THE SCHOOL OF PHARMACY

Antigua State College

Your Prescription for a Successful Career in Pharmacy

Tel: 462 1434

Developed by Select Committee of the Antigua & Barbuda Pharmacy Council:

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Additionally, the Pharmacy Council received assistance and guidance from Dr. Patricia Benn – (Vice Principal Antigua State College) in completing this document. We are indeed grateful for her input and continued support and guidance

Revised
By
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School of Pharmacy

Associate of Applied Science Degree in Pharmacy

Introduction

According to the Remington's Pharmaceutical Sciences - Pharmacy is defined as "that profession which is concerned with the art and science of preparing drugs from natural and synthetic sources suitable and convenient for distribution and use in the treatment and prevention of disease. It embraces the knowledge of the identification, selection, pharmacologic action, preservation, combination, analysis and standardization of drugs and medicines. It also includes their proper and safe distribution and use, whether dispensed on the prescription of a licensed physician, dentist or veterinarian, or, in those instances where it may be legally done, dispensed or sold directly to the consumer".

Goal

To train highly skilled and knowledgeable pharmacists who will provide the highest quality pharmaceutical care to patients and act as a repository of pharmaceutical information to healthcare professionals within Antigua & Barbuda and the region.

Vision

To become a recognized leader of Pharmacy education within the Eastern Caribbean.

Mission

The mission of the School of Pharmacy is to prepare students for the practice, as competent, caring, ethical professionals dedicated to the profession. This will be done through a balanced programme of education, research and service.

Core Values

The School of Pharmacy is committed to the following core values:

Professionalism: To act with integrity, honesty, confidentiality, reliability, ethics, moral courage, humility, respect, and accountability.

Service orientation: To serve others in an altruistic and cooperative manner.

Collaboration: To engage in creative partnerships locally and globally to advance health education, research, and practice.

Administration

The School of Pharmacy functions as a department of the Antigua State College (ASC). Hence, the students who register for the programme will follow the general guidelines of the institution as well as the specific regulations of the department. The department is headed by a Coordinator who is the chief academic leader. The Coordinator is assisted by an Administrative Secretary who manages the office.

Duration of the Programme

The course of study is designed to be completed over a minimum period of nine (9) consecutive trimesters averaging 14 weeks of intensive work. Students will be given the opportunity to put knowledge gained into practice through model/ mock exercises in the classroom as well as various clinical settings. An Associate of ***Applied Science Degree in Pharmacy*** will be awarded after the successful completion of all courses totaling 123 credits.

Students will be allowed up to a maximum of 4 years to complete the programme.

General Admission Requirements

Applicants must have a minimum of five (5) passes at CSEC General Proficiency Level with Grade 1, 2 or 3 (after June 1998) or five (5) passes at GCE Ordinary Level with Grades A, B or C including English A, Mathematics, Chemistry , Biology or Human & Social Biology or any qualification considered by the College to be equivalent to the afore-mentioned. The minimum age of an applicant should be 17 years old. Additionally, as part of the admission requirements applicants must present a police record, and also required to do an interview.

Registration with the Pharmacy Council

It is a legal requirement for all Pharmacy students to be registered with the Antigua and Barbuda Pharmacy Council.

The Pharmacy Council Registration process is as follows:

- The students' names and contact information will be submitted to the Pharmacy Council by ASC School of Pharmacy
- The Registrar of the Council will write to each student directly and provide the necessary information
- The students must complete and submit the information to the Pharmacy Council and pay a one-time registration fee of EC$75.00 to the Council.

Classes

At present classes are mainly held in the afternoons from Mondays to Fridays at the ASC Golden Grove campus. However, for specific courses such as:

- Clinical Rotation, and Dispensing III & IV, classes will be held at MSJMC during the day once per week in the third trimester of the second year and the first, second and third trimester in the third year.
- There will be a few Immunology and Pathology labs that will be done during the day in the second year at a site approved by ASC.

Notwithstanding, there may be other instances where classes will be held during the day and/or on weekends, in such instances the lecturer will give at least a week's notice.

Exemption window

- Students who wish to apply for exemptions ***must apply for all exemptions during the first trimester within the first academic year***.
- Students must request from their previous academic institution a transcript and course outline which is to be sent directly to Antigua State College.

