease process with diagnosis for various treatment options.

Teaching Strategies:

1. Lectures.
2. Discussions
3. Problem solving.
4. Case studies
5. Home and library assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30 %	0%	10%	50%

Textbooks:

1. Pharmacotherapy A Pathophysiologic Approach, Joseph T. Dipiro, Robert L. Talbert, Michael Posey, Publisher; Appleton and Lange, Ed. 10th 2016
2. Handbook of Pharmacotherapy: 10th Ed 2017
3. Pathophysiology-Concepts of Altered Health States, Carol Mattson Porth, Publisher; Appleton and Lange Ed. 9th 2013.

Reference Books:

1. Essentials of Pathophysiology for Pharmacy, M.M. Zdanowikz , Publisher; CRC Press Pharmacy education series, Ed. 1st 2002Pathophysiology: Altered Regulatory Mechanisms in Disease, Edward D. Forhlich, Publisher; Lippincott Company, Philadelphia, Ed. 2nd 2005.

Course Name	Pharmacognosy			عقاقير			
Course Information	Course Code	Course No	Credit Hours	Contact Hours5/week	Lec.	Lab.	Tot.
	PS-9	2010213	2+1		2	1	3
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective courses ☐ University requirement						
Level	1st Semester, 2nd year			Prerequisite	2010123, 2010122 Ph.Org.Chem; Ph.Anl.Chem		

Course Description:

Lectures: An introduction to Pharmacognosy, Drug evaluation and identification of adulterants. Study of selected drugs of natural origin, leaves, flowers, barks, woods, seeds, fruits, herbs, roots and rhizomes. The study of each organ includes definition, collection, constituents, and diagnostic elements, chemical tests for identity, purity and uses.

Practical: Practical hours will be used for group discussions, presentations and case based studies on usage of natural products among local citizens and health profession and its importance in different diseases.

Course Outcomes:

At the end of course, the students will be able to

A. Describe the main drugs obtained from natural sources, their classifications, indications, and side effects etc.
B. Identify and classify natural drugs from the plant kingdom as well as their proper collection, storage and marketing according to official texts.
C. Describe the herbal drugs used in general population and in the health profession

Teaching Strategies:

1. lectures
2. Tutorials, Discussions
3. Problem solving
4. Home and library assignments

Grading Plan	Quizzes	Midterm	Assignments/ presentations/participation	Assignments/ projects	Final Exam
	10%	25%	15%	0%	50%

Text Books:

1. Trease & Evans' Pharmacognosy, William Charles Evans, Saunders Ltd.16th ed 2009.
2. Medicinal Natural Products: A Biosynthetic Approach Paul M. Dewick . Wiley; 3rd edition, 2009
3. Botany: An introduction to Plant Biology, Ed. 3rd 2008.

Reference Books

1. Fundamentals of Pharmacognosy & Phytotherapy, Micheal Henrich, Joanne Burnes, Simmon Gibbons, Elizabeth Williamson, Pub;isher; Churchill living stone Ed 2nd , 2012

Course Name	Clinical Biochemistry and Nutrition			الكيمياء الحيوية السريرية والتغذية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 5/week	Lec.	Lab.	Tot.
	BMS-8	2020212	2+1		2	3	5
Track	☐ Pharmaceutical Sciences ■ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 2nd year			Prerequisite	2020123 (Biochemistry-2)		

Course Description:

Lectures: The course deals with clinical aspects of hemoproteins, xenobiotics, free radicals, antioxidants and prostaglandins. Nutrition and disorders of nutrition - starvation and obesity will be covered. In addition the course will also cover clinical enzymology, vitamins and minerals. The course will emphasize on biochemical investigations and laboratory findings of diseases through case studies that cover most of the common diseases.

Practical: Investigation of biomedical changes associated with the metabolic diseases - assessment of liver functions in form of estimation of serum levels of GPT, GOT, albumin, total and direct bilirubin; assessment of lipogram in form of estimation of serum levels of total lipids, triglycerides, cholesterol, HDL and LDL; determination of blood levels of glucose and uric acid.

Course Outcomes:

After successful completion of the course the student will be able to:

A- Describe the biochemical changes occurring in the human body under pathological condition.
B- Identify the inter-relationship between nutrition, drugs and disease.
C- Analyze and Interpret the laboratory data of liver functions, assessment of lipid profile and other blood chemistries for diagnosis, therapeutic planning and outcomes of therapy

Teaching Strategies:

1. Lectures
2. Discussion on case Study with Clinical Applications
3. Problem solving, Data interpretation
4. Home assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25 %	0 %	40 %

Textbooks:

1- Clinical Chemistry, William J. Marshall and Stephen K. Bangert, Publisher: Mosby, 8th Ed. 2016
2- Understanding Normal and Clinical Nutrition, Sharon Rady Rolfes, Kathryn Pinna and Ellie Whitney Publisher; Brooks Cole, Ed. 11th 2017.
3- Clinical Nutrition, Michael J. Gibney, Marinos Elia, Olle Ljunggvis and Julie Dowsett, Publisher; Wiley-Blackwell, Ed. 2nd 2013

Reference Books:

1- Nutrition and Diagnosis Related Care, Sylvia Escott-Stump, Publisher: Lippincott Williams & Wilkins, Ed. 8th 2015.
2- Modern Nutrition in Health and Disease, Maurice E. Shils, Moshe Shike, A. Catharine Ross, Benjamin Caballero and Robert J. Cousins, Publisher: Lippincott Williams & Wilkins, Ed. 11th 2012.

Course Name	Molecular Biology			علم الأحياء الجزيئية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/week	Lec	Lab	Tot
	BMS-9	2020213	2+0		2	0	2
Track	☐ Pharmaceutical Sciences ■ Biomedical sciences ☐ harmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 2nd year			Prerequisite	2020123 (Biochemistry-2)		

Course Description:

Lectures: Molecular biology methods are used extensively in modern day drug discovery, research and development, and diagnostics. this course is intended to provide background knowledge of molecular biology to future clinical pharmacists. the course includes; cell structure and functions, mitosis and meiosis, chromosomes to DNA, intracellular communications and mechanisms of signal transduction, nucleotides and nucleic acids, DNA and its organization in the nucleus, information flow in the cell, DNA replication and its inhibitors, DNA repair mechanisms, eukaryotic and prokaryotic replication, gene expression and its control. Transcription and its control, genetic code and mutations, protein synthesis and its inhibitors, recombinant DNA techniques and introduction to bioinformatics.

Course outcomes:

A Discuss the structure and functions of various nucleotides and nucleic acids
B Describe various molecular processes of DNA replication, transcription and translation
C Discuss mutations and their likely outcome and express various DNA repair mechanisms
D Identify inhibitors of DNA replication, transcription and translation and their use in clinical practice .
E Apply the techniques being used in the field of biotechnology

Teaching Strategies:

1. Lectures
2. Discussion.
3. Problem solving, Data interpretation
4. Case Study with Clinical Applications
5. Home and library Assignments

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	30%	0 %	10%	50%

Textbooks:

1. Molecular Biology: Genes to Proteins, Burton E. Tropp, David Freifelder, Publisher; Jones & Bartlett Learning, Ed. 4th 2011.
2. Molecular Biology and Biotechnology: Ralph Rapley, David Whitehouse; Royal Society of Chemistry; 6th ed. 2015

Reference Books:

1. Lewin's Genes X, Jocelyn E. Krebs, Elliott S. Goldstein, Stephen T. Kilpatrick, Publisher; Jones & Bartlett Publishers, Ed.12th 2017.
2. Molecular Cell Biology, Harvey Lodish, Arnold Berk, Chris A. Kaiser, Publisher; W. H. Freeman; Ed. 8th 2016.
3. Molecular and Cell Biology For Dummies, Rene Fester Kratz , Publisher: For Dummies; Ed. 1st 2009.
4. Fundamental Molecular Biology, Lizabeth A. Allison, Publisher: Wiley-Blackwell; Ed. 1st 2007.
5. Molecular Biology made simple and fun, David P. Clark, Lonnie D. Russell, Publisher: Cache River Press; Ed. 4th 2010.

Courses' Description

Second Year

2nd Semester

Course Name	Pharmacology-3			علم الأدوية-٣			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 3/week	Lec.	Lab.	Tot.
	PS-10	2010221	3+0		3	0	3
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 2nd year			Prerequisite:Physiology-2, Pharmacology-1 2020121,2010124			

Course Description:

Lectures: The students shall be provided with knowledge of the pharmacokinetic and pharmacodynamic principles governing the drug actions, adverse drug reactions and drug interactions, both in clinical pharmacy practice as well as in basic and clinical research in the area of pharmacology. This includes the following important groups of drugs:

CNS acting drugs (antipsychotic, antidepressants, anxiolytic, sedative and hypnotic agents), drugs used in parkinsonism and other movement disorders, Alzheimer's disease, epilepsy, local and general anesthetics, drugs of abuse and opioid analgesics. Nonsteroidal anti-inflammatory drugs and drugs used in rheumatoid arthritis and gout, hormonal drugs (pituitary hypothalamic, corticosteroids male and female sex steroids, contraceptive and fertility drugs), and drugs acting on bone and mineral homeostasis,

Course Outcomes:

Upon successful completion of this course the student will be able to:

A. Describe the pharmacodynamics and pharmacokinetics of:
   a) Drugs acting on central nervous system
   b) Drugs acting on Endocrine system
   c) Anti-inflammatory and antipyretic drugs

B. Apply this knowledge in the specific clinical situations in identifying the problem.

C. Analyze the related clinical problem and suggest a solution for it

Teaching Strategies:

1. Lectures
2. Discussion.
3. Problem solving,
4. Case Study with Clinical Applications
5. Home and library assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	30%	0%	10%	50%

Textbooks:

7. Basic and Clinical Pharmacology Bertram Katzung, Susan Masters, and Anthony Trevor, Publisher; Lange Basic Science, Ed. 14th 2017.
8. Katzung & Trevor's Pharmacology Examination and Board Review, (Katzung & Trevor's Pharmacology Examination & Board Review) 11th Edition 2015
9. Rang & Dale's Pharmacology, Humphrey P. Rang, Maureen M. Dale, Publisher; Churchill Livingstone, Ed. 8th 2015

Reference Books:

1. Goodman and Gilman's The Pharmacological Basis of Therapeutics, Laurence Brunton, Bruce Chabner, Bjorn Knollman, Publisher; McGraw-Hill, Ed. 13th 2017.

Course Name	Medicinal Chemistry-2			كيمياء دوائية-٢			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 3/week	Lec.	Lab.	Tot.
	PS-11	2010222	3+0		3	0	3
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ harmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 2nd year			Prerequisite	Medicinal Chemistry-1 2010212		

Course Description:

Lectures: This course enables the student to understand the medicinal chemistry of hormones and drugs acting on the central nervous system. The following topics will be covered in detail:, chemistry, mode of action and metabolism of drugs acting on the central nervous system such as analgesics, anaesthetics, psychotropics, anti-epileptics and anti-Parkinsonians, non-steroidal anti-inflammatory drugs, antihistaminics, local anesthetic agents, prostaglandins, steroidal and non-steroidal hormones. Drugs acting on endocrine system such as adrenocorticoids, oral hypoglycemic drugs, and anti-thyroid will be covered accordingly.

Course Outcomes:

After completion of this course, the student will be able to:

A. Describe the functions of different brain structures in relation to molecular mechanisms of actions of centrally acting drugs.
B. Identify various pharmacokinetic and pharmacodynamic properties of specific drug classes mentioned in the courses (such as drugs acting on the central nervous system, hormones and oral anti-diabetic drugs) in relation to their chemical structure.
C. Correlate chemical structure to biological activity of the mentioned classes of drugs.

Teaching Strategies:

1. Lectures. ***2.1.1.1.3..12***
2. Discussion. *2.1.1.1.4..12*

3. Home and library assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	30%	0%	10%	50%

Textbooks:

1. Essentials of Foye's Principles of Medicinal Chemistry:Thomas L. Lemke PhD S. William Zito PhD, Victoria F. Roche PhD David A. Williams PhD. LWW; First edition (June 14, 2016) ISBN-10: 1451192061ISBN-13: 978-1451192063
2. An Introduction to Medicinal Chemistry, Graham L. Patrick, Publisher; Oxford University Press Inc, New York, Ed. 5th 2013.
3. Principles of Medicinal Chemistry, T. L. Lemke, , David A Williams, Victoria F Roche, S. William Zito, Wolters Kluwer, Publisher; Lippincott Williams and Wilkins, Ed. 7th 2013.

Reference Books:

1- Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry. John H. Block, John M. Beale, Jr. Publisher; Lippincott Williams and Wilkins, Ed. 12th 2010

2- Medicinal Chemistry: An Introduction T.B., G. Thomas; Publisher; John Wiley & Sons Ltd. Ed. 2nd 2008 (2011)

Course Name	Pharmaceutical Dosage Forms			أشكال الجرعات الصيدلانية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 5/week	Lec.	Lab.	Tot.
	PS-10	2010223	2+1		2	3	5
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 2nd year		Prerequisite	2010121(physical Pharmacy)			

Course Description:

Lectures: This course covers the design and formulation of dosage forms, including liquids (elixirs, iodine solution, gargle, mouth wash), semisolid dosage forms (ointments, creams, gels, suppositories) and solid dosage forms (powders, tablets, capsules), emulsions, suspensions, parenteral preparations from raw materials, methods of preparation and quality control tests.

Practical: Seven of the practical sessions will be utilized for case based discussion. Calculations and preparations of different semisolids and solid dosage, liquid and sterile dosage forms and their quality control.

Course Outcomes:

At the end of the course, students will be able to:

A. Describe the physical properties, methods of preparation and application of solid, semisolids, liquid and sterile dosage forms
B. Select the proper dosage form for the given condition
C. Calculate and prepare the selected dosage forms in the laboratory according to official USP and Martindale's Pharmacopoeia testing procedures

Teaching Strategies:

1. Interactive Lectures by aid of Power point presentations.
2. Conducting experiments
3. Assignments (essays and oral presentation)

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25 %	0 %	40%

Textbooks:

1. Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems, Ansel H.C. Allen, L.V, Popovich N, Publisher; Williams and Wilkins, Ed. 9th 2010.
2. Pharmaceutics: the Science of Dosage Form Design, Michael E. Aulton, Publisher; Churchill Livingstone, Ed. 2nd 2002.

Reference Books:

1. Pharmaceutical Dosage Forms: Tablets, L. Augsburger, S. W. Hoag, Publisher; Informa Healthcare, Ed. 3rd 2008.
2. Pharmaceutical Dosage Forms and Drug Delivery, Ram I. Mahato, Publisher; CRC Press, Ed.24th 2007

Course Name	Pathophysiology-2			علم فسيولوجيا الأمراض-٢			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/ week	Lec.	Lab.	Tot.
	BMS-10	2020221	2 + 0		2	0	2
Track	☐ Pharmaceutical Sciences ■ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 2nd year			Prerequisite	2020121, 2020122 (Physiology-2, Anatomy-2)		

Course Description:

Lectures: Immune disorders (auto immune diseases)- GI disorders (diarrhea- constipation- peptic ulcers- gall bladder stones- jaundice and liver diseases: hepatitis & liver cirrhosis)- renal disorders (urinary tract obstruction- renal stones- urinary tract infections- renal failure-body fluid disorders) –endocrine disorders: pituitary disorders (hyper-prolactinemia- acromegaly & gigantism, dwarfism- Simmonds disease- ADH disorders-thyroid gland disorders (goiter- myxedema)- suprarenal gland disorders (Cushing syndrome & Addison's disease)- hematological disorders : anemia- polycythemia- leukemia- leukocytosis & leucopenia. CNS disorders: sensory & motor neurological disturbances, basal ganglia disorders, headache.

