

Academic Programs Booklet

College of Health and Sport Sciences

2018



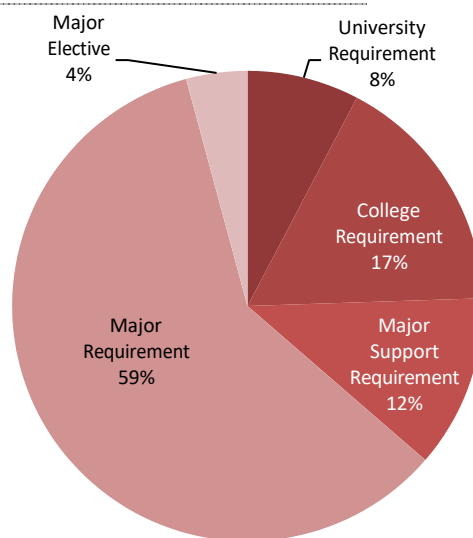
B.Sc. in Pharmacy - 2018

Program Components

Course Type	CRD
University Requirement (UR)	11
College Requirement (CR)	25
Major Support Requirement (MSR)	17
Major Requirement (MR)*	85
Major Elective (ME) ¹	6
Total Credit (CRD)	144

* Including Clinical Training (20 CRD).

¹ Student should select two courses from Major Elective (ME) List.



Teaching Language: English

Detailed Study Plan

Year 1 - Semester 1

Course Code	Course Title	Crdt	Contact Hours			Course Type	Pre requisite	Major GPA
			Lec	Lab	Clinical			
PHAM 120	Pharmaceutics I	4	3	2	0	MR	-----	Yes
LFS 118	Anatomy and Physiology I	4	3	2	0	CR	-----	No
CGS 102	Chemistry	3	3	0	0	MSR	-----	No
ENG 114	English for the Professions I	4	3	2	0	CR	-----	No
SBS 316	Fundamentals of Sociology and Psychology	3	3	0	0	MSR	-----	No
ISLM 101	Islamic Culture	3	3	0	0	UR	-----	No

Year 1 - Semester 2

Course Code	Course Title	Crdt	Contact Hours			Course Type	Pre requisite	Major GPA
			Lec	Lab	Clinical			
PHAM 210	Pharmaceutics II	4	3	2	0	MR	PHAM 120	Yes
MLS 205	Biochemistry	2	2	0	0	MSR	CGS 102	No
ENG 124	English for the Professions II	4	3	2	0	CR	ENG 114	No
LFS 128	Anatomy and Physiology II	4	3	2	0	MSR	-----	No
LFS 131	Nutrition	2	2	0	0	MSR	-----	No
HRLC 107	Human Rights	2	2	0	0	UR	-----	No

Year 2 - Semester 1

Course Code	Course Title	Crdt	Contact Hours			Course Type	Pre requisite	Major GPA
			Lec	Lab	Clinical			
PHAM 220	Pharmacology I	5	4	2	0	MR	LFS 128	Yes
PHAM 222	Medicinal Chemistry	4	4	0	0	MR	MLS 205	Yes
PHAM 224	Inorganic Pharmaceutical Chemistry	3	3	0	0	MR	CGS 102	Yes
LFS 217	Microbiology	3	2	2	0	CR	-----	No
ARAB 110	Arabic Language Skills	3	3	0	0	UR	-----	No

Year 2 - Semester 2

Course Code	Course Title	Crdt	Contact Hours			Course Type	Pre requisite	Major GPA
			Lec	Lab	Clinical			
LFS 227	Pathophysiology	4	4	0	0	CR	LFS 118 & LFS 128	No
PHAM 310	Pharmacology II	4	4	0	0	MR	PHAM 220	Yes
PHAM 312	Pharmacy Practice	3	3	0	0	MR	PHAM 210	Yes
PHAM 314	Law, Ethics and Professionalism	2	2	0	0	MR	-----	Yes
HIST 122	Modern History of Bahrain and Citizenship	3	3	0	0	UR	-----	No
STAT 272	Introduction to Biostatistics	3	2	3	0	CR	-----	No

Year 3 - Semester 1

Course Code	Course Title	Crdt	Contact Hours			Course Type	Pre requisite	Major GPA
			Lec	Lab	Clinical			
PHAM 320	Pharmacology III	4	4	0	0	MR	PHAM 220 & LFS 217	Yes
PHAM 322	Pharmacotherapy I	4	4	0	0	MR	PHAM 220 & LFS 227	Yes
PHAM 324	Pharmacy Practicum I	4	0	0	12	MR	PHAM 310 & PHAM 312 & PHAM 314	Yes
PHAM 326	Natural Health Products	3	3	0	0	MR	LFS 227	Yes
PHAM 328	Pharmaceutical Analysis	4	3	2	0	MR	PHAM 210 & PHAM 220	Yes