Financials

The School of Pharmacy has a tiered fee structure (National, CARICOM, and International). The Total Annual Fees is the amount due upon registration and must be cleared each academic year. The breakdown by semester is a guide to the amount the student should pay for that semester towards the Total Annual Fees.

	All figures in EC Dollars	SCHOOL OF PHARMACY FEES								
		NATIONAL			**CARICOM**			**INTERNATIONAL**		
	Programme Fee Total (3 yrs)	**$19, 8 00**			**$28, 000**			**$44, 400**		
	Per Course fee (Tuition)	**$400**			**$600**			**$1000**		
YEAR 1	Number of courses	13			13			13		
	College Fees (Administration)	$1,300			$1,300			$1,300		
	Total Annual Fees	**$6,500**			**$9,100**			**$14,300**		
		AUG	JAN	MAY	AUG	JAN	MAY	AUG	JAN	MAY
	Possible Breakdown by semester	$1300 +#courses x $400	#courses x $400	#courses x $400	$1300 +#courses x $600	#courses x $600	#courses x $600	$1300 +#courses x $1000	#courses x $1000	#courses x $1000
YEAR 2	Number of courses	14			14			14		
	College Fees (Administration)	$800			$800			$800		
	Total Annual Fees	**$6,400**			**$9,200**			**$14,800**		
		AUG	JAN	MAY	AUG	JAN	MAY	AUG	JAN	MAY
	Possible Breakdown by semester	$800 +#courses x $400	#courses x $400	#courses x $400	$800 +#courses x $600	#courses x $600	#courses x $600	$800 +#courses x $1000	#courses x $1000	#courses x $1000
YEAR 3	Number of courses	14			14			14		
	College Fees (Administration)	$800			$800			$800		
	Graduation ***($250 if graduating in absentia)***	*$500*			*$500*			*$500*		
	Total Annual Fees incl. graduation	**$6,900**			**$9,700**			**$15,300**		
		AUG	JAN	MAY	AUG	JAN	MAY	AUG	JAN	MAY
	Possible Breakdown by semester	$800 +#courses x $400	#courses x $400 +$500	#courses x $400	$800 +#courses x $600	#courses x $600 +$500	#courses x $600	$800 +#courses x $1000	#courses x $1000 +$500	#courses x $1000
	Additional Fees:									
	Re-sit exam fee (per course)	**$350.00**								

Evaluation

Evaluation of the student's success is based on coursework, group projects and examinations. Students must attain a passing grade in all courses in order to move from one level to the next. In addition, 85% attendance at all classes is required for writing examination.

Weightings

Coursework	**40%**
Examinations	**60%**
Total	**100%**

Pass mark

The accumulative pass mark for ***Competency Courses is 70% while the pass mark for Academic Courses is 50%.***

Group Work

As aspiring health care professionals, it is important that at an early-stage students must learn the importance of team work for successful patient outcomes. Thus, students will be assigned to groups by different lecturers. In such instances all students must contribute to group assignments so that established timelines can be met. If a student fails to contribute or meet specific timelines the team must report the matter to the lecturer. The lecturer is required to have a meeting with the team to ascertain the problem(s), and encourage the delinquent party to comply with the timelines for deliverables. The student should be advised that he/she will not share in the grade received by the group if the situation continues and he/she may have to do the project by himself or herself.

If the student fails to meet another timeline after the lecturer's intervention, the group must report the matter in writing to the lecturer. The lecturer will then advise the delinquent student that he/she will have to complete the project by himself or herself and the original timeline given for the project should be met.

Requirements for a student to be eligible for a re-sit

1. A student who received an accumulated final grade of F1 is eligible for a re-sit exam once he or she also passes the term work.
2. The maximum grade that can be obtained for a re-sit exam is a C or its numeric equivalent (see grading system next page).
3. The re-sit score ***replaces the final exam grade only*** and is combined with the term grades to arrive at the final accumulated grade.
4. Any student who has to repeat a course or re-sit exam ***is not eligible for honours.***

Maximum Repeat allowed for any course

Students who fail a course will be allowed ***a maximum of two repeats*** of the course they would have failed. If after the second attempt (repeat of a course) a student obtains a failing grade they will be asked to withdraw from the programme.

Grading System

The grading system used to indicate the quality of academic work done will be that of the general institution. Note that a grade of "C" is required for satisfactory completion of the course.