Course Outcomes:

At the end of the course the student will be able to:

A- Describe/comprehend pathophysiological of diseases of immune system, gastro intestinal disorders, renal diseases, hematological disorders and neurological disorders.

B- Correlate the pathophysiological mechanisms with diagnosis and basic concepts for treatment of immune disorders, endocrine and GIT diseases, renal disorders, hematological diseases and neurological disorders.

Teaching Strategies:

1. Lectures. 2.1.1.1.5..12

2. Discussion. 2.1.1.1.6..12

3. Home and Library Assignments.

4. Case studies.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30 %	0%	10%	50%

Textbooks:

4. Pharmacotherapy A Pathophysiologic Approach, Joseph T. Dipiro, Robert L. Talbert, Michael Posey, Publisher; Appleton and Lange, Ed. 10th 2016
5. Handbook of Pharmacotherapy: 10th Ed 2017
6. Pathophysiology-Concepts of Altered Health States, Carol Mattson Porth, Publisher; Appleton and Lange Ed. 9th 2013.

Reference Books:

2. Essentials of Pathophysiology for Pharmacy, M.M. Zdanowikz , Publisher; CRC Press Pharmacy education series, Ed. 1st 2002Pathophysiology: Altered Regulatory Mechanisms in Disease, Edward D. Forhlich, Publisher; Lippincott Company, Philadelphia, Ed. 2nd 2005.

Course Name	Immunology			علم المناعة			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2 /week	Lec	Lab	Total
	BMS-11	2020222	2+0		2	0	2
Track	☐ Pharmaceutical Sciences ■ Biomedical Sciences ☐ harmacy Practice ☐ Elective Course ☐ University requirement						
Level	2nd Semester, 2nd year	Prerequisite	(Physiology-2) 2020121				

Course Description

Lectures: Immunology is course offered in order to prepare the students for a better understanding of drug pharmacokinetics and disease processes. The course is divided into basic and clinical sections. Basic concepts include anatomy of the immune system; organs, tissues, cells and soluble factors, the immune response; the innate and the adaptive immune system, including humoral immunity and cell mediated immunity. Clinical section includes abnormalities of the immune system such as hypersensitivity types, autoimmunity, organ transplantation rejection, immune deficiency disorders and tumour immunity. The course also describes different types of antigen-antibody reactions and their detection using various serological tests employed for diagnosis of various diseases.

Course Outcomes:

A. Describe the constitutive units of the Immune system and their role to launch an immune response in a specific and non-specific way.
B. Employ knowledge of immunology in diagnosis and understanding of various disease processes

Teaching Strategies:

A. Lectures
B. Discussion, tutorials
C. Home and library assignments.
D. Small Group Discussions and Team presentation

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30 %	0%	10%	50%

Textbooks:

1. Lippincott's Illustrated Reviews: Immunology, Tao Doan, Roger Melvold, Susan Viselli, Carl Waltenbaugh, Ph.D., Richard A. Harvey, Ph.D., Pamela C. Campe, Bruce D. Fisher, Ed.9th 2009.
2. Immunology, David K. Male, Jonathan Brostoff, Ivan Maurice Roitt, David B. Roth, Publisher; Elsevier Health Sciences, Ed; 7th 2006.
3. Essentials of clinical immunology, Helen Chapel, Mansel Haeney, Siraj Misbah, Publisher; Wiley-Blackwell, Ed.5th 2006.

Reference Books:

1. Basic and Clinical Immunology, Mark Peakman, Diego Vergani. Publisher; Elsevier/Churchill Livingstone, Ed. 2nd 2009.
2. Clinical Immunology Principles and Practice, Robert R. Rich. Publisher; Mosby/Elsevier, Ed. 3rd 2008.
3. Clinical Immunology and Serology: A Laboratory Perspective, Christine Dorresteyn Stevens.Publisher; F.A. Davis. Ed. 3rd 2009.
4. Immunology: understanding the immune system, Klaus D. Elgert. Publisher; John Wiley and Sons, Ed. 9th 2009.

Course Name	Microbiology			علم الأحياء الدقيقة			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 6 /week	Lec	Lab	Total
	BMS-12	2020223	3 + 1		3	3	6
Track	☐ Pharmaceutical Sciences ■ Biomedical Sciences ☐ Pharmacy Practice ☐ Elective Course ☐ University requirement						
Level	2nd Semester, 2nd year		Prerequisite	2020211 (Pathophysiology-1)			

Course Description

Lectures: This course is offered to prepare the students for understanding of infectious diseases and their rational management. it includes; introduction to microbiology including history and its need in pharmacy, general principals of microbial concepts including terminology, host parasite relationship and normal flora, pathogenicity of microorganisms, principles of infectious disease, bacterial structure and classification, bacterial growth, metabolism and its genetics, important pathogenic bacteria and mechanisms of disease production, fungi, protozoa and helminthes, introduction to virology including viral classification and important human diseases caused by viruses.

Practical: 50% of the time will be allocated to case studies, and 50% for Gram staining, culture and sensitivity tests, MIC for various anti-microbial drugs.

Course Outcomes:

A. Describe various classes of microorganisms based on their characteristics and pathogenicity

B. Correlate the pathogenicity of common microorganisms associated with specific clinical conditions

C. Perform basic microbiology labs and interpret data for clinical application.

Teaching Strategies:

1. Lectures
2. Discussion.
3. Case Study with Clinical Applications
4. Home and library assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25 %	0 %	40%

Textbooks:

1- Lippincott's Illustrated Reviews: Microbiology, Richard A. Harvey, Cynthia Nau Cornelissen, Publisher; Lippincott Williams & Wilkins, Ed. 3rd 2012,

2- Microbiology and Immunology, Ken S. Rosenthal, James S. Tan, Publisher; Mosby Elsevier, Ed. 2nd 2007.

Reference Books:

1- Medical Microbiology, Patrick R. Murray, Ken S. Rosenthal, George S. Kobayashi, Michael A. P, Publisher; Mosby/Elsevier, Ed. 6th 2009.

2- Medical Microbiology & Immunology: Examination & Board Review, Warren Levinson, Ernest Jawetz, Publisher; McGraw-Hill Professional, Ed. 9th 2006.

3- Basic Medical Microbiology, 1e 1 Pap/Psc Edition by Patrick R. Murray. Elsevier; 1st edition (May 2, 2017)

Course Name	Pharmaceutical Care-1			رعاية صيدلانية-١			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 3/week	Lec.	Pract	Tot.
	PP-2	2030221	0+1		0	3	3
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 2nd year			Prerequisite	2020111		

Course Description: This course will provide the student with introductory foundation to the concept of patient-centered pharmaceutical care, Medication Therapy Management, role of clinical pharmacists as active and important member of a multi-disciplinary team of health care providers in community and hospital pharmacy settings, introduction to the fundamentals of human behavior, needs and motivation theories, and its relationship to patient medication-taking behavior, principles and methods of effective oral and written communication and patient counseling, cultural competence and its impact on communication, barriers to effective communication small group sessions focused on techniques of effective patient interview regarding health and medication-related problems and counselling on benefits of medication adherence and appropriate use of pharmaceutical preparations through various routes. Simulation sessions /role plays to build Students interpersonal and group communication skills. .

Students will be introduced with sources of information such as patient chart and electronic patient records and how to retrieve information from these sources regarding patient health and drug related problems

The course will prepare the students for upcoming IPPE-1 at community/outpatient pharmacy setting

Course outcomes: After completion of the course the student should be able to:

A. Define Pharmaceutical Care and Medication Therapy Management with their components
B. Retrieve information about patients' life style and health and drug therapy problem, directly from the patients using effective communication skills and also from the hospital record.
C. Record the information (pharmaceutical care history) in a professional manner.
D. Express/present the information/communicate as an effective team member with other health professionals.
E. Hold counseling sessions with patients regarding their health issues, and various routes of drug administration supervised by instructor

Teaching Strategies:

1. Discussions
2. Problem solving
3. Assignments for service learning
4. Hands on practice on some techniques, preferably in Pharmaceutical Care Lab

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30 %	10%	10%	50%

Textbooks:

1. Pharmaceutical Care Practice: The Patient-Centered Approach to Medication Management, Third Edition Robert J. Cipolle , Linda Strand, Peter Morley. McGraw Hill publishers: 2012
2. Fundamental Skills For Patient Care In Pharmacy Practice 1st Edition by Colleen Doherty Lauster, Sneha Baxi Srivastava: Jones & Bartlett Learning 2013
3. A Practical Guide to Pharmaceutical Care; A Clinical Skills Primer, John P Rovers, Jay D Currie, Publisher; American Pharmacists Association, Ed. 3rd 2007.
4. 3. http://www.accp.com/docs/positions/misc/coreelements.pdf

Reference Books:

1. Taking The Clinical History, William Demyer, Publisher; Oxford University Press, Ed. 1st 2007.
2. A Practical Guide to Contemporary Pharmacy Practice, Thompson, J E, Publisher; Lippincott Williams & Wilkins, Ed. 3rd 2009.

2nd Year Summer Semester

IPPE-1

Course Name	IPPE-1			Introductory Pharmacy Practice Experience-1			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 40/week	Lec.	Lab.	Tot.
	PP-3	2030231	0+2		-	-	200
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ ☐ Elective course University requirement						
Level	Summer Semester, 2nd year			Prerequisite	2030221 (attended)		

Male students: Community Pharmacies.

Females students: Outpatient Pharmacies of Secondary and Tertiary Health Care Facilities

I. **Students' Activities/**Tasks:

1. Student will spend 8 hours daily on the training site (8 am-4pm) and will complete total of 200 hours.
2. Student will be in professional attire(uniform, lab coat etc) during training period
3. Student will observe the Pharmacist for patients counseling and will share, if allowed by the pharmacist
4. Student will maintain portfolio for all his activities and assignments on daily basis
5. One activity form will be completed daily and will be signed by the preceptor/pharmacist.
6. Daily assignment regarding 5 drug and 5 disease states, will be prepared daily and will be checked by the preceptor during visit and at the end of training.
7. Student will present during 1st semester of 3rd year as per schedule attached
8. Student will produce training completion certificate signed by the Pharmacist

II. **Objectives:**

A. Read drug names, strength and related information form the leaflet.
B. Be familiar with the trade names of all drug classes
C. Prepare list of most commonly used drugs in each class, both trade and generic
D. Read the prescriptions (if allowed by the Pharmacist)
E. Observe and participate in patients' counseling, regarding information about drugs and their use. *(Relevant contents have been added in Pharmaceutical Care-1 course)*
F. Explain the importance of patient confidentiality.

III. **Assessment: (Fail/Pass)**

1. Final Assessment will have following components:
   - i. Preceptors assessment: 60%
     1. Internal Preceptor: 30 %
     2. External Preceptor: 30%
   - ii. Presentation: 10%
   - iii. Portfolio/assignments: 10%
   - iv. OSCE 20%

   Total: 100%

Please refer to Manual for Experiential Education for detailed program for IPPE-1

Courses' Description

12..3 Third Year

1st Semester

Course Name	Pharmacology-4			علم الأدوية-٤			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 3/week	Lec.	Lab.	Tot.
	PS-13	2010311	3+0		3	0	3
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 3rd year			Prerequisite	Pharmacology-1, Microbiology, Immunology 2010124, 2020222, 2020223,		

Course Description:

Lectures: The students shall be provided with knowledge of the pharmacokinetic and pharmacodynamics principles governing the drug actions, adverse drug reactions and drug interactions both in clinical pharmacy practice as well as in basic and clinical research in the area of pharmacology of chemotherapeutic drugs, Antibacterial, antiviral, antiparasitic, antifungal, anticancer and Immune modulating drugs. Dermatological drugs. Introductory pharmacogenetics will also be the part of course

Course Outcomes:

After completion of the course the student will be able to

A. Describe the pharmacodynamics and pharmacokinetics of
   a. antimicrobial drugs,
   b. anticancer drugs
   c. drugs acting on the immune system
B. Apply this knowledge in the specific clinical situations in identifying the problem
C. The students will be able to analyze a related clinical problem and suggest a solution for it.
D. Describe the genetic basis of individualized response to drugs

Teaching Strategies:

1. Lectures
2. Discussion.
3. Problem solving,
4. Case Study with Clinical Applications
5. Home assignments

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	30%	0%	10%	50%

Textbooks:

10. Basic and Clinical Pharmacology Bertram Katzung, Susan Masters, and Anthony Trevor, Publisher; Lange Basic Science, Ed. 14th 2017.
11. Katzung & Trevor's Pharmacology Examination and Board Review, (Katzung & Trevor's Pharmacology Examination & Board Review) 11th Edition 2015
12. Rang & Dale's Pharmacology, Humphrey P. Rang, Maureen M. Dale, Publisher; Churchill Livingstone, Ed. 8th 2015

Reference Books:

1. Goodman and Gilman's The Pharmacological Basis of Therapeutics, Laurence Brunton, Bruce Chabner, Bjorn Knollman, Publisher; McGraw-Hill, Ed. 13th 2017.

Course Name	Pharmaceutical Delivery Systems			نظام إعطاء الدواء			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/week	Lec.	Lab.	Tot.
	PS-14	2010312	2+0		2	0	2
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 3rd year			Prerequisite	2010223 Ph.Dosage Form		

Course Description:

Lectures: This course introduces the concept of pharmaceutical drug delivery system including targeted and controlled drug delivery. Fundamental considerations of sustained release drugs, liposomes, niosomes, microspheres, nanoparticles, parenteral or sterile preparations {Occular drug delivery (calculation related to osmolarity & isotonicity)}, pulmonary drug delivery and radiopharmaceuticals.

Course Outcomes:

At the end of the course, students will be able to:

A. Explain the concept of drug delivery systems
B. Describe fundamentals of sustained / controlled / targeted drug delivery
C. Describe drug carriers and their common applications
D. Recognize the importance of drug carriers with respect to drug delivery
E. Rational use of novel carrier systems such as liposomes, niosomes, microspheres, nanoparticles.

Teaching Strategies:

1. Discussion
2. Lectures
3. Home and Library assignments

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30 %	0 %	10%	50%

Textbooks:

1. Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems, Ansel H.C. Allen, L.V, Popovich N, Publisher; Williams and Wilkins, Ed. 10th 2013
2. Targeted and Controlled Drug Delivery: Novel Carrier Systems: Vyas S.P, Khar RK, Publisher; CBS Publishers & Distributors. 2010

Reference Books:

1. Pharmaceutics: the Science of Dosage Form Design, Michael E. Aulton, Publisher; Churchill Livingstone, Ed. 4th 2013.
2. Drug Delivery Systems, Vasant VR and Mannfred AH, Publisher; CRS press, Ed. 3rd 2011.