Year 3 - Semester 2

Course Code	Course Title	Crdt	Contact Hours			Course Type	Pre requisite	Major GPA
			Lec	Lab	Clinical			
PHAM 410	Pharmaceutical Technology	3	3	0	0	MR	PHAM 328	Yes
PHAM 412	Pharmacotherapy II	4	4	0	0	MR	PHAM 310 & PHAM 320 & PHAM 322	Yes
PHAM 414	Pharmacy Practicum II	4	0	0	12	MR	PHAM 324 & co-requisite PHAM 416	Yes
PHAM 416	Non-Prescription Drugs	4	3	2	0	MR	PHAM 220 & LFS 227	Yes
HCA 301	Leadership and Management in Healthcare Setting	3	3	0	0	MSR	-----	No

Year 4 - Semester 1

Course Code	Course Title	Crdt	Contact Hours			Course Type	Pre requisite	Major GPA
			Lec	Lab	Clinical			
PHAM 420	Toxicology	3	3	0	0	MR	PHAM 412	Yes
PHAM 422	Pharmacotherapy III	4	4	0	0	MR	PHAM 310 & PHAM 320 & PHAM 322	Yes
PHAM 424	Pharmacy Practicum III	4	0	0	12	MR	PHAM 412 & PHAM 414	Yes
PHAM 44X	Major Elective (I)	3	3	0	0	ME	-----	Yes
SBS 320	Research Methods	3	2	2	0	CR	STAT 272	No

Year 4 - Semester 2

Course Code	Course Title	Crdt	Contact Hours			Course Type	Pre requisite	Major GPA
			Lec	Lab	Clinical			
PHAM 430	Graduation project	3	3	0	0	MR	STAT 272 & SBS 320	Yes
PHAM 432	Pharmacy Field Practice	8	0	0	24	MR	PHAM 420 & PHAM 422 & PHAM 424	Yes
PHAM 44X	Major Elective (II)	3	3	0	0	ME	-----	Yes

Major Elective Courses

Course Code	Course Title	Crdt	Contact Hours			Course Type	Pre requisite	Major GPA
			Lec	Lab	Clinical			
PHAM 440	Pharmacoeconomics	3	3	0	0	ME	-----	Yes
PHAM 441	Pharmacoepidemiology and Pharmacovigilance	3	3	0	0	ME	PHAM 312	Yes
PHAM 442	Cosmetics Science (Cosmetology)	3	3	0	0	ME	PHAM 210 & PHAM 412	Yes
PHAM 443	Molecular Biology and Pharmacogenomics	3	3	0	0	ME	PHAM 220 & MLS 205	Yes
PHAM 444	Evidence Based Pharmacy	3	3	0	0	ME	PHAM 322	Yes
PHAM 445	Business for Pharmacy (Pharmacy Logistics, Economics and Management)	3	3	0	0	ME	PHAM 314 & HCA 301	Yes

Course Description

Course Code: PHAM 224

Course Title: Inorganic Pharmaceutical Chemistry

This course provides you with an overview of compounds consisting of elements other than carbon. You will explore the physiological roles and therapeutic importance of electrolytes and selected inorganic compounds. You will also be introduced to various types of inorganic impurities found in pharmaceutical formulations.

Course Code: PHAM 120

Course Title: Pharmaceutics I

This course introduces you to the principles of designing dosage forms. You will be able to perform computations essential for pharmacy practice. Prescription reading, their interpretation will be one of the prime focuses in this course. Further, you will apply the concepts of formulation to liquid dosage forms.

Course Code: PHAM 210

Course Title: Pharmaceutics II

This course is a continuation of Pharmaceutics I, where emphasis is given to formulation of solid, semi-solids and sterile dosage forms. You will become familiar with the compounding techniques of these dosage forms. You will also be introduced to dispensing and distribution procedures involving radiopharmaceutical products.

Course Code: PHAM 220

Course Title: Pharmacology I

This course introduces you to the basic pharmacological principles governing interactions of medications within biological systems. Emphasis will be placed on the application of pharmacokinetic and pharmacodynamics principles to medications affecting the Autonomic Nervous System and those used for various Cardiovascular conditions

Course Code: PHAM 222

Course Title: Medicinal Chemistry

This course introduces you to the basic concepts of drug design, through identifying biologically active compounds, studying the pharmacokinetics and the mode of action of selected drugs. After completing this course, you will develop a better understanding of drug action at the molecular level and design drugs that are more effective and selective.