Grading Scale

Applicable Grade Scheme Academic Scale Implementation 2014-15		
GRADE	**QUALITY POINT**	**% RANGE**
A+	4.30	**90-100**
A	4.00	**80-89**
A-	3.70	**75-79**
B+	3.30	**70-74**
B	3.00	**65-69**
B-	2.70	**60-64**
C+	2.30	**55-59**
C	2.00	**50-54**
F1	1.70	**45-49**
F2	1.30	**40-44**
F3	0.00	**0-39**

Applicable Grade Scheme Competency Scale Implementation 2014-15		
GRADE	**QUALITY POINT**	**% RANGE**
A+	4.30	**95-100**
A	4.00	**90-94**
B+	3.30	**85-89**
B	3.00	**80-84**
C+	2.30	**75-79**
C	2.00	**70-74**
F1	1.70	**65-69**
F 2	1.30	**60-64**
F3	0.00	**0-59**

Additional Grade Scale

Grade	Quality Points	Range%
I		Incomplete
W		Withdrawn
FX		Fail due to violation College Policy
IP		In Progress

Plagiarism

The presentation of another person's or author's work as yours in not allowed. Submitting such without the necessary citations will result in the student obtaining a zero grade.

Course outline for Associate of Applied Science Degree in Pharmacy

Year 1 Trimester 1

Grade Scale: C=Competency OR A= Academic	**Courses**	**Credits**
A	General Chemistry PCHE101	3
C	Medical Terminology PMTR101	2
C	Introduction to Pharmacy PPHM101	2
A	Mathematics PMAT101	3
A	Communications for Health Professionals PCHP101	3
		13

Year 1 Trimester 2

Grade Scale: C=Competency OR A= Academic	**Courses**	**Credits**
A	Organic Chemistry PCHE102	4
A	Information Technology PCIS101	3
A	Anatomy & Physiology I PAPH101	3
A	Microbiology PBIO120	3
		13

Year 1 Trimester 3

Grade Scale: C=Competency OR A= Academic	**Courses**	**Credits**
C	Pharmaceutical Calculations PCAL100	3
C	Pharmacognosy PPHM111	2
A	Anatomy & Physiology II PAPH102	3
A	Physics PPHY100	4
		12

Year 2 Trimester 1

Grade Scale: C=Competency OR A= Academic	**Courses**	**Credits**
A	Biochemistry PBIO201	3
A	Immunology & General Pathology PIMM201	3
C	Pharmaceutics 1 (New Drug Delivery Systems & Devices) PPHM210	3
A	Statistics PMAT211	3
		12

Year 2 Trimester 2

Grade Scale: C=Competency OR A= Academic	**Courses**	**Credits**
A	Pharmaceutical Chemistry PCHE201	3
C	Pharmacology I PPHM201	3
C	Pharmaceutics II PPHM212	3
C	Professional Pharmacy Practice PPPR202	3
C	Dispensing I PDIS201	3
		15

Year 2 Trimester 3

Grade Scale: C=Competency OR A= Academic	**Courses**	**Credits**
C	Medicinal Chemistry I PCHE210	3
C	Dispensing II PDIS202	3
C	Pharmacology II PPHM202	3
C	Therapeutics I PTHP201	3
A	Research Methods PRMT202	2
		14

Year 3 Trimester 1

Grade Scale: C=Competency OR A= Academic	**Courses**	**Credits**
C	Medicinal Chemistry II PCHE220	3
A	Introduction to Law PLAW101	3
C	Dispensing III PDIS301	3
C	BiopharmaceuticPharmacokineticsBioPKIN301	4
C	Therapeutics II PTHP202	3
		16

Year 3 Trimester 2

Grade Scale: C=Competency OR A= Academic	**Courses**	**Credits**
C	Therapeutics III PTHP203	3
C	Dispensing IV PDIS302	3
A	Public Health/Epidemiology PHLT302	3
C	Pharmacology III PPHM203	3
C	Pharmacy Management & Business Ethics PMGT301	3
		15

Year 3 Trimester 3

Grade Scale: C=Competency OR A= Academic	Courses	Credits
C	Forensic Pharmacy & Ethics PFPE302	2
A	Basic Life Support PBLS302	2
C	Clinical Rotation PCLR302	6
C	Final Project PFIN302	3
		13

TOTAL: 123credits

Certification

Upon successful completion of all course requirements, students will be awarded an Associate of Applied Science Degree in Pharmacy.