Course Name	Medicinal Chemistry-3			كيمياء دوائية-٣			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/week	Lec.	Lab.	Tot
	PS-15	2010313	2+0		2	0	2
Track	■ Pharmaceutical Sciences ☐ Biomedical Sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 3rd year			Prerequisite	2010222 (Med.Chemistry-2)		

Course Description:

Lectures: This course enables the student to understand the chemistry and mode of action of drugs acting as antibacterials, antivirals, antifungals, antiparasitics and antineoplastics. The following topics will be addressed: chemistry of antibiotics (Beta lactams, tetracyclines, macrolides, rifamycins, chloramphenicol, aminoglycosides, antifungal and polypeptide), antibacterials, antimycobacterials, antivirals, antifungals, antimalarials, anthelmientics, antiscabious, antipedicular agents, antiprotozoal, antibilharazial agents and antineoplastics.

Course Outcomes:

After completion of this course, the student will be able to:

A. Demonstrate an understanding of the concept of chemotherapy and selective toxicity.
B. Identify the different classification schemes for antibiotics along with knowledge of the history, chemical structures, and pharmacokinetic and pharmacodynamic properties of selected natural and synthetic antimicrobial agents belonging to various classes.
C. Relate the chemical structure of various classes of antimicrobial agents to their biological activity.
D. Classify anticancer agent and describe pharmacodynamic and pharmacokinetic properties of various classes of anticancer agents.

Teaching Strategies:

1. Lectures
2. Discussion
3. Home and Library assignments

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	30%	0%	10%	50%

Textbooks:

1. Essentials of Foye's Principles of Medicinal Chemistry:Thomas L. Lemke PhD S. William Zito PhD, Victoria F. Roche PhD David A. Williams PhD. LWW; First edition (June 14, 2016) ISBN-10: 1451192061ISBN-13: 978-1451192063
2. An Introduction to Medicinal Chemistry, Graham L. Patrick, Publisher; Oxford University Press Inc, New York, Ed. 5th 2013.
3. Principles of Medicinal Chemistry, T. L. Lemke, , David A Williams, Victoria F Roche, S. William Zito, Wolters Kluwer, Publisher; Lippincott Williams and Wilkins, Ed. 7th 2013.

Reference Books:

1- Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry. John H. Block, John M. Beale, Jr. Publisher; Lippincott Williams and Wilkins, Ed. 12th 2010

2- Medicinal Chemistry: An Introduction T.B., G. Thomas; Publisher; John Wiley & Sons Ltd. Ed. 2nd 2008 (2011)

Course Name	Biopharmaceutics			صيدلة حيوية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 5/week	Lec.	Lab.	Tot.
	PS-8	2010314	2+1		2	3	5
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 3rd year			Prerequisite	2010211, 2010221		

Course Description:

Lectures: This course introduces students to the concept and principles of biopharmaceutics, understanding of clearance, volume of distribution, order of kinetics, compartmental models, plasma protein binding, first pass and second pass metabolism, physicochemical and dosage form factors influencing bioavailability. Assess and measure key biopharmaceutical properties, bioequivalence, and biopharmaceutical classification scheme (BCS). Influence of dosage regimens on the plasma concentration-time profile of a drug in the body and factors involved in steady-state plasma concentration of a drug.

Practicals: Use of semi log graph paper, order of reaction, half life, clearance, area under curve (AUC), C_{max} and t_{max} and other calculations related to biopharmaceutics. Case studies will also be discussed in practical hours

Course Outcomes:

Upon successful completion of this course, students will be able to

A. Express the key concepts of biopharmaceutics and clearance
B. Interpret the relationship between the drug, its dosage form, and route of administration
C. Evaluate the physicochemical and dosage form factors influencing bioavailability of a drug
D. Describe the concept of compartmental modeling and bioequivalence monitoring
E. Identify the relevance between drug delivery optimization and therapeutic outcome

Teaching Strategies:

1. Lectures
2. Discussion
3. Home assignments.
4. Experiential learning (Practical)

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25%	0%	40%

Textbook:

1. Applied Biopharmaceutics & Pharmacokinetics, , L Shargel, S.Wu-Pong, Andrew B.C. Publisher; McGraw-Hill, Ed.7th 2016.
2. Aulton's Pharmaceutics, The Design and Manufacture of Medicines. Michael A. Aulton, Publisher; Churchill Livingstone, Ed. 5rd 2017.

Reference Books:

1. Concepts in Clinical Pharmacokinetics: Sixth Edition Authors William Spruill, William Wade, Joseph T. DiPiro, Robert A. Blouin, Jane M. Pruemer Publisher ASHP, 2014 ISBN 1585283894, 978158528389

Course Name	Therapeutics-1			علاجيا ت-			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 6/week	Lec.	Pract	Tot.
	PP-4	2030311	4+1		4	3	7
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 3rd year			Prerequisite	2010211 (Pharmacology-2)		

Course Description:

Lectures: This course will cover introduction clinical laboratory tests and their interpretation and affects on therapy, racial, ethics and gender differences in response to drugs, epidemiology, patho-physiology, clinical presentation, and drug related problems during the management of cardiovascular disorders i.e. cardiovascular testing, cardiopulmonary arrest, hypertension, heart failure, ischemic heart disease, acute coronary syndromes, arrhythmias, venous thromboembolism, stroke, hyperlipidemia, peripheral arterial disease, use of vasopressors and inotropes in the pharmacotherapy of shock, hypovolemic shock. anemias including sickle cell diseases

Practical: Clinical case studies, Case-Assisted Student Centered Learning (CASCL), case presentation followed by case discussion and writing/presentation in SOAP format**.** The students will be required to maintain course portfolio with all case histories discussed. Students will have at least one sessions of Interprofessional Education during the course to interact with other health professionals in relation to clinical case selection, discussion, presentation and reflection. Service learning module will also be part of practical, training students about preparing material for community awareness and education about diseases taught in the course and are common in the region.

Course Outcomes:

After completion of the course, the student will be able to:

A. Describe and correlate pathophysiology of the diseases included in this course (cardiovascular and coagulation disorders including hyperlipidemia), with clinical presentation and pharmacotherapy.
B. Describe the Clinical (history symptoms and signs) and laboratory data to diagnose the disease.
C. Constitute therapeutic objectives, treatment plan with best evidence available and follow up evaluation plan for diseases included in the course.
D. Analyze the given clinical case, write and present in SOAP format, including patient education tips

Teaching Strategies:

1. Lectures, Small Group Discussion,
2. Case-Assisted Student Centered Learning (CASCL)
3. **Service Learning**

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	25%	25%	0%	40%

Textbooks:

1. Pharmacotherapy: Handbook. By BG well, JT Dipiro TL Schwinghammer and CW Hamilton Appleton and Lange 11th ed.(2020)
2. ACCP Updates in Therapeutics Pharmacotherapy Preparatory Review: 2020
3. Pharmacotherapy Casebook, A Patient Focused Approach TL Schwinghammer , BG well, JT Dipiro and CW Hamilton: Appleton and Lange 10th Edition . 2017

Reference Books:

1. . Clinical Pharmacy & Therapeutics, Roger Walker, C.W. Edwards, Publisher; Churchill Livingstone, Ed. 6TH ED 2019.

Course Name	Pharmaceutical Care-2			رعاية صيدلانية-٢			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 5/week	Lec.	Lab.	Tot.
	PP-5	2030312	2+1		2	3	5
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 3rd year.			Prerequisite	2030221 (Pharmaceutical Care-1)		

Course Description:

Lectures: This course will cover techniques of patient interview and history taking. History taking will include retrieving disease and drug related problems and patient socio behavioral data . Review of medical records and data collection , interpreting lab values , performance of vital signs assessment and accurate interpretation of results of assessment, Glasgow coma scale, Morisky scale, beck depression inventory, clinical examination of individual organ systems : examination of extremities and back, cardiovascular, respiratory, gastrointestinal system, and CNS clinical examination. Empathetic Communication with the patient and professionalism during physical assessment. Recording of clinical and lab finding in professional manner and interpretation of clinical and lab finding in diagnosis and pharmacotherapy planning. The concept of practice guidelines and its application in pharmacotherapy planning

Practical: Introduction to equipment, practical demonstration of techniques of physical examination and clinical assessment of disease states, in simulation lab

The student will maintain log book of case studies. The student will be expected to exhibit professional behavior and recognize the responsibility to provide service as member of interprofessional health care team

The course will prepare student for upcoming Advanced Pharmacy Practice Experiences

Course Outcomes: Upon successful completion of the course, students will be able to:

A. Perform basic clinical assessments of human organ systems.

B. Describe, Interpret and record positive findings of physical assessment required for proper pharmaceutical care plan.

C. Record and Interpret the lab reports of the patient for Individualized Therapeutics plan and follow up evaluation

D. Record findings of lab data and physical assessment .

Teaching Strategies:

1. Lectures
2. Data Interpretation and Problem solving
3. Small Group Discussion
4. Experiential learning in Pharmaceutical Care Lab/simulation Lab

Grading Plan	Quizzes	Midterm	Practical	Assignments	Final Exam
	10 %	25%	25%	0%	40%

Textbook:

1. Patient Assessment in Pharmacy Practice Rhonda M. Jones ,Raylene M. Rospond, LWW; 3rd ed. 2015
2. Bates' Guide to Physical Examination and History-Taking by Lynn Bickley MD Ed. 12th, 2016. LWW

Reference Books:

1. Mosby's Guide to Physical Examination, Henry M. Seidel, Jane Ball, Joyce Dains, G. William Benedict, Publisher; Elsevier, Ed. 7th 2011.
2. Pharmaceutical Care Practice: The Patient-Centered Approach to Medication Management, Third Edition Robert J. Cipolle , Linda Strand, Peter Morley. McGraw Hill publishers: 2012
3. Pharmacy OSCEs and Competency-Based Assessments, 1st Edition Authors: Sharon Haughey & Roisin O'Hare2017: Elsevier

Courses' Description

Third Year

2nd Semester

Course Name	Therapeutics-2			علاجيا ت-٢			
Course Information	Course Code	Course No	Credit Hours	Contact Hours	Lec.	Pract	Tot.
	PP-6	2030321	4+1	6/week	4	3	7
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 3rd year			Prerequisite	2010221, 2030311 Pharmacology-3, Therapeutics-1		

Course Description:

Lectures: This course will cover the patho-physiology and pharmacotherapy of asthma, chronic obstructive pulmonary disease, pulmonary hypertension, drug-induced pulmonary diseases, cystic fibrosis, peptic ulcer disease, inflammatory bowel diseases, nausea and vomiting, , constipation and diarrhoea, hepatitis, cirrhosis, pancreatitis, drug-induced liver disease, pancreatitis, drug therapy individualization in patients with hepatic disease . acute and chronic renal diseases, dialysis, pharmacotherapy in end-stage renal diseases, drug induced kidney diseases, critical care therapy for transplant patients. gout, rheumatoid arthritis and systemic lupus erythromatosis

Practical: Clinical case studies, Case-Assisted Student Centered Learning (CASCL), case presentation followed by case discussion and writing/presentation in SOAP format**.** The students will be required to maintain course portfolio with all case histories discussed. Students will have at least one sessions of Interprofessional Education during the course to interact with other health professionals in relation to clinical case selection, discussion, presentation and reflection. Service learning module will also be part of practical, training students about preparing material for community awareness and education about diseases taught in the course and are common in the region.

Course Outcomes:

After completion of the course, the student will be able to:

A. Describe pathophysiology of the diseases in relation to clinical presentation and pharmacotherapy for the diseases included in this course (Respiratory, gastrointestinal, renal, and selected autoimmune disorders)
B. Discuss the Clinical (history symptoms and signs) and laboratory data in relation to diagnosis and follow up evaluation of the disease included in the course
C. Constitute therapeutic goals for the patient's problem and design appropriate therapeutic plan to achieve these goals, using updated evidence based information (recent clinical guidelines,).
A. Analyse the given clinical case, write and present in SOAP format, including patient education tips

Teaching Strategies:

1. Lectures, Small Group Discussion, followed by students presentations
2. Case-Assisted Student Centered Learning

Grading Plan	Quizzes	Midterm	Practical	Assignments/Log	Final Exam
	10%	25%	25%	0%	40%

Textbooks:

1. Pharmacotherapy Principles and Practice, Marie A. Chisholm-Burns PharmD FCCP and Terry L. Schwinghammer Professor and Chair Clinical Pharmac, 4th edition 2016
2. Pharmacotherapy: Handbook. By BG well, JT Dipiro TL Schwinghammer and CW Hamilton Appleton and Lange 10th ed.(2017)
3. ACCP Updates in Therapeutics Pharmacotherapy Preparatory Review: 2017. Pharmacotherapy Casebook, A Patient Focused Approach TL Schwinghammer , BG well, JT Dipiro and CW Hamilton: Appleton and Lange 10th Edition . 2017

Course Name	Pharmaceutical Care-3			رعاية صيدلانية-٣			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/week	Lec.	Lab.	Tot.
	PP-7	2030322	2+0		2	0	2
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 3rd Year.			Prerequisite	2030312 (Ph.care-2)		

Course Description:

Lectures: This course focuses on in- depth, concepts of medication therapy management, medication therapy review, Medication Management Services including, intervention and/or referral, in patient centered pharmaceutical care. Following topics will be covered in this course: Pharmaceutical Care as the Professional Practice for Patient-Centered Medication Management, Philosophy of Pharmaceutical Care Practice, Patient-Centeredness in Pharmaceutical Care, Practitioner-patient relationship, Drug Therapy Problems including medication errors, adverse drug reactions and their reporting, The Assessment, The Care Plan, Follow-up Evaluation, SOAP notes and other modes of Documentation in pharmaceutical Care practice, Decision making and preparing pharmacotherapy workup notes. Acquiring and Applying the Knowledge and Clinical Skills Required to Manage Drug Therapy, Managing Medication Management Services, Communication and collaboration with other healthcare providers, The Global Perspective in Pharmaceutical Care practice, Standards and ethics in Pharmaceutical Care Practice, Guidelines for establishing pharmaceutical care practice.

Course Outcomes: Upon successful completion of the course the student should be able to:

A. Describe and signify the principles and components of pharmaceutical care practice including Medication Therapy Management.
B. Demonstrate the ability (in assignments and presentation) to Identify drug therapy problem,
C. Construct pharmaceutical care plan, follow up evaluation, and document the necessary data in pharmaceutical care practice & Present pharmacotherapy case.
D. Participate in the pharmaceutical care system's process for reporting and managing medication errors and adverse drug reactions.
E. Communicate and collaborate with prescribers, patients, caregivers, and other involved health care providers to engender a team approach to patient care

Teaching Strategies:

1. Lectures
2. Small Group Discussion, followed by students presentations
3. Projects and assignments
4. Case-Assisted Student Centered Learning

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30%	0%	10%	50%

Textbooks:

1. Pharmaceutical Care Practice: The Patient-Centered Approach to Medication Management, obert J. Cipolle , Linda Strand, Peter Morley McGraw-Hill Medical; 3 edition (March 20, 2012
2. Pharmaceutical Care Practice: The Clinician's Guide, Robert Cipolle, Linda Strand, Peter Morley. Publisher; McGraw-Hill Medical, Ed. 2nd 2004.
3. A Practical Guide to Pharmaceutical Care; A Clinical Skills Primer, John P Rovers, Jay D Currie, Publisher; American Pharmacists Association, Ed. 3rd 2007.
4. Practices and Processes of Care:Organizational Agreements/ Special Issues in Pharmacy Practice Jessica Tilton, Pharm.D., BCACP: ACCP Updates in Therapeutics: 2017

Reference Books:

1. Social and Behavioural Aspects of Pharmaceutical Care. Nathaniel M Rickles, Albert I Wertheimer, Mickey C Smith. Publisher; Jones & Bartlett, Ed. 2nd 2009.
2. Clinical Pharmacy & Therapeutics, Roger Walker, C.R.W. Edwards. Publisher; Churchill Livingstone, Ed. 3rd 2007.