Course Code: PHAM 310

Course Title: Pharmacology II

Pharmacology II is an extension of Pharmacology I, where you will further explore the pharmacological aspects of drugs applied in managing various inflammatory and immune disorders. Furthermore, you will be introduced to drugs acting on the gastrointestinal tract and central nervous system including drugs of abuse.

Course Code: PHAM 312

Course Title: Pharmacy Practice

In this course you will explore the standards and processes of Pharmacy Practice within hospital and community pharmacies. You will become acquainted facilities, personnel, drug distribution and safety measures within these settings. In addition the role of the pharmacist in promoting drug efficacy and safety will be highlighted.

Course Code: PHAM 314

Course Title: Law, Ethics, and Professionalism

This course prepares you to become a professional pharmacist and follow ethical and professional guidelines as applied to the Kingdom of Bahrain. You will be introduced to local and international laws governing pharmacy practice. Focus is placed on ethical and professional concepts and their application to your profession

Course Code: PHAM 320

Course Title: Pharmacology III

In this concluding course of Pharmacology, emphasis is placed on the drugs used in chemotherapy of infectious diseases including antibiotics, antivirals, antifungals, antiprotozoals and anthelmintics. The management of endocrine disorders will be addressed. Furthermore, you will apply pharmacological principles to antineoplastic drugs, vaccinations and immunosuppressant.

Course Code: PHAM 322

Course Title: Pharmacotherapy I

This course will introduce you to the principles of disease pharmacotherapy, in addition to the importance of lab. data and drug pharmacokinetics in this aspect. A special emphasis will be on the pharmacotherapy of cardiovascular diseases for the specific purpose of evaluating, recommending, counseling and monitoring individualized patients.

Course Code: PHAM 324

Course Title: Pharmacy Practicum I

This course enables you to put your pharmaceutical knowledge and skills into practice. You will be oriented to the in-site procedures followed on a daily basis within hospital and health center pharmacies. Opportunities for hands-on experience on various aspects of pharmacy practice including prepackaging, dispensing and compounding will be provided

Course Code: PHAM 326

Course Title: Natural Health Products

This course introduces you to the natural health products within the context of a variety of healing traditions. You will learn to critically assess evidences of the safety and efficacy of common natural health products. Extraction techniques, composition and action of specific herbal products will be explored

Course Code: PHAM 328

Course Title: Pharmaceutical Analysis

This course introduces you to the principles and applications of commonly used analytical methods, essential for ensuring quality of drugs. During the study of this course you will gain hand on experience of a variety of analytical techniques including spectroscopy, chromatography, electrophoresis, titrimetric and extraction methods that are used in drug analysis.

Course Code: PHAM 410

Course Title: Pharmaceutical Technology

This course emphasizes on the equipment and technologies used in the manufacture of tablets, capsules and novel drug delivery systems. You will also be familiarized with the formulation of different biopharmaceutical products. General application of fermentation technology to the manufacture of antibiotics, vitamins and vaccines will also be discussed

Course Code: PHAM 412

Course Title: Pharmacotherapy II

As an extension of "Pharmacotherapy I", you will explore the pharmacotherapy of diseases affecting the respiratory and the gastrointestinal systems in addition to the infectious diseases and vitamins and their use in pharmacotherapy. The main aim is to learn approaches in patient assessment and disease state management for the specific purpose of evaluating, recommending, counseling and monitoring individualized pharmacotherapy for patients

Course Code: PHAM 414

Course Title: Pharmacy Practicum II

In this course you will practice within a community pharmacy setting. You will be given the opportunity to apply your knowledge on non-prescription medications to assist a diversity of patients in choosing medications and devices. Furthermore you will explore areas unique to community pharmacy such as sales, inventory and insurance.

Course Code: PHAM 416

Course Title: Non-Prescription Drugs

This course prepares you towards the over the counter use of common non-prescription medications and medical devices in pharmacy practice to treat minor medical problems. Emphasis is placed on the pharmacists' role in patient consultation, assessment and patient guidance in managing self-limiting conditions.

Course Code: PHAM 420

Course Title: Toxicology

In this course you will be introduced to basic concepts of toxicology. Routes of exposure to various poisons and their acute and chronic harmful effects will be emphasized. Focus will be placed on general decontamination techniques and symptomatic treatment of poisoned patients including specific antidotes for selected poisons.