Registration/Licensure

Graduates of the programme are required to undertake a six-month period of internship administered by the Antigua & Barbuda Pharmacy Council. This is necessary to obtain registration and licensure for practice within the state of Antigua & Barbuda.

Summaries/ Descriptions for each course

First year courses descriptions

1. Pharmaceutical Calculations

Credits: 3

Prerequisite: CXC/GCE Mathematics & PMAT101

Description

This course provides an introduction to the metric, avoirdupois, and apothecary systems of measurement, and the calculations required for compounding and dispensing of medications, interpretation of prescription orders and accurate dosage calculations. Topics include ratio and proportion, dosage determinations, percentage preparations, reducing and enlarging formulas, dilution and concentration, aliquots, specific gravity and

density, and flow rates. Upon completion, students should be able to perform correctly the calculations required to prepare a medication order properly.

2. Medical Terminology

Credits: 2

Prerequisites: Program entry requirements

Description:

This course introduces the student to prefixes, suffixes, and word roots used in the language of medical care. They will learn how to combine these elements to define medical conditions. Topics include medical vocabulary and the terms that relate to the anatomy, physiology, pathological conditions, and treatment of selected systems. Upon completion students should be able to pronounce, spell and define medical terms as related to selected body systems and their pathological disorders.

3. Introduction to Pharmacy

Credits: 2

Prerequisites: Programme entry requirements

Description:

This course introduces the student to the profession of pharmacy. It covers the development of pharmacy since the emergence of scientific medicine through the current pharmaceutical care era. It includes the position of pharmacy in the delivery of health care by exploring major issues such as societal, political, philosophical, economic, legal and ethical issues affecting the practice of the profession. It emphasises the requirements, responsibilities and attitudes that are essential for success as a professional and examines the various career pathways and roles of the pharmacists.

4. Anatomy & Physiology 1

Credits: 3

Prerequisites: CXC Biology

Description

This course will provide the student with a basic knowledge of human anatomy and physiology using a regional approach (head and neck, extremities, thorax, abdomen and

pelvis), and study of the cellular and multicellular functions of human tissues, organs, and systems. At the end of this course students will have an understanding of structures, cellular and multicellular functions of human tissues and organs, and a working vocabulary of anatomy & physiology that facilitates their introduction into pharmacology and therapeutics. Laboratory work includes dissection of preserved specimens, microscopic study, physiologic experiments, computer simulations, and multimedia presentations.

5. Anatomy & Physiology II

Credits: 3

Prerequisites: Anatomy & Physiology I

Description

This course provides a continuation of the comprehensive study of the anatomy and physiology of the human body. Topics include the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems as well as metabolism, nutrition, acid-base balance, and fluid and electrolyte balance. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. Laboratory work includes dissection of preserved specimens, microscopic study, physiologic experiments, computer simulations, and multimedia presentations.

6. Microbiology

Credits: 3

Prerequisites: CXC/GCE Biology or Human & Social Biology

Description

This course covers principles of microbiology with emphasis on microorganisms and human disease. Topics include an overview of microbiology and aspects of medical microbiology, identification and control of pathogens, disease transmission, host resistance, and immunity. Upon completion, students should be able to demonstrate knowledge of microorganisms and the disease process as well as aseptic and sterile techniques.

7. General Chemistry (physical and inorganic)

Credits: 3

Prerequisites: CXC/GCE Chemistry

Description

This course introduces the students to fundamental chemical and physical principles and their applications to the properties and transformations of materials, including the concept of energy and its uses, gas laws, kinetic molecular theory, laws of chemical combination, atomic and molecular structure, periodic classification of the elements, chemical bonding, acid/base chemistry, ionic and chemical equilibria, electrochemistry, elementary chemical thermodynamics and kinetics. At the end of this course the students will have prerequisite for Pharmaceutical Chemistry.