Course Name	Institutional Pharmacy Practice			ممارسة صيدلانية مؤسسية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 1/week	Lec.	Lab.	Tot.
	PP-8	2030323	1+0		1	0	1
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 3rd year.			Prerequisite	2030312		

Course Description:

Lectures: This course is aimed at providing the students with insight into institutional pharmacy practice and will be followed by experiential summer training in hospital pharmacy. Lecture topics will include: Role of pharmacist in health care system, hospital formulary; Inpatient outpatient and satellite/floor pharmacies; hospital pharmacy supplies, storage, indent; inventory control methods and medication distribution systems, automation in pharmacy practice; unit dose system, intravenous admixtures, controlled drugs/substance management; Investigational drugs in the hospital pharmacies; prescription and medication errors, medication safety; medication reconciliation, pharmacy and therapeutics committee, principles of education of nurses and other paramedics.

Course Outcomes: Upon completion of the course, students will be able to:

A. Describe the role and duties of hospital pharmacist in health system
B. Describe the institutional pharmacy set up and functions

Teaching Strategies:

1. Lectures.
2. Active learning: Discussions
3. Assignments

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30%	0%	10%	50%

Textbooks:

1. Handbook of Institutional Pharmacy Practice, Thomas R. Brown, Publisher; American Society of Hospital Pharmacist, Ed. 4th 2006.
2. Hospital Pharmacy, Martin Stephen, Publisher; Pharmaceutical Press, Ed. 1st 2002

Reference Books:

1. Remington: The Science and Practice of Pharmacy, Patrick J. Sinko, Publisher; Lippincott Williams & Wilkins. Ed. 22st 2012.
2. Boh's Pharmacy Practice Manual: A Guide to the Clinical Experience. Susan M. Stein. Publisher; Lippincott Williams & Wilkins. Ed. 4th 2014.
3. Introduction to Hospital and Health-system Pharmacy Practice, David Holdford , Thomas Brown, Publisher; American Society of Health-System Pharmacists. Ed. 1st 2010.

Course Name	**First Aid and Emergency Medicine**			**الإسعافات الأولية و طب الطواري**			
Course Information	**Course Code**	**Course No**	**Credit Hours**	**Contact Hours 3/ week**	**Lec.**	**Lab.**	**Tot.**
	PP-9	**2030324**	**0 + 1**		**0**	**3**	**3**
Track	☐ **Pharmaceutical Sciences** ☐ **Biomedical sciences** ■ **Pharmacy Practice** ☐ **Elective course** ☐ **University requirement**						
Level	**2nd Semester 3rd year**			**Prerequisite**	**2020121،2030312 Physiology-2, Phar.Care-2**		

Course Description:

Practical: Introduction to first aid and emergency medicine, triage and referral skills for all ages and all systems of the body. management of the injured patient and shock, maintenance of airway passages and intravenous line, cardiovascular resuscitation, basic life support, management of bleeding, open wounds, fractures, epilepsy, coma, sunstroke, animal bites, high grade fever, burns, poisoning, drowning, head injuries and emergency procedures at home, work, or leisure. students will be required to successfully complete approved course on bls in hospital in an IPE environment

Course Outcomes:

Upon successful completion of the course the student will be able to

A. Describe and practice the basic principles of first aid and emergency medicine
B. Manage clinical emergencies
C. Demonstrate ability to provide basic life saving techniques.

Teaching Strategies:

1. Lectures
2. Discussion
3. Simulations.
4. Experiential training (Approved course on BLS in and IPE environment)

Grading Plan	**Quizzes**	**Midterm**	**Practical**	**Assignments/projects**	**Final Exam**
	10 %	**25 %**	**25%**	**0%**	**40%**

Textbooks :

1. First Aid Manual: The Step by Step Guide for Everyone**.** St. John Ambulance, St. Andrew' Ambulance Association, British Red Cross Society, Publisher; Penguin Press, Ed. 9th 2009.
2. Practical First Aid, Dorling Kindersley, Ed. 2nd .2012

Reference Books :

1. Accident and Emergency: Theory into Practice Brian Dolan, Holt-London: Bailliere Tindall. Ed. 3rd 2013
2. Accident and Emergency Radiology: A Survival Guide, Nigel Raby FRCR (Author), Laurence Berman MB BS FRCP FRCR Simon Morley FRCR Gerald de Lacey Saunders Ltd.; 3 edition (September 10, 2014)

Course Name	Research Methodology and Biostatistics			منهجية البحث والإحصاء الحيوي			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 5/ week	Lec.	Lab.	Tot.
	PP-10	2030325	2+1		2	1	5
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 3rd year.			Prerequisite	2020213, 2030311 Mol Biology, Therapeutics-1		

Course Description:

Basic principles of biostatistics and research methodology have also been included in this course such as, the research process, scales of measurement, accuracy of data, validity and reliability), research design (objective, literature review, sampling, types of design), clinical trial design (controlled multi-centered studies, random allocating, study types, blindness, placebo effect, retrospective and case studies, data collection forms). Individual variation, statistical terminology, errors of sampling, probability concepts, distribution of random variables, non-parametric methods, validity of results, analysis of variance and tests for significance, choice of proper tests for significance, statistical methods applied to biological assays and proper experimental design. During the course of study the students are divided in groups and each group is assigned a topic to develop a research proposal and defend it.

Course Outcomes:

Upon successful completion of the course the student will be able to:

A- Describe the basic principles of research methodology and Biostatistics.
B- Describe how to collect, analyze and present data
C- Design a scientific project by applying the knowledge gained from the course
D- Summarize the data available in the literature on a particular topic and discuss with peers.

Teaching Strategies:

1. Lectures.
2. Discussions and students presentations
3. Home and library Assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25%	0%	25%	40%

Textbooks:

1. Biostatistics: A Refresher Kevin M. Sowinski,., Kevin M. Sowinski, ACCP Updates in Therapeutics 2017
2. Study Designs: Fundamentals, Interpretation, and Research Topics Kevin M. Sowinski, Kevin M. Sowinski, ACCP Updates in Therapeutics:2017
3. Research Methodology: A Step-by-Step Guide for Beginners 5th Edition by Ranjit Kumar: SAGE Publications Ltd; 5th edition (February 11, 2019) ISBN- 1526449900
4. Statistics and Scientific Method: An Introduction for Students and Researchers Peter J. Diggle , Amanda G. Chetwynd; Oxford University Press, Ed.1st 2011
5. Introduction to Medical Statistics and Research Methodology, C.A. Klufio, Woeli Publishing Services. ED 1st.2003.

Reference Books:

1. Fundamentals of Biostatistics, Bernard Rosner. Duxbury Press; Ed 8th, 2015
2. Practical Research: Planning and Design, Paul D. Leedy (Author), Jeanne Ellis Ormrod; Prentice Hall; Ed 11, 2015

Course Name	Natural Products & Herbal Medicine			النواتج الطبيعية وطب الأعشاب			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 3/ week	Lec.	Lab.	Tot.
	PS-17	2010321	2 +0		2	0	2
Track	■ Pharmaceutical Sciences ☐ Elective course			☐ Biomedical sciences ☐ University requirement	☐ Pharmacy Practice		
Level	2nd Semester, 3rd year			Prerequisite	2010213		

Course Description:

Lectures: The course includes study of wide range of active constituents, their extrication methods, isolation, identification and assay, in addition to identification of the marketed drugs containing these active constituents. Also, the course includes the different ways of adulteration and the different methods to detect these adulterations in order to standardize and apply quality control to herbal drugs. The course also deals with herbal medicine, current classes and application.

At the end of this course the students will have a basic background in phytochemistry to be applied in pharmacy practice, including the detailed studies about active constituents in the taught systems. In addition the students will be able to build their basic background in herbal medicine.

Detailed learning objectives provided for each lecture and exercise session are the basis for assessment.

Course Outcomes:

At the end of course, the students will be able to

A. Describe natural products obtained from plant, animals and mineral origin, used as a drugs.
B. Discuss the application and use of natural products in practice and pharmaceutical industry.
C. Describe the role of developing herbal drugs in research.
D. Apply the knowledge of affordable alternative medicine in pharmacotherapy.

Teaching Strategies:

1. lectures , 2.Tutorials and discussions
4.Problem solving
5. Home and Library assignments

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	30%	0%	10%	50%

Textbooks:

1. Fundamentals of Pharmacognosy and Phytotherapy by Michael Heinrich, Joanne Barnes, Simon Gibbons, and Elizabeth M. Williamson 3rd ed; 2017; Churchil Livingstone (order)
2. Isolation and Identification of Drugs Clarke, E. C. G., "", the Pharmaceutical Press, London
3. Complementary and Alternative Medicine Guide: University of Maryland: http://www.umm.edu/health/medical/altmed

Reference Books:

1. The Complete German Commission E Monographs. Therapeutic Guide to Herbal Medicines, Mark Blumenthal, Senior Editor, American Botanical Council, Integrative Medicine Communications, Boston, Massachusetts (1998). Health Science Library (HSL).
2. Rational Phytotherapy, A Physicians Guide to Herbal Medicine, V. Schulz, R. Haensel, V.E. Tyler, Springer Publishers, Berlin,
3. Botanical Medicines, The Desk Reference for Major Herbal Supplements, D.J. McKenna, K. Jones, K. Hughes, The Haworth Herbal Press, New York, ISBN: 0-7890-1265-0.
4. Natural Medicines Comprehensive Database (www.naturaldatabase.com
5. WHO monographs on selected medicinal plants, World Health organization , Paperback vol. 1 (1999) and vol. 2 (2004

Course Name	Industrial Pharmacy			الصيدلة الصناعية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/week	Lec.	Lab	Tot.
	PS-19	2010322	2+0		2	0	2
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ■ Elective course ☐ University requirement						
Level	2nd Semester, 3rd year			Prerequisite	2010223		

Course Description:

Lectures: This course describes the manufacturing facilities, main unit operations that take place in the pharmaceutical industry and related equipment carrying out such operations. These operations include heat transfer and related pharmaceutical processes such as freeze drying, spray drying and drug stability studies. United States Pharmacopeia, FDA guidelines and fundamental considerations of good manufacturing practice (GMP) and quality control.

Course Outcomes:

At the end of the course, students will be able to:

A. Examine the selection, design and utilization of a pharmaceutical manufacturing facility
B. Define, differentiate and write report on the basic concept of unit operations
C. Investigate the various machines carrying out such operations
D. Observe good manufacturing practice (GMP) compliance
E. Organize drug stability studies

Teaching Strategies:

1. Lectures.
2. Group Discussions
3. Assignments

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	30%	0%	10%	50%

Textbook:

1. The Theory and Practice of Industrial Pharmacy, Lachman L, and Liberman H. A, Publisher; CBS Publishers & Distributors, 4th ed. 2017.

Reference Books:

1. Pharmaceutics - Dosage Form and Design (FASTtrack Pharmacy) David S. Jones, 2nd ed.2016
2. Pharmaceutics: the Science of Dosage Form Design, Michael E. Aulton, Publisher; Churchill Livingstone, Ed. 2nd 2002.
3. Remington: The Science and Practice of Pharmacy, Patrick J. Sinko, Publisher; Lippincott Williams & Wilkins. Ed. 22st 2012.

Course Name	Principles of Drug Design			مبادئ تصميم الأدوية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 3/ week	Lec.	Lab.	Tot.
	PS-20	2010323	2		2	-	2
Track	■ Pharmaceutical Sciences ☐ Biomedical sciences ☐ Pharmacy Practice ■ Elective course ☐ University requirement						
Level	2nd Semester, 3rd year			Prerequisite	2010313		

Course Description:

Lectures: This course provides an introduction on the principles of drug design and the development of new therapeutic agents from prototype compounds with special emphasis on drug action at the molecular level. The following topics will be addressed: overview of lead discovery and drug development, targets for biologically active molecules, structure-activity relationships, iso-sterism, pro-drug design, structure-based drug design and applications of molecular modeling.

Course Outcomes:

Upon successful completion of this course the student should be able to:

A. Describe the chemical basis for some of the known mechanisms of drug action.
B. Identify the role of molecular modification in the development of new drugs; its successes, shortcomings and failures
C. Discuss different techniques and processes of structure-based drug design
D. Define the role of denovo and molecular modeling techniques in the development of new drugs
E. Apply the molecular modeling applications to design new drugs.

Teaching Strategies:

1. Lectures.. ***3.1.1.1.1..12***

2. Discussion. ***3.1.1.1.2..12***

3. Home and library assignments.

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	30%	0%	10%	50%

Textbooks:

1. Smith and William's Introduction to the principles of drug design and action, H. John Smith, Publisher; CRC Press, 4 edition (July 16, 2011)

Reference Books:

1- Molecular Modeling; Hans-Dieter Holtje and Gerd Folkers. Weinheim - New York - Base1 - Cambridge – Tokyo. Erd ed. 2008.

7.3.3 3rd year Summer Semester

IPPE-2

Course Name	IPPE-2			Introductory Pharmacy Practice Experience-2			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 40/week	Lec.	Lab.	Tot.
	PP-11	2030331	2+0		-	-	200
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course Univ..ity requirement						
Level	Summer Semester, 3rd year			Prerequisite	2030311, 2030323 (attended)		

After successful completion of IPPE-2, student will be able to:

Demonstrate knowledge and skills to work in

A. out patient pharmacy (including ambulatory care), prescription handling, prescription filling and patients counselling
B. In patient Pharmacy handling unit dose, inpatient order entry, extemporaneous preparations
C. IV admixtures and parenteral nutrition
D. Unit of Controlled drugs/narcotics procurement storage, issue and entry
E. Team of health care professionals exhibiting appropriate professionalism and interpersonal skills

1. Assessment will have following components:
   i. Preceptors assessment: 60%
      1. Internal Preceptor: 30 %
      2. External Preceptor: 30%
      3. Presentation of reports/SOAP 10%
      4. Weekly Reports/Project/Portfolio 10%
   ii. OSCE 20%
   iii. Total: 100%

F.

Courses' Description

12..4 Fourth Year

1st Semester

Course Name	Law and Ethics in Pharmacy Practice			أخلاقيات وقانون الصيدلة			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 1/week	Lec.	Lab.	Tot.
	PP-12	2030411	1+0		1	0	1
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 4th year			Prerequisite	2030111, 2030323 Pharmacy Orientation, IPP		

Course Description:

Lectures: Governmental laws, regulations, detailed laws that govern and affect the practice of pharmacy such as drugs, narcotics and medical devices. General legal principles, non-controlled prescription requirements and over the counter drug requirements. Responsibilities of the pharmacist on the care of patients. Professional code of conduct, Common ethical issues and considerations, Identification of ethical problems and their workup.