Course Code: PHAM 422

Course Title: Pharmacotherapy III

In line with "Pharmacotherapy I and II", you will discover the pharmacotherapy of endocrine, renal and bone and rheumatic disorders, in addition to neurological and psychiatric disorders. The main aim is to learn approaches in patient assessment and disease state management for the specific purpose of evaluating, recommending, counseling and monitoring individualized pharmacotherapy for patients

Course Code: PHAM 424

Course Title: Pharmacy Practicum III

This course helps you to develop clinical practice skills using real life cases and gain an insight to cultivate effective patient care. Focus will be on patient centered pharmacy practice where you will be trained to provide pharmaceutical care to inpatients of various hospitals

Course Code: PHAM 430 **Course Title:** Graduation Project

This course is an application to what you have studied in the “Research Methodology and Statistics”. In this course you will be guided through the steps of preparation and presentation of a structured research project of your choice.

Course Code: PHAM 432 **Course Title:** Pharmacy Field Practice

This course reinforces your past training experiences where you will practice in rotation among the various pharmacy settings. You will develop technical and professional judgment and skills through minimally supervised participation in all the duties expected of a future pharmacist

Course Code: PHAM 440 **Course Title:** Pharmacoeconomics

In this course you will study the fundamentals of Pharmacoeconomics. A special emphasis is given to cost determination and analysis (cost-benefit, cost-effectiveness, cost-utility, cost minimizations and cost-of-illness). Health-related quality of life analysis is also included.

Course Code: PHAM 441 **Course Title:** Pharmacoepidemiology and Pharmacovigilance

This course will introduce you to epidemiology, statistics, pharmacoepidemiology and health economics. It will also cover the historical and legal background to pharmacovigilance and pharmacoepidemiology, and pharmacological basis of ADRs, addressing ADR issues at individual and population levels, and the application of pharmacoepidemiological principles and methods to practical drug issues

Course Code: PHAM 442 **Course Title:** Cosmetics Science (Cosmetology)

This course provides you with the study of skin, nails, hair and teeth and their products. The course also includes ingredients of the cosmetics such as surface active agents, humectants, antiseptics, preservatives, and antioxidants as well as testing of these cosmetics for their safety evaluation.

Course Code: PHAM 443 **Course Title:** Molecular Biology and Pharmacogenomics

This course will introduce you to molecular biology and genetics. The course begins with the information macromolecules in living cells: DNA, RNA and protein, and explores how their structures allow them to fulfill their various biological roles. This is followed by an introduction to the techniques of molecular biology and their application in medicine and research. You will also be introduced to the topic of pharmacogenomics in regard to genetic variations in safety and efficacy of medicines

Course Code: PHAM 444 **Course Title:** Evidence Based Pharmacy

The course will enable you to explore methods used for evaluation and improvement of drug therapy outcomes including critical appraisal of drug and clinical service literature, and quality assessment and improvement techniques with special focus on patient and medication safety.

Course Code: PHAM 445 **Course Title:** Business for Pharmacy (Pharmacy Logistics, Economics ,and Management)

In this Course you will explore the business skills necessary to manage either a community or hospital pharmacy. The course focuses on four specific essential topics; purchasing, accounting and financial management, human resource management, marketing and Inventory control. Material in each topic is managerially relevant and applied to the pharmacy context

Course Code: CGS 102 **Course Title:** Chemistry

You will identify the properties and reactions of common classes of organic compounds, the relationship between their structures and their physical and chemical properties. You will relate the structure and behavior of chemical compounds to its functions in health, life and environment. You will understand the importance of electrolyte concentrations in intravenous replacement solutions.

Course Code: HCA 301 **Course Title:** Leadership and Management in Healthcare Setting

Leadership requires that people have the skills, education, and experience to guide the way, therefore, this course will introduce students to the basic concepts of leadership and various best practices of successful management. They will also be presented different skills that leaders must master in order to be effective in their organizations and their lives. Moreover, during this course students will explore the functional roles and processes of leadership and its influence concerning organizational development. The course will also focus on how administrative, supervisory and customer relations skills affect staff productivity and performance. In addition, students will learn about time management, planning, decision-making and motivation in the workplace.

Course Code: LFS 128 **Course Title:** Anatomy and Physiology II

The Human Anatomy and Physiology II course will help you explore the close relationship between the structure and functions of the urinary, and reproductive systems, as well as understand the control and coordination of body functions by the nervous and endocrine systems. It will provide an insight into electrolyte and acid-base balance, pregnancy, and growth and development. It will provide you with the knowledge needed for understanding the Pathophysiology and nursing courses.

Course Code: LFS 131 **Course Title:** Nutrition

You will get a basic understanding about nutrients, their requirements and health problems due to inadequate nutrition. Dietary guidelines in the form of recommended daily allowances, tables of food composition and basic food groups are presented and discussed. You will find out how to determine an individual's caloric needs and calculate the calorie value of a given diet.