8. Information Technology

Credits: 3

Prerequisites: Programme entry requirements

Description

This course seeks to develop within each student a fundamental understanding of and an appreciation for, the various aspects of computer usage and support technology in Pharmacy work. It offers an introduction to the applications in the Microsoft Office Suite where students gain a basic proficiency in the use of Word, Excel, PowerPoint and Publisher. The course is designed to expose the student to the role that computer technology plays in their chosen career. At the end of the course, students should have acquired the necessary competencies to comprehend and demonstrate the fundamentals of the application programmes as a useful tool in pharmacy operations; as well as to utilize the proper procedures to create documents, workbooks, and presentations suitable for coursework, professional purposes, and personal use through integration of the various application programmes

9. Pharmacognosy

Credits: 2

Prerequisites: Programme entry requirements

Description

This course covers drugs used in the practice of pharmacy and medicine which are derived from natural products. This course covers their isolation (extraction), chemical constitution, biochemical nature, and physiological actions. The course will also incorporate the study of herbal medicine and attempt to compare and contrast the practice of pharmacy and herbal medicine. It will also look at Herbal Toxicology.

10. Mathematics

Credits: 3

Prerequisites: CXC/GCE Mathematics

Description

This course introduces the students to mathematical techniques to include linear and quadratic equations, linear equations, matrices, algebraic equations, logarithmic and exponential functions, calculus, and probability. This course will provide the students with an appreciation of mathematic concepts.

11. Communications for Health Professionals

Credits: 3

Prerequisites: CXC/GCE English

Description

This course uses a skills approach to the practice of effective communication in health settings. Students will be able to function effectively as individuals in public, small group and face-to-face interactions with persons seeking health care. They will also be able to communicate effectively in writing across a range of forms necessary to the health profession. They will learn and practice the application of effective communication principles in counselling and conveying messages in health settings. Students will be able to effectively conduct counselling sessions and use clinical instruction methods. They will also be able to use appropriate strategies and technology to convey messages to patients, clients and other professionals.

12. Organic Chemistry

Credits: 4

Prerequisites: General Chemistry PCHE101

Description

This course provides a systematic study of the theories, principles, and techniques of organic chemistry. Topics include nomenclature, structure, properties, reactions, and mechanisms of hydrocarbons, alkyl halides, alcohols, and ethers; mechanisms of aromatics, aldehydes, ketones, carboxylic acids and derivatives, amines, and heterocyclics. Other topics include isomerization, stereochemistry, and spectroscopy, and multi-step synthesis is emphasized. Upon completion, students will be able to demonstrate an understanding of organic concepts to pursue in Medicinal Organic Chemistry.

Laboratory experiments, including spectroscopy and chromatography, and computer-based exercises augment and reinforce the basic principles discussed in lecture as well as provide practical examples.

13. Physics

Credits: 4

Prerequisites: CXC/GCE Mathematics, English

Description

This course will offer a survey of major concepts, methods, and applications of physics. Topics include a description of motion, Newton's Laws, conservation principles (energy and momentum), waves, thermodynamics, electricity, magnetism, optics, and modern physics. For students not majoring in engineering, math or science related fields that need a basic understanding of physics.

Year 2 Courses Descriptions

1. Biochemistry

Credits: 3

Prerequisites: Organic Chemistry

Description

This course introduces students to the evolution, chemical structure, and biological roles of the major molecular components of the cell: including proteins, nucleic acids, lipids, and carbohydrates. Topics and processes integrated through understanding biological macromolecules include enzymology and intermediary metabolism, with emphasis on catabolic processes. Students will gain basic investigative skills through hands-on experiences in a laboratory setting.

2. Pharmacology I

Credits: 3

Prerequisites: Anatomy & Physiology, Microbiology, Medical Terminology

Description

This course is designed to assist the student in learning about the pharmacologic effects of drugs used in treatment of various diseases in patients. It will provide a framework for a more in-depth study of pharmacology in relation to drug receptor interaction, mechanisms of action, indications, adverse and toxic effect, effects of enzymes, metabolism, route of administration, absorption, elimination, drug interactions, contraindication, etc. of commonly used drugs affecting autonomic, cardiovascular, central and peripheral nervous, gastrointestinal, respiratory, blood and renal systems. In addition, drugs used in the treatment of various bacterial, viral, protozoal, parasitic, fungal infection immunological disorders and cancer.

At the end of this course students should know the different drug groups, name of commonly used drugs, disease indications, dosage, adverse and toxic effects, enzyme inducers and inhibitors, common receptors, contraindications, their pharmacokinetics, and drug effects on various body systems and their use in the management of different disease states.