Course Outcomes:

After completion of the course the student should be able to:

A. Describe national laws and regulations that govern practice of pharmacy in the country.
B. Describe codes of conduct for a pharmacist, standards of pharmacy practice and principles for solving ethical issues during pharmacy training and professional practice.

Teaching Strategies:

1. Lectures.
2. Discussion.
3. Case Studies

Grading Plan	Quizzes	Midterm	Practical	Assignments	Final Exam
	10 %	30%	0%	10 %	50%

Textbooks:

1. Pharmacy Law and Ethics, Gorden E. Appelbe, Joy Wingfield, Lindsay M. Taylor, Publisher; Pharmaceutical Press, . Ed. 2nd 2009.
2. Pharmacy Practice and the Health Care System in Saudi Arabia Ahmed Al-jedai Can J Hosp Pharm. 2016 May-Jun; 69(3): 231–237
3. FASTtrack: Law and Ethics in Pharmacy Practice Ruth Rodgers (Editor), Catherine Dewsbury (Editor), Andrew Lea (Editor) 1st Edition 2010
4. Pharmaceutical Care Practice: The Clinician's Guide, Robert Cipolle, Linda Strand, Peter Morley. Publisher; McGraw-Hill Medical, Ed. 2nd 2004.

Reference Books:

1. Pharmacy Practice and the Law Richard & Kimberley.Jones & Bartlett Learning; 8 edition, 2015) ISBN-10: 1284089118
2. Practical Exercises in Pharmacy Law and Ethics, Gorden E. Appelbe, Joy Wingfield and Lindsay M. Taylor, Publisher; Pharmaceutical Press. Ed. 2nd 2006.
3. ASHP Best Practices 2014-2015 (ASHP, Best Practices of Hospitals & Health-System Pharmacy) 1st Editionby American Society of Health-System Pharmacists

Course Name	Therapeutics-3			علاجيا ت-٣			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 6/week	Lec.	Pract	Tot.
	PP-13	2030412	4+1		4	3	7
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st semester, 4th year			Prerequisite	2010221, 2030321		

Course Description:

Lectures: This course will focus on the pharmacotherapy, patho-physiology of following disorders , endocrinologic disorders: diabetes mellitus, diseases of thyroid and parathyroid gland, , adrenocortical disorders, disorders of calcium metabolism: osteoporosis, women health: gynecologic diseases, contraception, hormone replacement therapy. central nervous system and psychiatric disorders: Parkinson's disease, epilepsy, Alzheimer's disease, multiple sclerosis. psychiatric disorders: anxiety, depression, bipolar disorders , mood and sleep disorders, attention deficit/hyperactivity disorders (ADHD), , schizophrenia, alcoholism & substance abuse smoking cessation

Practical: Clinical case studies, Case-Assisted Student Centered Learning (CASCL), case presentation followed by case discussion and writing/presentation in SOAP format**.** The students will be required to maintain course portfolio with all case histories discussed. Students will have at least one sessions of Interprofessional Education during the course to interact with other health professionals in relation to clinical case selection, discussion, presentation and reflection. Service learning module will also be part of practical, training students about preparing material for community awareness and education about diseases taught in the course and are common in the region.

Course Outcomes:

After completion of the course, the student will be able to:

A. Describe pathophysiology of the diseases in relation to clinical presentation and pharmacotherapy for the diseases included in this course (common Endocrinologic and CNS disorders along with topics in psychiatry and women's health)
B. Discuss the Clinical (history symptoms and signs) and laboratory data in relation to diagnosis and follow up evaluation of the disease included in the course
C. Constitute therapeutic goals for the patient's problem and design appropriate therapeutic plan to achieve these goals, using updated evidence based information (recent clinical guidelines,).
D. Analyse the given clinical case, write and present in SOAP format, including patient education tips

Teaching Strategies:

1. Lectures, Small Group Discussion, followed by students presentations
2. Case-Assisted Student Centered Learning (CASCL)

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	25%	25%	0%	40%

Textbooks:

1. Pharmacotherapy Principles and Practice, Marie A. Chisholm-Burns PharmD FCCP and Terry L. Schwinghammer Professor and Chair Clinical Pharmac, 4th edition 2016
2. Pharmacotherapy: Handbook. By BG well, JT Dipiro TL Schwinghammer and CW Hamilton Appleton and Lange 10th ed.(2017)
3. ACCP Updates in Therapeutics Pharmacotherapy Preparatory Review: 2017. Pharmacotherapy Casebook, A Patient Focused Approach TL Schwinghammer , BG well, JT Dipiro and CW Hamilton: Appleton and Lange 10th Edition . 2017

Course Name	Drug Information Services			خدمات المعلومات الدوائية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 4/week	Lec.	Lab.	Tot.
	PP-14	2030413	2+1		2	1	1
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 4th Year			Prerequisite	2030311, 2030325 Ther-1, Res.Meth & Biostat		

Course Description:

Lecture: This course will provide the students with concept, scope and development of Drug Information Services in health care system. The course will have preview of the process/steps involved in its approval for clinical use by FDA. It will include sources, types and evaluation of drug information resources, searching for drug information resources to respond to the drug information requests, critical evaluation of the results, using an evidence based approach with knowledge of levels of clinical evidence. Fundamentals of research including measures, reliability, validity, ethical concerns, types of various research studies and level of clinical evidence will also be reviewed in this course. The course will also cover the formulation of clinical question from a given clinical scenario and responding to such questions after literature search and critical appraisal of the result. Medication review and medication use evaluation will also be discussed in this course

Practical: The students will be trained in Pharmaceutical Care lab for use of various electronic and other information resourses for retrieval, evaluation, and dissemination of drug information.

Course Outcomes:

Upon completion of the course, the student will be able to

A. Describe concepts, scope and resources of Drug Information
B. Define primary, secondary and tertiary literature resources
C. Define evidence based practice and its application in retrieving information to respond to drug information requests and clinical questions
D. Critically evaluate the retrieved information for application in practice
E. Retrieve, evaluate, communicate and disseminate the required information to health care providers and general population

Teaching Strategies:

1. Lectures.
2. Case studies/discussions
3. Home and library assignments
4. Service learning (by answering questions from community regarding drugs and their usage)

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	25 %	25 %	10 %	40 %

Textbooks:

1. Lexi-Comp's Drug Information Handbook, Charles F. Lacy Lora L. Armstrong, Morton P. Goldman, Leonard L. Publisher; Lance Lexi-Comp. Ed. 26th 2017.
2. Drug Information Resources and Literature Retrieval Karen L . Kier; ACCP Updates in Therapeutics. 2017
3. Evidence-Based Practice: An Integrative Approach to Research, Administration, and Practice 2nd Edition by Heather R. Hall, Linda A. Roussel 2016
4. Evidence-Based Practice: A Primer for Health Care Professionals, Philip T. Davies, Martin Dawes, Kate Seers, Robin Snowball, Publisher; Churchill Livingstone. Ed. 3rd 2005

Reference Books:

1. Drug Information: A Guide for Pharmacist, Patrick M. Malone, Karen L. Kier, John Stanovich, Publisher; McGraw-Hill/Appleton & Lange, Ed.5th 2014.
2. Users' Guides to the Medical Literature: Essentials of Evidence-Based Clinical Practice, Third Edition Gordon Guyatt, M.D.; Drummond Rennie, M.D.; Maureen O. Meade, M.D.; Deborah J. Cook, M.D. *SBN: 978-0-07-179415-2; 2015;*

Course Name	**Clinical Pharmacokinetics**			**حركية الدواء الإكلينيكية**			
Course Information	**Course Code**	**Course No**	**Credit Hours**	**Contact Hours 5/ week**	**Lec.**	**Lab.**	**Tot.**
	PP-15	**2030414**	**2+1**		**2**	**3**	**5**
Track	☐ **Pharmaceutical Sciences** ☐ **Biomedical sciences** ■ **Pharmacy Practice** ☐ **Elective course** ☐ **University requirement**						
Level	**1st Semester, 4th Year**			**Prerequisite**	**2010314**		

Course Description: This course will focus on the basic principles of pharmaco-kinetic for the purpose of optimizing drug therapy and Therapeutic drug monitoring with the emphasis on clinical pharmacokinetics of the following drugs: aminoglycosides antibiotics, carbamazepine, cyclosporine, digoxin, ethosuximide, lidocaine, lithium, methotrexate, phenobarbital, phenytoin, procainamide, quinidine, salicylates, theophylline, tricyclic antidepressants, valproic acid and vancomycin).
Practical: Group discussions on clinical problems/case scenarios aiming at interpretation of given data in the case scenario and solving the problem in terms of individualized dose calculation to optimize the drug therapy for that particular case/situation

Course Outcomes: Upon successful completion of this course the student will be able to:
A. Describe and apply the principles of pharmacokinetics in optimizing the drug therapy.
B. Define and describe the principles of TDM.
C. Identify the related clinical problem.
D. Analyze, calculate and suggest the dose or treatment in special situations.

Teaching Strategies:

1. Lectures.
2. Active learning by Data interpretation & Problem solving.
3. Small group discussion

Grading Plan	**Quizzes**	**Midterm**	**Practical**	**Assignments/projects**	**Final Exam**
	10%	**30%**	**0%**	**10%**	**50%**

Textbooks:

1. Concepts in Clinical Pharmacokinetics, Joseph T. DiPiro, William J. Spruill, Publisher; American Society of Health-System Pharmacists. Ed. 6th 2014
2. Clinical Pharmacokinetics. ASHP, 6th Ed 2017 (ISBN1585285366 ISBN-13: 978-1585285365)
3. Applied Clinical Pharmacokinetics, Laurry Bauer, Publisher; McGraw-Hill Medical, Ed. 3rd st 2014.
4. Casebook in Clinical Pharmacokinetics and Drug Dosing: Henry Cohen. McGraw-Hill Medical. Ed. 1st 2015

Reference Books:

1. Therapeutic Drug Monitoring, PharmaMed Press 2011.
2. Applied Pharmacokinetics: Principles of Therapeutics: Drug Monitoring, W.E. Evans, J. J. Schentag, W. J. Jusko Spokane, Publisher; Lippincott Williams & Wilkins, Ed. 4th 2005

Course Name	Parenteral Nutrition			التغذية الوريدية الكلية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 1/week	Lec.	Lab.	Tot.
	PP-16	2030415	1+0		1	0	1
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 4th Year.			Prerequisite	2020212		

Course Description: This course will cover; principles of healthy nutrition, nutritional assessment and need in hypertension and cardiovascular diseases; critically ill patients; gastrointestinal diseases ; renal disease ; pulmonary diseases, diseases ; nutrition and anemias ;. Introduction to nutrition support. Parenteral Nutrition: its concept, preparation, calculation and facilities required. Enteral nutrition background, preparation and calculation. Relevant case studies.

Course Outcomes:

After completion of the course the student should be able to:

A-Describe the basic concept and principles of parenteral nutrition

B- Calculate the nutritional requirement of a critically ill patient and for diseases mentioned in the course

Teaching Strategies:

1. Lectures.
2. Discussion.
3. Assignments
4. Case studies

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30%	0%	10%	50%

Textbooks:

1. Medical Nutrition and Disease: A Case-Based Approach.. Lisa Hark, Gail Morrison, Publisher; Wiley-Blackwell, Ed. 5th 2014.
2. Fluids, Electrolytes,and Nutrition Leslie A . Hamilton. ACCP Updates in Therapeutics: 2017
3. Most recent ASPEN guidelines (American Society for parentral and entral Nutrition)
4. Essentials of Human Nutrition Jim Mann, Stewart Truswell, Publisher; Oxford University Press, Ed. 4th 2012.

Reference Books:

1. Remington: The Science and Practice of Pharmacy, Patrick J. Sinko, Publisher; Lippincott Williams & Wilkins. Ed. 22nd 2012
2. Enteral and Tube Feeding, Rolando H Rolandelli, Publisher; Elsevier, Ed. 4th 2004.

Course Name	Pharmacoeconomics			اقتصاديات الدواء			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 1/ week	Lec.	Lab.	Tot.
	PP-17	2030416	1+0		1	0	1
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	1st Semester, 4th year			Prerequisite	2030325		

Course Description:

Lectures: Introduction to pharmacoeconomics, implication of pharmacoeconomics in pharmacy, investigating pharmacoeconomics research question, quality of life and quality adjusted life years , measuring cost, cost minimization analysis, cost effective analysis , cost benefit analysis , cost utility analysis , sensitivity analysis , decision analysis, daily dose calculation.

Course Outcomes:

Upon successful completion of this course the student will be able to:

A. Comprehend basic financial and operational knowledge about Pharmaco-economics and its implication in Pharmacy Profession.

B. Apply the concepts, methods of decision making, and cost effectiveness in clinical studies and selection of drugs.

Teaching Strategies:

1. Lectures.
2. Discussion.
3. Case studies
4. Assignments and Projects

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30%	0%	10%	50%

Textbooks:

1. Essentials of Pharmacoeconomics, Karen Rascati, Publisher; Lippincott Williams & Wilkins, Ed. 2nd 2013
2. Introduction to Applied Pharmacoeconomics, Randy Vogenberg, Publisher; McGraw-Hill/Appleton & Lange, Ed. 1st 2000.
3. Economic and Patient-Reported Outcomes Assessment Linda Gore Martin, ACCP Updates in Therapeutics: 2017

Reference Books:

1. Remington: The Science and Practice of Pharmacy, Patrick J. Sinko, Publisher; Lippincott Williams & Wilkins, Ed. 22st 2013
2. Pharmacoeconomics From theory to practice, Andrew a. Carmen, Publisher; CRC press. Ed. 13th 2009.

Courses' Description

Fourth Year

2nd Semester

Course Name	Clinical Toxicology			علم السموم التطبيقي			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/ Week	Lec.	Lab.	Tot.
	PS-18	2010421	2+0		2	0	2
Track	■ Pharmaceutical Sciences ☐ iomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ hiversity requirement						
Level	2nd Semester, 4th year			Prerequisite	, 2010311 Pharmacology-4		

Course Description:

Lectures: Definitions of toxicodynamics, toxicokinetics, toxic responses, target organ toxicity, carcinogenicity, mutagenicity, teratogenicity, management of poisoned patient: decontamination, supportive care, antidotes, clinical toxicology of drugs: digoxin, aminophylline, beta blockers, calcium channel blockers, anticoagulants, benzodiazepines, antidepressants, antipsychotics, opioids, NSAIDs, antidiabetic agents, Clinical toxicology of air pollutants, solvents: alcohols, insecticides, herbicides and pesticides. Toxicology of heavy metals

Course Outcomes:

After the completion of the course the student will be able to

A. Define and describe toxicodynamics and toxicokinetics including target organ toxicity, carcinogenicity, teratogenicity and mutagenicity
B. Describe the management of poisoned patients
C. Apply the concepts of toxicology in a related clinical situation to identify and manage the problem

Teaching Strategies:

1. Lectures.
2. Discussions
3. Problem solving.
4. Projects and Assignments.
5. Case studies

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10%	30%	0%	10%	50%

Textbooks:

1. Toxicology Handbook, 3e 3rd Edition by Lindsay Murrar Churchill Livingstone; 3 edition (April 2, 2015
2. Introduction to Toxicology, John A. Timbrell, Ed. 3rd 2001.
3. Haddad and Winchester's Clinical Management of Poisoning and Drug Overdose, Michael W. Shannon, Ed. 2nd 2007.