Course Code: SBS 316 **Course Title:** Fundamentals of Sociology and Psychology

The course will familiarize students with the basic concepts and theories in Sociology and Psychology that will enable the allied health graduate to recognize the various societal forces and aspects of human behavior that control human interactions. It will facilitate the graduate to develop a holistic perception of health care needs and services

Course Code: MLS 205 **Course Title:** Biochemistry

You will become familiar with the basic concepts associated with the metabolism of the three important biomolecules viz. carbohydrates, lipids and proteins and their regulation. You will also be exposed to the pathways for synthesis of prostaglandins and thromboxanes. This shall also help you to understand the basic mechanism of action of anti-inflammatory drugs.

College Requirement Courses Descriptions

Course Code: ENG 114

Course Title: English for the Professions I

English for the Professions – Level 1 is an intermediate level course that will expand and build your English language competencies and communicative abilities acquired at the Orientation English level of the Foundation Semester. This course will also further develop your language skills of reading, listening, speaking and writing with emphasis on the language needs of healthcare professionals. This integrated-skills approach will enable you to succeed in your academic performance, and enhance your ability to communicate effectively in multi-cultural encounters within an English speaking community.

Course Code: ENG 124

Course Title: English for the Professions II

English for the Professions – Level 2 will reinforce your language skills and equip you with higher level language skills of critical reading, inferential comprehension and analytical report writing. You will also be trained to write and present a research essay using APA guidelines.

Course Code: LFS 118

Course Title: Anatomy and Physiology I

This course will provide you with an in depth understanding of the structure and function of the human body with emphasis placed on the following body systems: the integumentary, skeletal, muscular, cardiovascular, lymphatic, digestive and respiratory systems. It will provide you with the basic knowledge needed for understanding of the Pathophysiology course.

Course Code: LFS 217

Course Title: Microbiology

You will be introduced to the basic concepts of microbiology with special emphasis on microbial ecology, epidemiology and pathogenesis of infectious diseases. As health care professionals, you will be equipped to apply the concepts of microbial growth control in preventing the spread of infections in your daily life and in your professional field.

Course Code: LFS 227

Course Title: Pathophysiology

In this course you will understand the basic pathophysiology of disease processes, their clinical manifestations, complications, diagnostic findings and management. You will also acquire knowledge to provide better disease management and apply critical thinking and analytical methods of inquiry regarding the disease processes.

Course Code: SBS 320

Course Title: Research Methods

You will be introduced to the research process dealing with necessary methodology, types of research, sampling and data collection. The major aim of this course is to enable the student to develop the basic knowledge and skills. Further, this knowledge and skills will be applied by developing a research proposal.

Course Code: STAT 272

Course Title: Introduction to Biostatistics

Descriptive Statistics, Some basic probability concepts, Discrete and Continuous probability distribution, Estimations, Hypothesis Testing: one and two sample inference, Analysis of Variance, Inference of categorical data, Simple linear and multiple regression and correlation, logistic regression, Use of statistical packages.

University Requirements Courses Descriptions

Course Code: ARAB 110

Course Title: Arabic Language Skills

This course focuses on basic Arabic skills including form, function, and meaning. It also helps the student to appreciate and understand structures and approach them from a critical point of view, through various genres in literature.

Course Code: HIST 122

Course Title: Modern History of Bahrain and Citizenship

Spatial identity of Bahrain: Brief history of Bahrain until the 18th century; the historical roots of the formation of the national identity of Bahrain since the 18th century; the modern state and evolution of constitutional life in Bahrain; the Arabic and Islamic dimensions of the identity of Bahrain; the core values of Bahrain's society and citizenship rights (legal, political, civil and economic); duties; responsibilities and community participation; economic change and development in Bahrain; Bahrain's Gulf, Arab and international relations.

Course Code: HRLC 107

Course Title: Human Rights

This course deals with the principles of human rights in terms of the definition of human rights, scope, sources with a focus on the International Bill of Human Rights; The Charter of the United Nations; Universal Declaration of Human Rights; The International Covenant on Economics, Social and Culture rights; Convention against Torture and other Cruel, Inhuman or Degrading Treatment or Punishment; Mechanics and the Constitutional Protection of Rights and Public Freedoms in Kingdom of Bahrain.

Course Code: ISLM 101

Course Title: Islamic Culture

An introduction to the general outline and principles of Islamic culture, its general characteristics, its relationships with other cultures, general principles of Islam in beliefs, worship, legislation and ethics.