3. Pharmaceutical Chemistry

Credits: 3

Prerequisites: Organic Chemistry

Description

This course introduces the students to the structure, properties, and analysis (both quantitative and qualitative) of pharmaceutical agents and metabolites. Topics include the study of organic, inorganic and physical chemistry of chemicals to provide an understanding of chemical structures, physiochemical properties and behavior of drugs at the molecular level. Specifically, the course includes the review of organic functional groups, stereochemistry and its applications to the activities of pharmaceuticals; concepts of acidity and alkalinity, equilibrium, solubility, partition coefficient and chemical kinetics; and the use of different classes of inorganic compounds in pharmaceutical applications. Additionally, the effect of chemical structure on the metabolism of drugs, chromatographic analysis of pharmaceutical agents and metabolites, and spectral techniques used in quantitative analysis of drug samples. Laboratory experiments will be designed to illustrate the applications of these concepts in analysis of pharmaceuticals.

4. Pharmaceutics I

Credits: 3

Prerequisites: Intro. to Pharmacy, Medical Terminology

Description

This course introduces the students to the study of new drugs delivery systems and devices. In addition, the physicochemical aspects of liquid dosage forms, both aqueous and non-aqueous, with emphasis on the technology and pharmaceutical rationale fundamental to their design and development.

5. Dispensing I

Credits: 3

Prerequisites: Pharmaceutical Calculation, Pharmacology, Chemistry

Description

This course introduces the students to the art and science of compounding products for external and internal use; to include ointments, suspension, creams, elixirs, lotions, and

emulsions. The techniques used in compounding are emphasized to ensure that good manufacturing practices are achieved. Students will also be taught about storage, handling, aseptic techniques and preparation, equipment, labelling, and expiration dating, documentation and patient counselling.

6. Statistics

Credits: 3

Prerequisites: PMAT101

Description

This course introduces the student to statistical analysis. Statistical topics include sampling, probability and distributions, normal theory estimation, hypothesis testing, regression and correlation, exploratory data analysis, analysis of variance, multiple regression, chi-square tests, and non-parametric procedures. At the end of this course student should be able to apply the statistical tools in other subject areas of the pharmacy course.

7. Therapeutics I

Credits: 3

Prerequisites: Pharmacology I, Immunology & General Pathology, Biochemistry, and Dispensing I

Description

This course involves the basic pathophysiological approach, and clinical manifestations of disease states on various body systems. Each sub-topic of therapeutics begins with a discussion on the nature and causes of disease in an organ system or body structure; etiology, pathogenesis, diagnosis and treatment. Emphasis will be placed on how the pharmacological actions of drugs and their pharmacokinetic properties are utilized in clinical setting to produce therapeutic effects. In addition, the students will be introduced to the considerations for drug therapy, therapeutic goals, plans of treatment, dosage regimens, therapeutic alternatives and therapeutic endpoints, toxicities, side effects, interactions and contraindications of drugs. This course also enables the student to acquire the necessary skill and knowledge to develop and/ or select the most rational drug regimen for a given patient with the appropriate monitoring parameter to achieve the

desire therapeutic outcome. Additionally, it provides the opportunities for the students to select, interpret and integrate patient, drug and disease information in order to prevent, detect and resolve drug related problems.

8. Immunology & General Pathology

Credits: 3

Prerequisites: Anatomy & Physiology, Microbiology, Medical Terminology

Description

This course introduces the student to the immune system (IS); features and functions, primary and secondary response, innate and specific immunity; cells and tissues of the immune systems. The course will also cover major histocompatibility, antigens, antigen processing and presentation; overview cytokines, immunopathology, including immunodeficiency, hypersensitivity, autoimmunity, transplantation and immunosuppressive modality and immunization. While studying the area of general pathology students will be introduced to pathophysiological and morphological changes that are associated with common pathological states.

9. Medicinal Chemistry I

Credits: 3

Prerequisites: Pharmaceutical Chemistry and Biochemistry

Description

This course introduces the concepts required to understand drugs as organic chemicals whose biological activities derive from their chemical structures and physiochemical properties, including drug metabolism, signal transduction and drug-receptor interactions. The course is concerned mainly with the organic, analytical, and biological chemical aspect associated with the establishment of new and potential drugs into the market. The course material gives real-life examples of drug discovery and information on the drug discovery process through an industrial context.