Reference Books:

1. Basic and Clinical Pharmacology, Bertram Katzung, Susan Masters, Anthony Trevor, Publisher; Lange Basic Science, Ed. 13th 2017.
2. Medical Toxicology: Antidotes and AnecdotesFeb 25, 2017 by Steven M. Marcus Springer; 1st ed. 2017
3. Goldfrank's Toxicologic Emergencies, Lewis S. Nelson McGraw-Hill Education / Medical; 10 edition, 2014

Course Name	Therapeutics-4			علاجيا ت-٤			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 6/week	Lec.	Pract.	Tot.
	PP-18	2030421	4+1		4	3	7
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd semester , 4th year			Prerequisite	2010311, 20330412 Pharma-4, Thera-3		

Course Description:

Lectures: This course consists of two modules, namely Infectious diseases and oncology (some common cancers and palliative care therapy. pathophysiology and management of Infectious Diseases:
upper respiratory infections, pneumonia, tuberculosis, urinary tract, intra-abdominal and gastrointestinal tract infections, infective endocarditis, central nervous system sexually transmitted diseases, acquired immunodeficiency syndrome (AIDS), mycotic infections, surgical antibiotic prophylaxis, , bacteremia and sepsis, skin and soft tissue infections, immunization therapy
Supportive/palliative care therapy in cancer patients, chronic leukemias, lymphomas, , lungs cancer, , prostate cancer, breast cancer, , liver tumours, management of burn patients, issues in pediatrics/ neonates and geriatric drug therapy.

Practical: Clinical case studies, Case-Assisted Student Centered Learning (CASCL), case presentation followed by case discussion and writing/presentation in SOAP format**.** The students will be required to maintain course portfolio with all case histories discussed. Students will have at least one sessions of Interprofessional Education during the course to interact with other health professionals in relation to clinical case selection, discussion, presentation and reflection. Service learning module will also be part of practical, training students about preparing material for community awareness and education about diseases taught in the course and are common in the region.

Course Outcomes:

After completion of the course, the student will be able to:

A. Describe pathophysiology of the diseases in relation to clinical presentation and pharmacotherapy for the diseases included in this course (common infectious diseases and common cancers)
B. Discuss the Clinical (history symptoms and signs) and laboratory data in relation to diagnosis and follow up evaluation of the disease included in the course
C. Constitute therapeutic goals for the patient's problem and design appropriate therapeutic plan to achieve these goals, using updated evidence based information (recent clinical guidelines,).
D. Analyse the given clinical case, write and present in SOAP format, including patient education

Teaching Strategies:

3. Lectures
4. Small Group Discussion, followed by students presentations
5. Case-Assisted Student Centered Learning

Grading Plan	Quizzes	Midterm	Practical	Assignments/Log	Final Exam
	10%	25%	25%	0%	40%

Recommended Textbooks:

1. Pharmacotherapy Principles and Practice, Marie A. Chisholm-Burns PharmD FCCP and Terry L. Schwinghammer Professor and Chair Clinical Pharmac, 4th edition 2016

2. Pharmacotherapy: Handbook. By BG well, JT Dipiro TL Schwinghammer and CW Hamilton Appleton and Lange 10th ed.(2017)
3. ACCP Updates in Therapeutics Pharmacotherapy Preparatory Review: 2017.
4. Pharmacotherapy Casebook, A Patient Focused Approach TL Schwinghammer , BG well, JT Dipiro and CW Hamilton: Appleton and Lange 10th Edition . 2017

Reference Books:

1. Clinical Pharmacy & Therapeutics, Roger Walker, C.W. Edwards, Publisher; Churchill Livingstone, Ed. 5th 2011.

Course Name	**Pharmacy Management**			**إدارة صيدلية**			
Course Information	**Course Code**	**Course No**	**Credit Hours**	**Contact Hours 2/week**	**Lec.**	**Lab.**	**Tot.**
	PP-19	**2030422**	**2+0**		**2**	**0**	**2**
Track	☐ **Pharmaceutical Sciences** ☐ **Biomedical sciences** ■ **Pharmacy Practice** ☐ **Elective course** ☐ **University requirement**						
Level	**2nd Semester , 4th year**			**Prerequisite**	**2030323 (IPP)**		

Course Description:

This course introduces basic concepts principles and methods of management in all aspects of pharmacy practice, strategic and business planning and its application in pharmacy practice, fundamentals of human resources, marketing and financial management, needs and motivation theory and its impact on employees' behavior and organizational success, leadership development and decision-making, personal influence and opinion leadership, project management, , organizational principles, behavior and culture purchasing and inventory management health insurance plan.

Course Outcomes: After completion of the course, the students will be able to:

A. Explain the basic components of management and the fundamental principles of human resources, financial, marketing management necessary for successful professional practice.

B. Apply the concepts and methods of management, leadership and decision making; and organizational behaviour in pharmacy practice

Teaching Strategies:

1. Lectures.
2. Discussion
3. Projects and assignments

Grading Plan	**Quizzes**	**Midterm**	**Practical**	**Assignments/projects**	**Final Exam**
	10%	**30%**	**0%**	**10%**	**50%**

Textbooks:

1. Pharmacy Management, Essentials for All Practice Settings, Shane Desselle, David Zgarrick, Publisher; McGraw-Hill Medical, Ed. 4th 2016
2. Managing a Clinical Practice Mary Ann Kliethermes: ACCP Updates in Therapeutics.2017
3. Managing Pharmacy Practice, Principles, Strategies, and Systems, M. Peterson, Publisher; CRC Press. Ed. 1st 2004.

Reference Books:

1. Marketing for Health Care Organizations, Philip Kotler Clarke, Publisher; Prentice Hall, Ed. 1st 2008.
2. Marketing Management, Philip Kotler, Publisher; Prentice Hall, Ed. 13th 2008.

Course Name	Pharm.D. Seminar			حلقة نقاش			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 3/ week	Lec.	Lab.	Tot
	PP-20	2030423	0+1		0	3	3
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd semester, 4th year.			Prerequisite	2030325		

Course Description:

This course will prepare students for presentation in the journal club as well as for other assigned topics from didactics, and train the students for effective scientific presentation and scientific communication through response to the questions. The course will include ; introduction to scientific peer reviewed journal, critical steps in the selection of the research article, discussion on the topic, ,material methods, result, conclusion, and student comment. the use of multimedia, slides, overheads, handouts and other visual aids, as well as methods of answering questions from the audience, will also be discussed in this course.

Presentation:

Every student will select, or will be assigned, a relevant topic to pharmacy practice and present it to cover the scope of topic, followed by discussion and answering questions.

Course Outcomes:

After completion of the course the student will be able to:

A- Present the assigned topic using multimedia/ power-point at student-faculty forum, and logically respond to questions from the audiences.

B- Present selected/assigned article in Journal Club meetings and actively participate in discussion

Teaching Strategies:

1. Lectures.
2. Small Group discussion.
3. Experiential learning.

Grading Plan	Assignment/presentations	Mid Term Presentation	Final exam
	20 %	30%	50%

Textbooks:

1. Publishing and Presenting Clinical Research, Warren S. Browner, Publisher; Lippincott Williams & Wilkins, Ed. 3rd 2012
2. How to Run Seminars and Workshops: Presentation Skills for Consultants Trainers and Teachers, Robert Jolles, Publisher; Wiley, Ed. 3rd 2005.
3.

Reference Book :

1. Epidemiology: Study Design and Data Analysis, M. Woodward, Publisher; Chapman & Hall, Ed. 1st 1999.
2. http://ajcc.aacnjournals.org/site/misc/journalclubwebpage.pdf

Course Name	Self Care and Non Prescription Drugs			العناية الذاتية والأدوية اللاوصفية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/ week	Lec.	Lab.	Tot.
	PP-21	2030424	2+0		2	0	2
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 4th year			Prerequisite	2010312		

Course Description:

Lectures: Use of evidence-based approach to establish the safety and effectiveness of self-care options for particular disorders and the pharmacist's role in administration/use of non-prescription drugs, self-medication and home diagnostic devices. A study of products used by the self–medicating public, including material on the symptoms for which patients seek self-treatment, evaluation and selection of products used to treat them, aspects of patient counseling on the safe and effective use of products and various legal considerations relating to this class of drugs.

Course Outcomes:

After completion of the course the student should be able to:

A. Select the rational drugs for common diseases and advise self medication in clinical practice.
B Comprehend social and economic value of self-medication .
C. Distinguish between prescription and non-prescription medicines.
D. Provide detailed information and instructions for self medication and use of non-prescription drugs.

Teaching Strategies;

1. *Interactive lectures*
2. *Discussions*
3. Assignments and projects

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30%	0%	10%	50%

Textbooks:

1. Handbook of Non-prescription Drugs, Rosemary R. Berardi, Publisher; APhA Publications. Ed. 18th 2014
2. Handbook of Nonprescription Drugs: An Interactive Approach to Self-Care 19th Edition by Daniel L., Ed. Krinsky American Pharmacists Association; 19 Ed., 2017

Reference Books:

1- Non Prescription Products Therapeutics, W. Steven Pray, Publisher; Lippincott Williams &Wilkins, Ed. 2nd 2005.
2- Non Prescription Drugs Medicines, Alan Nathan, Publisher; Pharmaceutical Press, Ed. 4th 2009.
3- Drug Misuse and Community Pharmacy, Sheridan, Strang, Publisher; CRC Press. Ed. 1st 2002.

Course Name	Pharmacoepidemiology			علم وبائيات الدواء			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 1/ week	Lec.	Lab.	Tot.
	PP-22	2030425	1+0		1	0	1
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ University requirement						
Level	2nd Semester, 4th year.			Prerequisite	2030414, 2030413 Clin.Pharmacokinetics, DIS		

Course Description: Pharmacoepidemiology and its importance in pharmacy practice, principles of epidemiology applied to the study of drug use evaluation, medication safety pharmacovigilence (use of pharmacoepidemiology to study beneficial drug effects, use of pharmacoepidemiology to study adverse drug effects), continual monitoring for unwanted drug effects (post-marketing surveillance), applications in pharmacy practice, medication adherence, statistics in pharmacopeias, international perspective (global drug surveillance).

Course Outcomes:

After completion of the course the student should be able to:

- Define pharmacoepidemiology and its scope in pharmacy practice
- Comprehend the basic understanding and knowledge of epidemiology in: pharmacovigilence and surveillance studies

Teaching Strategies:

1. Lectures.
2. Discussion.
3. Assignments and projects

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30%	0%	10%	50%

Textbooks:

1. Understanding Pharmacoepidemiology, Donna West, Yi Yang, Publisher; McGraw-Hill Medical, Ed. 1st 2010.
2. Drug Utilization Research: Methods and Applications Monique Elseviers), Björn Wettermark Anna Birna Almarsdóttir (Author), Morten Andersen :Wiley-Blackwell; 1 edition (27 May 2016)
3. Pharmacoepidemiology, Brian L Strom, Publisher; John Wiley & Sons, Ed. 2nd 2001.

Reference Books:

1. Introduction to Epidemiology, Ray M. Merrill, Thomas C. Timmreck, Publisher; Jones & Bartlett Pub, Ed. 4th 2006.
2. Textbook of Pharmacoepidemiology, Brian L. Strom, Publisher; John Wiley Sons, Ed. 4th 2007.

Course Name	Pharmaceutical Biotechnology			علم التكنولوجيا الحيوية الصيدلانية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/ week	Lec	Lab	Tot
	BMS-13	2020421	2 + 0		2	0	2
Track	☐ Pharmaceutical Sciences ■ Biomedical sciences ☐ Pharmacy Practice ■ Elective course ☐ niversity requirement						
Level	2nd Semester, 4th year			Prerequisite	2020213		

Course Description:

In this course the students will be introduced to pharmaceutical aspects of biotechnology. The topics covered in the course include, gene manipulation (endonuclease digestion, sub-cloning and transfection), recombinant DNA technology to produce recombinant proteins, various expression systems, introduction to tissue culture, applications of recombinant DNA in the pharmaceutical fields, formulation of biotech products including biopharmaceutical considerations, gene therapy, DNA vaccines, biotechnology and drug discovery, the pharmacist's role in biotechnology and dispensing biotechnology products.

Course Outcomes:

After completion of the course the student will be able to:

A- Define the pharmaceutical aspects of biotechnology in the field of health care.

B- Discuss gene manipulation and its applications in diagnosis and treatment of diseases

Teaching Strategies:

1. Discussion.
2. Lectures.
3. Assignments (Home and library) and projects

Grading Plan	Quizzes	Midterm	Practical	Assig/projects	Final Exam
	10 %	30%	0%	10%	50%

Textbooks:

1. Pharmaceutical biotechnology: fundamentals and applications, J. A. Crommelin Daan, Robert D. Sindelar, Bernd Meibohm, Publisher; Informa Healthcare, 4th Ed., 2013
2. Pharmaceutical biotechnology: Concepts and applications, Gary Walsh, Publisher; Wiley, 1st Ed. 2007.

Reference Books:

1. Biotechnology: David P. Clark and Nanette J. Pazdernik Academic Cell; 2 edition (24 July 2015
2. Pharmaceutical Biotechnology: Drug Discovery and Clinical Applications, Oliver Kayser , Rainer H. Miller, Publisher; Wiley-VCH, 1st Ed. 2004.
3. Medical Biotechnology, Judit Pongracz, Mary Keen, Publisher; Churchill Livingstone, 1st Ed. 2009.
4. Glossary of biotechnology terms, Kimbal Nill, Publisher;CRC Press, 4th Ed. 2005.

Course Name	Pharmacogenomics			علم الادوية الجينومي			
Course Information	Course Code	Course No	Credit Hours	Contact Hours 2/ week	Lec.	Lab.	Tot.
	PP-23	2030426	2 + 0		2	0	2
Track	☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice ■ Elective course ☐ University requirement						
Level	2nd Semester, 4th year.			Prerequisite	2020213		

Course Description:

Lecture: This course is designed to introduce the students to role of genetics in drug responses. The genetic basis of variability in drug response can contribute to drug efficacy and toxicity, adverse drug reactions and drug-drug interactions The students will learn about genomic variation among humans, web resources for bioinformatics, applications of genomics in human health and complex disease, pharmacogenomics of drug metabolizing enzymes, pharmacogenomics of drug transporting proteins and drug receptors, pharmaco-genetics of drug metabolism and its clinical applications, pharmacogenomics of drug interactions and their adverse effects, cancer pharmacogenomics and pharmacogenomics in drug discovery and drug development..

Course Outcomes:

Upon successful completion of the course the student should be able to

A. Explain the basic principles of human genetics and polymorphic variability including the use of online resources
B. Discuss how genetic variability in genes, encoding drug metabolizing enzymes, drug transporting proteins, and drug receptors (target) contribute to pharmacokinetic and pharmacodynamic processes
C. Apply pharmacogenomics concepts to a particular drug therapy to solve relevant problems in pharmaceutical care.
D. Critically evaluate the current pharmacogenomic literature.

Teaching Strategies:

1. Lectures.
2. Discussion.
3. Assignments (home and library)and projects

Grading Plan	Quizzes	Midterm	Practical	Assignments/projects	Final Exam
	10 %	30 %	0%	10%	50%

Textbooks:

1. Pharmacogenomics: Applications to Patient Care. Publisher; American College of Clinical Pharmacy. Ed.2nd 2009
2. Pharmacogenomics: " The Use of Genetics in Prescribing Medications Paul F Kisak CreateSpace Independent Publishing Platform; 1st edition :2017
3. Pharmacogenomics, Werner Kalow, Meyer, Rachel F. Tyndal, Publisher; Informa Healthcare, Ed. 2nd 2005.

Reference books.

Pharmacogenomics in Drug Discovery and Development (Methods in Molecular Biology)m Publisher; Qing Yan Humana Press, Ed. 2nd :2014

Courses' Description

12..5 Fifth Year

APPE

Advanced Pharmacy Practice Experience (APPE)

<table>
<tr><td>Course Name</td><td colspan="4">Advanced Pharmacy Practice Experience-1,2,3</td><td colspan="3">خبرة ممارسة الصيدلة الإكلينيكية المتقدمة-١</td></tr>
<tr><td rowspan="2">Course Information</td><td>Course Code</td><td>Course No</td><td>Credit Hours</td><td>Contact Hours</td><td>Lec.</td><td>Pract</td><td>Tot.</td></tr>
<tr><td>PP.24, 25,26</td><td>2030431, 2030511,2030521</td><td>5+15+15</td><td>Minimum 40 hours/week</td><td>0</td><td>35</td><td></td></tr>
<tr><td>Track</td><td colspan="7">☐ Pharmaceutical Sciences ☐ Biomedical sciences ■ Pharmacy Practice
☐ Elective course ☐ University requirement</td></tr>
<tr><td>Level</td><td colspan="3">Summer, fall and spring semester</td><td>Prerequisite</td><td colspan="3">Must pass all the courses</td></tr>
<tr><td colspan="8">Training Description:
During the Advanced Pharmacy Practice Experience (APPE), the student will be involved in the provision of advanced clinical pharmacy services in various medical sub-specialty environments. The student will have experience in the responsibilities (under direct supervision of preceptor) of:
• Professional communication and collaboration with patients and health care providers, while working in institutional pharmacies as well as in the clinical departments
• Patient care including therapeutic decision making by selecting appropriate drug therapy and monitoring that therapy. Students will be actively involved in the areas of: management of disease state, medication therapy management, patient monitoring, care-planning and follow up, patient chart review, including the patients lab data, medication history, drug information and discharge medication counseling, in an interprofessional environment
• Organizational and Professional skills required to work in the community as well as in the institutional pharmacy set up.</td></tr>
<tr><td colspan="8">Training Outcomes/Goals
Specific objectives of each rotation are mentioned in the following pages. The following are the general goals and objectives of the clinical clerkship (Advance Clinical Pharmacy Practice Experience):
At the end of forty weeks' APPE the student will be able to:
A. Demonstrate a sufficient, relevant, and expanded knowledge base to utilize appropriate resources necessary to provide patient centered care in various clinical settings in an interprofessional environment.
B. Demonstrate clinical skills necessary to assume accountability and responsibility for therapeutic planning, intervention and outcome evaluations in the process of providing patient centered care as a team member of health care providers (such as physicians, nurses and hospital pharmacists).
C. Demonstrate professionalism and interpersonal skills required as team member of interprofessional health care providers for optimum patient centered care
D. Exhibit appropriate communication and numerical skills required while working in an interprofessional and community environment for promotion of health of the community</td></tr>
<tr><td colspan="8">Training Strategies and Activities:
1. Group Activities: attending ward rounds as member of Interprofessional Team of physicians and nurses, bed side discussions about medications followed by presentations.
2. Assignments, Projects and Presentations
3. Patient centered activities: counseling of patients regarding medication, and discharge medication counseling
4. Case-Assisted Student Centered Learning (CASCL)
5. Hands on training in Institutional as well as community pharmacies
6. Journal club & And literature review regarding medications for various disease states, based on evidence</td></tr>
</table>

Areas of Rotations	Duration
a. **Mandatory Rotations**: 28 Weeks **1.** Hospital Pharmacy (in & out patient) **2.** Community Pharmacy, 3. Ambulatory Care 4. Internal Medicine 5. Pediatrics 6. Critical Care , 7. Research	2. weeks each
b. Elective Rotations: 16 weeks: *Student has to select any 4 from the following* 1. Cardiology & CCU, 2. Nephrology, 3. Oncology/Hematology, 4. Infectious Diseases 5. Psychiatry, 6.Surgery	**4 weeks each**

Grading Plan	Clinical Preceptors evaluation: Pass (60 %)/No pass based upon following components	
	i. End of Rotations exam for Two Rotations in APPE-1	15%
	ii. End of Rotations exam for Four Rotations in APPE-2	30%
	iii. End of Rotations exam for Four Rotations in APPE-2	30%
	iv. Mid OSCE	5%
	v. Final OSCE	7.5%
	vi. Comprehensive Written Exam	7.5%
	vii. Research	5%
	Total	100%

Reference Books:

1. ACCP's Clinical Faculty Survival Guide : Editor(s): Thomas D. Zlatic, Ph.D. ISBN: 978-1-932658-73-6 2010
2. Taking The Clinical History. William Demyer . Oxford University Press, USA. Ed. 1st 2009
3- Boh's Pharmacy Practice Manual: A Guide to the Clinical Experience. Susan M. Stein. Lippincott Williams & Wilkins. Ed. 3rd 2009
4- Pharmacotherapy Casebook, A Patient Focused Approach. Terry L. McGraw-Hill. Ed. 3rd 2007.
5- Pharmacotherapy: A Pathophysiologic Approach. Joseph T. Dipiro, Robert L. Talbert, and Michael Posey,McGraw-Hill Medical.Ed. 10th 2016
6- Applied Therapeutics: The Clinical Use of Drugs. Mary A. Koda, Lloyd Wayne and Joseph Guglielmo. Lippincott Williams & Wilkins. Ed. 9th 2009
7- Pharmacotherapy Casebook, A Patient Focused Approach. Terry L. McGraw-Hill. Ed. 7th 2005
8- Remington: The Science and Practice of Pharmacy. University of the Sciences in Philadelphia. Lippincott Williams & Wilkins. Ed. 21st 2005.
9-

7.5.2 APPE Rotation Description

Course Name	**APPE-1 Internal Medicine**			**الطب الباطني**			
Course Information	**Course Code**	**Course No**	**Credit Hours**	**Contact Hours** Minimum 40 hours/week	**Lec.**	**Pract**	**Tot.**
	PP-21/M	**2030511**					
Track	☐ **Pharmaceutical Sciences** ☐ **medical sciences.** ■ **Pharmacy Practice.** ☐ **Elective courses** ☐ **University requirements**						
Level	**Summer, fall and spring semester**			**Prerequisite**	Must pass all the courses		

Description:

This rotation will prepare the student with knowledge base and problem solving skills relating to the management of patients with pharmaceutical care perspective

Rotation Outcomes

Upon completion of this rotation, students should be able to:

A. Prepare treatment plan based upon pathophysiology, clinical presentation, diagnosis,
B. Provide appropriate monitoring parameters for the chosen treatment plan (including efficacy, toxicity, side effects, and potential drug interactions
C. Effectively communicate the drug treatment plan to the patient with the appropriate precautions and expectations.
D. Effectively communicate therapeutic interventions to other members of the health care team.
E. Provide adequate documentation and literature support for therapeutic recommendations.
F. Demonstrate Attitude and skills to work in an Interprofessional environment

Teaching Strategies:

Multi-Media PPT Presentation **,** Problem Based Learning PBL, Case-Assisted Student Centered Learning (CASCL), Ward round with Interprofessional Team of health Care providers, Use of simulations, Small group tutorials, Assignments , Small research projects, Journal club.

Grading Plan	**Clinical Preceptors evaluation: Pass/ Fail**

Textbooks:

1. Pharmacotherapy: A Pathophysiologic Approach, Joseph T. Dipiro, Robert L. Talbert, Michael Posey, Publisher; McGraw-Hill, Ed. 10th 2016.
2. Pharmacy Clerkship Manual, Ruth & Karen Publisher; McGraw-Hill, Ed. Ist 2002
3. Pharmacy Practice Clinical Manual, Boh L, Publisher; Lippincott, Ed. 2nd 2002.
4. Manual for Clinical Clerkship, College of Clinical Pharmacy, King Faisal University, Al-Ahsa

Reference Book:

1. Textbook of Therapeutics: Drug and Disease Management, E.T. Herfindal, D.R. Gourley, Publisher; Lippincott Williams and Wilkin

Course Name	APPE-2 Institutional Pharmacy Practice Experience			التدريب على الممارسة الصيدلة السريرية المؤسسية			
Course Information	**Course Code**	**Course No**	**Credit Hours**	**Contact Hours** Minimum 40 hours/week	**Lec.**	**Pract**	**Tot.**
	PP-21/IP	**2030511**				**160**	**4 weeks**
Track	☐ **Pharmaceutical Sciences** ☐ **Biomedical sciences** ■ **Pharmacy practice** ☐ **Elective course** ☐ **University requirement**						
Level	**Summer, fall and spring semester**			**Prerequisite**	Must pass all the courses		

Description:

This rotation will expose students to the practice of institutional pharmacy, to provide the opportunity to explore the health care team approach to patient care, the role of pharmacists in professional decision making, and how the pharmacist and staff supports the well-being of the patient

Rotation Outcomes (Latest Editions)::

At the end of Institutional Pharmacy Rotation, the student shall be able to:

A. Understand the organization and operation of the pharmacy department and its role in patient care.
B. Define and describe the role and function of members within the pharmacy department
C. Understand and demonstrate medication administration in the institutional setting
D. Demonstrate and understand: Sterile products compounding
E. Understand and comprehend Clinical Services provided by the Institutional Pharmacy like Medication monitoring, Dosing, Therapeutic recommendations, Medication Reconciliation, Patient education and discharge counseling, Medication Error reporting and Role Of The Pharmacy And Therapeutics (P&T)Committee and other professional committees .

Teaching Strategies:

Multi-Media PPT Presentation **,** Problem Based Learning PBL, Case-Assisted Student Centered Learning (CASCL), Ward round with Interprofessional Team of health Care providers, Use of simulations, Small group tutorials, Assignments , Small research projects, Journal club.

Grading Plan	**Clinical Preceptors evaluation: Pass/ Fail**

Textbooks:

1. Manual for Clinical Clerkship, College of Clinical Pharmacy, King Faisal University, Al-Ahsa
2. Handbook of Institutional Pharmacy Practice 4th edition by Thomas R. Brown
3. 2. Hospital Pharmacy by Martin Stephen
4. Pharmacy Clerkship Manual by Ruth & Karen. McGraw-Hill, New York, NY, 2002
5. Boh L, ed. Pharmacy Practice Clinical Manual, 2ed. Lippincott, 2002.
6. Robert J. Cipolle, Peter C. Morley: Pharmaceutical Care Practice: The Clinician Guide
7. Materials as assigned by preceptor or participating health care professionals

Course Name	APPE-3: Ambulatory Care			الرعاية الاسعافية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours Minimum 40 hours/week	Lec.	Pract	Tot.
	PP-21/AC	2030511				160	4 weeks
Track	☐ Pharmaceutical Sciences ☐ iomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ niversity requirement						
Level	Summer, fall and spring semester			Prerequisite	Must pass all the courses		

Description:

This rotation will prepare the student with knowledge and skills for solving patients' problem relating to the therapeutic management of common disease states in an ambulatory pharmaceutical care setting. Student will work as full time trainee in the Pharmaceutical Care Clinic of a hospital providing patient counseling, pharmaceutical care and drug therapy monitoring to out patients.

Rotation Outcomes

AT the end of the rotation, the student will be able to:

A. Appreciate common medications used in primary care.
B. Understand the common diseases encountered in primary care.
C. Understand the use of drug information resources.
D. Retrieve and document a complete patient database.
E. Taking history & Perform appropriate patient assessment techniques.
F. Educate/counsel the patient regarding his Drug therapy and communicate effectively communicator on the health care team.
G. Plan, implement and monitor the outcomes of drug therapies for common diseases..

Teaching Strategies:

Multi-Media PPT Presentation **,** Problem Based Learning PBL, Case-Assisted Student Centered Learning (CASCL), Ward round with Interprofessional Team of health Care providers, Use of simulations, Small group tutorials, Assignments , Small research projects, Journal club.

Grading Plan	Clinical Preceptors evaluation: Pass/ Fail

Textbooks:

1. Manual for Clinical Clerkship, College of Clinical Pharmacy, King Faisal University, Al-Ahsa
2. Handbook of Institutional Pharmacy Practice 4th edition by Thomas R. Brown
3. 2. Hospital Pharmacy by Martin Stephen
4. Pharmacy Clerkship Manual by Ruth & Karen. McGraw-Hill, New York, NY, 2002
5. Boh L, ed. Pharmacy Practice Clinical Manual, 2ed. Lippincott, 2002.
6. Robert J. Cipolle, Peter C. Morley: Pharmaceutical Care Practice: The Clinician Guide
7. Materials as assigned by preceptor or participating health care professionals

Course Name	APPE-4: Cardiology & CCU			علم أمراض القلب والعناية المركزة لأمراض القلب			
Course Information	Course Code	Course No	Credit Hours	Contact Hours Minimum 40 hours/week	Lec.	Pract	Tot.
	PP-21/CCU	2030511				160	4
Track	☐ Pharmaceutical Sciences ☐ omedical Sciences ■ Pharmacy Practice ☐ Elective course ☐ niversity requirement						
Level	Summer, fall and spring semester			Prerequisite	Must pass all the courses		

Description

This rotation is to prepare the student with knowledge and skills for solving patients' problem relating to the therapeutic management of patients with cardiovascular problems while working with a team of experts both in ambulatory and ICC environment

Rotation Outcomes:

Upon completion of the rotation, the student shall be able to:

A. Prepare, implement and monitor therapeutic plan for the following cardiovascular diseases, with pharmaceutical care perspective:
   a. Ischemic Heart Disease: Angina and Acute Coronary Syndrome
   b. Essential hypertension, hypertensive urgencies and emergency
   c. Ventricular and atrial arrhythmias
   d. Congestive Heart Failure/Cardiomyopathy
   e. Cardiogenic Shock
   f. Endocarditis
   g. Hyperlipidemia Anticoagulation, Cerebro-vascular diseases

B. Gather and relate to the patient's clinical course, all diagnostic, monitoring, pharmacologic, therapeutic, and surgical interventions employed in those patients with coronary disease.

C. Identify and apply the pharmacological and non pharmacological aspects of cardiopulmonary resuscitation (CPR)

D. Gain competence in understanding the basic concepts of hemodynamic monitoring utilizing data obtained from Swan-Ganz arterial, or central venous catheters and other pertinent information (i.e., arterial blood gases).

Teaching Strategies:

Multi-Media PPT Presentation **,** Problem Based Learning PBL, Case-Assisted Student Centered Learning (CASCL), Ward round with Interprofessional Team of health Care providers, Use of simulations, Small group tutorials, Assignments , Small research projects, Journal club.

Grading Plan	Clinical Preceptors evaluation: Pass/ Fail

Textbooks:

1. Manual for Clinical Clerkship, College of Clinical Pharmacy, King Faisal University, Al-Ahsa
2. Pharmacotherapy, a Pathophysiologic Approach, DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds Latest Ed. McGraw-Hill, New York, NY.
3. Pharmacy Clerkship Manual by Ruth & Karen. McGraw-Hill, New York, NY, 2002
4. Boh L, ed. Pharmacy Practice Clinical Manual, 2ed. Lippincott, 2002.
5. Robert J. Cipolle, Peter C. Morley: Pharmaceutical Care Practice: The Clinician Guide
6. Materials as assigned by preceptor or participating health care professionals

Course Name	APPE-5: Pediatrics			طب الأطفال		
Course Information	Course Code	Course No	Credit Hours	Contact Hours Minimum 40 hours/week	Pract	Tot.
	PP-21/P	2030511			160	4 weeks
Track	☐ Pharmaceutical Sciences ☐ iomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ niversity requirement					
Level	Summer, fall and spring semester			Prerequisite	Must pass all the courses	

Description: This rotation will provide the student the opportunity to develop skills in dealing with pharmaceutical care needs of pediatric population. Student will participate in therapeutic decision making process by selecting appropriate drug therapy and its monitoring, with a patient specific medication counseling to parents and health professionals

Rotation Outcomes

After completion of the rotation, the student shall be able to:

A. Prepare, and apply therapeutic plan for pediatric patients admitted in the hospital, as a part of team of health professional
B. Provide general pediatric drug information, including appropriate pediatric dosing, antibiotic therapy, pain and sedation management, and pharmacokinetic analysis.
C. Monitor patient therapy and progression, in consult with physicians and nurses
D. Effectively hold counseling session for the parents and the care givers regarding the drug therapies.

Teaching Strategies:

Multi-Media PPT Presentation **,** Problem Based Learning PBL, Case-Assisted Student Centered Learning (CASCL), **Ward round with Interprofessional Team of health Care providers**, Use of simulations, Small group tutorials, Assignments , Small research projects, Journal club.

Grading Plan	Clinical Preceptors evaluation: Pass/ Fail

Textbooks:

1. Manual for Clinical Clerkship, College of Clinical Pharmacy, King Faisal University, Al-Ahsa
2. Pharmacotherapy, a Pathophysiologic Approach*,* DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds Latest Ed. McGraw-Hill, New York, NY.
3. Pharmacy Clerkship Manual by Ruth & Karen. McGraw-Hill, New York, NY, 2002
4. Boh L, ed. Pharmacy Practice Clinical Manual, 2ed. Lippincott, 2002.
5. Robert J. Cipolle, Peter C. Morley: Pharmaceutical Care Practice: The Clinician Guide
6. Materials as assigned by preceptor or participating health care professionals

Course Name	APPE-6: Critical Care			العناية المركزة			
Course Information	Course Code	Course No	Credit Hours	Contact Hours Minimum 40 hours/week	Lec.	Pract	Tot.
	PP-21/CC	2030511				160	4 weeks
Track	☐ Pharmaceutical Sciences ☐ iomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ niversity requirement						
Level	Summer, fall and spring semester			Prerequisite	Must pass all the courses		

Description: This rotation will provide the student the opportunity to develop skills for dealing with critically ill patients, under the supervision of team of multidisciplinary health care experts in an ICU environment.

Rotation outcomes:

After completion of this rotation, students should be able to

A. Demonstrate knowledge and skill in Critical Care Pharmacology, Fluid electrolyte balance, cardiovascular hemodynamics and ventilator support
B. Perform therapeutic drug monitoring in critically ill patients for: aminoglycosides, vancomycin, phenytoin, digoxin.
C. Communicate at an appropriate level with other health care professionals, including attending physicians, fellows, residents, nursing staff, respiratory therapists, dietitians, as well as other pharmacy colleagues in order to optimize drug therapy
D. Understand of the prevention and treatment of complications in the critically ill patient.
E. Reviewing, monitoring, and optimizing pharmacotherapy of select patients.
F. Tight glycemic control, DVT prophylaxis, stress ulcer prophylaxis, prevention of ventilator associated pneumonia, sepsis, etc.

Teaching Strategies:

Multi-Media PPT Presentation **,** Problem Based Learning PBL, Case-Assisted Student Centered Learning (CASCL), **Ward round with Interprofessional Team of health Care providers**, Use of simulations, Small group tutorials, Assignments , Small research projects, Journal club.

Grading Plan	Clinical Preceptors evaluation: Pass/ Fail

Textbooks:

1. Manual for Clinical Clerkship, College of Clinical Pharmacy, King Faisal University, Al-Ahsa
2. Pharmacotherapy, a Pathophysiologic Approach*,* DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds Latest Ed*.* McGraw-Hill, New York, NY.
3. Pharmacy Clerkship Manual by Ruth & Karen. McGraw-Hill, New York, NY, 2002
4. Boh L, ed. Pharmacy Practice Clinical Manual, 2ed. Lippincott, 2002.
5. Robert J. Cipolle, Peter C. Morley: Pharmaceutical Care Practice: The Clinician Guide
6. Materials as assigned by preceptor or participating health care professionals

<table>
<tr><td>Course Name</td><td colspan="3">APPE-7: Hematology/Oncology</td><td colspan="4">أمراض الدم والأورام</td></tr>
<tr><td rowspan="2">Course Information</td><td>Course Code</td><td>Course No</td><td>Credit Hours</td><td rowspan="2">Contact Hours Minimum 40 hours/week</td><td>Lec.</td><td>Pract</td><td>Tot.</td></tr>
<tr><td>PP-21/HC</td><td>2030511</td><td></td><td></td><td>160</td><td>4 weeks</td></tr>
<tr><td>Track</td><td colspan="7">☐ Pharmaceutical Sciences ☐ iomedical sciences. ■ Pharmacy Practice ☐ Elective course ☐ University requirement</td></tr>
<tr><td>Level</td><td colspan="3">Summer, fall and spring semester</td><td colspan="2">Prerequisite</td><td colspan="2">Must pass all the courses</td></tr>
<tr><td colspan="8">Description: The rotation will provide the student with the opportunity to develop skills in therapeutic management of hematology/oncology patients, including pharmaceutical as well as supportive care</td></tr>
<tr><td colspan="8">Rotation Outcomes:
After completion of the rotation, the student shall be able to:
A. Develop primary and alternative plan for therapeutic management of the following condition, with a sound knowledge of symptomatology, physical findings, pathophysiology, diagnostic procedures, laboratory tests .for patients of Leukemias ,Lymphomas, Breast, lung, gastric and colon cancers
B. Familiar with the role of diagnostic, palliative, and curative radiation therapy and surgery in cancer management including the monitoring and management of the associated complications.
C. Establish therapeutic and toxic endpoints of therapy.
D. Develop plan for supportive-terminal (hospice) care and pain control for these patients.</td></tr>
<tr><td colspan="8">Teaching Strategies:
Multi-Media PPT Presentation , Problem Based Learning PBL, Case-Assisted Student Centered Learning (CASCL), Ward round with Interprofessional Team of health Care providers, Use of simulations, Small group tutorials, Assignments , Small research projects, Journal club.</td></tr>
<tr><td colspan="2">Grading Plan</td><td colspan="6">Clinical Preceptors evaluation: Pass/ Fail</td></tr>
<tr><td colspan="8">Textbooks:
1. Manual for Clinical Clerkship, College of Clinical Pharmacy, King Faisal University, Al-Ahsa
2. Pharmacotherapy, a Pathophysiologic Approach, DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds Latest Ed. McGraw-Hill, New York, NY.
3. Pharmacy Clerkship Manual by Ruth & Karen. McGraw-Hill, New York, NY, 2002
4. Boh L, ed. Pharmacy Practice Clinical Manual, 2ed. Lippincott, 2002.
5. Robert J. Cipolle, Peter C. Morley: Pharmaceutical Care Practice: The Clinician Guide
6. Materials as assigned by preceptor or participating health care professionals</td></tr>
</table>

Course Name	APPE-8:Nephrology			أمراض الكلى			
Course Information	Course Code	Course No	Credit Hours	Contact Hours Minimum 40 hours/week	Lec.	Pract	Tot.
	PP-21/N	2030511					4 weeks
Track	☐ Pharmaceutical Sciences ☐ iomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ niversity requirement						
Level	Summer, fall and spring semester			Prerequisite	Must pass all the courses		

Description:

This rotation will provide the student with an opportunity to develop his/her skills in management of Acute and Chronic Renal Failure, being an active member of team of health professionals, taking part in therapeutic decision making, its application and monitoring.

Rotation Outcomes:

After completion of the rotation, the student shall be able to:

A. Develop management plan under supervision of nephrologist for acute and chronic failure based upon etiology clinical presentation, pharmacodynamic and pharmacokinetic parameters, and medical history of the patient
B. Demonstrate the application of the principles of renal replacement therapy.
C. Communicate the treatment plan with patient.
D. Monitor drug dosing, adverse events, drug interactions, and efficacy of all medications affecting the renal system and recommend changes in drug therapy when appropriate.

Teaching Strategies:

Multi-Media PPT Presentation **,** Problem Based Learning PBL, Case-Assisted Student Centered Learning (CASCL), Ward round with Interprofessional Team of health Care providers, Use of simulations, Small group tutorials, Assignments , Small research projects, Journal club.

Grading Plan	Clinical Preceptors evaluation: Pass/ Fail

Textbooks:

1. Manual for Clinical Clerkship, College of Clinical Pharmacy, King Faisal University, Al-Ahsa
2. Pharmacotherapy, a Pathophysiologic Approach*,* DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds Latest Ed. McGraw-Hill, New York, NY.
3. Pharmacy Clerkship Manual by Ruth & Karen. McGraw-Hill, New York, NY, 2002
4. Boh L, ed. Pharmacy Practice Clinical Manual, 2ed. Lippincott, 2002.
5. Robert J. Cipolle, Peter C. Morley: Pharmaceutical Care Practice: The Clinician Guide
6. Materials as assigned by preceptor or participating health care professionals

Course Name	APPE-9: Infectious Diseases			الأمراض المعدية			
Course Information	Course Code	Course No	Credit Hours	Contact Hours Minimum 40 hours/ week	Lec.	Pract.	Tot.
	PP-21/ID	2030511				160	4 weeks
Track	☐ Pharmaceutical Sciences ☐ iomedical sciences ■ Pharmacy Practice ☐ Elective course ☐ niversity requirement						
Level	Summer, fall and spring semester			Prerequisite	Must pass all the courses		

Description:

This rotation will provide an opportunity to the student to equip with a knowledge base and problem solving skills relating to the treatment of infectious diseases with a pharmaceutical care perspective. Student will work with experts team of health professionals in this area and also in an antimicrobial management program.

Rotation Outcomes:

After completion of the rotation, the student shall be able to:

A. Plan for therapeutic management of common and serious infectious diseases with demonstration of strong knowledge base in the area of, symptomatology, physical findings, pathophysiology, diagnostic procedures, and laboratory tests.
B. Demonstrate a working knowledge of the spectrum of activity, pharmacokinetic principles, tissue penetration, development of resistance and cost effectiveness of antimicrobial agents
C. Define appropriate utilization and understanding of laboratory tests specific to infectious diseases.

Teaching Strategies:

Multi-Media PPT Presentation **,** Problem Based Learning PBL, Case-Assisted Student Centered Learning (CASCL), Ward round with Interprofessional Team of health Care providers, Use of simulations, Small group tutorials, Assignments , Small research projects, Journal club.

Grading Plan	Clinical Preceptors evaluation: Pass/ Fail

Textbooks:

1. Manual for Clinical Clerkship, College of Clinical Pharmacy, King Faisal University, Al-Ahsa
2. Pharmacotherapy, a Pathophysiologic Approach, DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds Latest Ed. McGraw-Hill, New York, NY.
3. Pharmacy Clerkship Manual by Ruth & Karen. McGraw-Hill, New York, NY, 2002
4. Boh L, ed. Pharmacy Practice Clinical Manual, 2ed. Lippincott, 2002.
5. Robert J. Cipolle, Peter C. Morley: Pharmaceutical Care Practice: The Clinician Guide
6. Materials as assigned by preceptor or participating health care professionals

Course Name	APPE-10 Emergency Medicine			طب الطوارئ			
Course Information	Course Code	Course No	Credit Hours	Contact Hours Minimum 40 hours/week	Lec.	Pract	Tot.
	PP-21/EM	2030511				160	4 weeks
Track	☐ Pharmaceutical Sciences ☐ omedical sciences ■ Pharmacy Practice ☐ Elective course ☐ niversity requirement						
Level	Summer, fall and spring semester			Prerequisite	Must pass all the courses		

Description:

This rotation will provide the student with a knowledge base and problem solving skills relating to the provision of emergency medical care by exposing him to an experience with the EMS System, with a team of health care professionals

Rotation Outcomes:

Upon completion of the rotation, the student shall be able to:

A. Ensure the delivery of the right medication to right patient and ensure the most appropriate therapy is chosen and administered.
B. Assess medication errors, drug interactions and adverse drug reactions as causes of ED admissions.
C. Conduct history of patients and family members when appropriate.
D. Participate in the physical exam and assess the patient's diagnosis for the most appropriate treatment protocol
E. Make therapeutic recommendations in an ED setting based upon evidence based medicine.
F. Identify and apply the pharmacological and non pharmacological aspects of cardiopulmonary resuscitation (CPR) and will participate in all such events. The student will be able to locate the various drugs and other ancillary items (i.e., ABG kits, IV bags, laryngoscope) in the Crash Cart and be able to discuss drug therapy used in CPR/ACLS.

Teaching Strategies:

Multi-Media PPT Presentation , Problem Based Learning PBL, Case-Assisted Student Centered Learning (CASCL), Ward round with Interprofessional Team of health Care providers, Use of simulations, Small group tutorials, Assignments , Small research projects, Journal club.

Grading Plan	Clinical Preceptors evaluation: Pass/ Fail

Textbooks:

1. Manual for Clinical Clerkship, College of Clinical Pharmacy, King Faisal University, Al-Ahsa
2. Pharmacotherapy, a Pathophysiologic Approach, DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM, eds Latest Ed. McGraw-Hill, New York, NY.
3. Pharmacy Clerkship Manual by Ruth & Karen. McGraw-Hill, New York, NY, 2002
4. Boh L, ed. Pharmacy Practice Clinical Manual, 2ed. Lippincott, 2002.
5. Robert J. Cipolle, Peter C. Morley: Pharmaceutical Care Practice: The Clinician Guide
6. Materials as assigned by preceptor or participating health care professionals