10. Pharmaceutics II

Credits: 3

Prerequisites: Pharmaceutics 1, Dispensing 1

Description

This course is a continuation of the study of dosage forms and pharmaceutical products with emphasis on solid and semi-solid systems, dispensing techniques, physical and chemical incompatibilities, drug product evaluation, and aspects of drug product stability.

11. Dispensing II

Credits: 3

Prerequisites: Dispensing I, Pharmaceutical Chemistry, Pharmaceutical Calculations and Pharmaceutics I

Description

This course is a continuation of Dispensing I. This course introduces the students to the art and science of compatibility of ingredients when compounding products for external and internal use; to include ointments, suspension, creams, elixirs, lotions, and emulsions. The techniques used in compounding are re-emphasized to ensure that good manufacturing practices are achieved. Students will also be taught about storage, handling, aseptic techniques and preparation, equipment, labelling, and expiration dating, documentation and patient counselling.

12. Pharmacology II

Credits: 3

Prerequisites: Pharmacology I

Description

Pharmacology II builds on the students' previous knowledge of pharmacology. The core emphasis will be the major drug classifications and their action (to include therapeutic indications and effects, adverse effects, drug interactions, drug receptor interactions, contraindications, pharmacokinetics) on the various body systems and their use in the management of various disease states.

13. Research Methods

Credits: 2

Prerequisites: Statistics

Description

This course is designed to introduce the student to the concepts of scientific research in pharmacy practice and administrative science. Topics to be discussed include the scientific method and problem solving processes, social science measurement, and several specific methods of research. Students will be familiarized with statistical designs and their applications in different modalities of studies. Students will also learn the principles of pharmacoepidemiology and its applications to the practice of Pharmacy and Clinical Sciences.

14. Professional Pharmacy Practice

Credits: 3

Prerequisites: Pharmacology I, Pharmaceutics I,

Description

This course is designed to offer students a foundation of knowledge, skill sets and resources necessary for providing patient-centered care, as well as applying principles of optimal non-prescription drug therapy selection, alternative therapy, patient assessment skills, patient counseling skills, point of care testing, understanding of the pharmacist's role in health promotion and disease prevention. In addition, students will be introduced to the various aspects of pharmacy practice. The course of study is also intended to serve as the foundation for future professional specialization.

Year 3 Courses descriptions

1. Medicinal Chemistry II

Credits: 3

Prerequisites: Medicinal Chemistry I,

Description

This course is a continuation of Medicinal Chemistry I. Students will utilize the knowledge gained from biochemistry and organic chemistry to understand the chemistry of drug

action, half-life, elimination and metabolism in the body. Examples from the major classes of drugs will be used to facilitate discussion and examine the role of medicinal chemistry today. In addition, students will be exposed to how potential drug molecules are identified and subsequently optimized into safe and effective drugs.

2. Introduction to Law

Credits: 3

Prerequisites: Course entry requirements

Description

This course gives a general overview of business law. The students will be introduced to topics such as: the law and legal sources, criminal and civil courts, alternative dispute resolutions, contracts, law of torts, agency, negligence, partnership law, company law, individual employment rights, and employers' liability. At the end of this course students will get an appreciation of how their action as a practicing health professional may have legal implications.

3. Dispensing III

Credits: 3

Prerequisites: Dispensing II, Pharmaceutics II, Therapeutics I, Pharmacology II

Description

This course is a continuation of Dispensing I & II but the emphasis is placed on the role of the pharmacist in medication dispensing and patient care. Students will be expected to apply the knowledge gained from the different courses to patient profiling, medication monitoring, counseling, drug product selection and generic substitution. Emphasis will also be placed on compliance with relevant Pharmacy laws and Regulations, labeling/auxiliary labeling of prescriptions, technical aspects and knowledge of drug delivery systems. In addition, this course will provide students with information and skills in the areas of intravenous (IV) therapy and physical assessment. It is also expected that students will demonstrate competency in aseptic techniques, IV admixtures, sterile products, drug delivery systems, and drug therapy monitoring.

4. Biopharmaceutics/Pharmacokinetics

Credits: 4

Prerequisites: Pharmaceutics II & Pharmacology II

Description

This course introduces the student to the basic concepts and principles of Pharmacokinetics/Biopharmaceutics. The students will be exposed to mathematical expressions needed to characterize the rate of drug absorption, distribution, metabolism, and excretion in humans. Topics included are clearance, volume of distribution, and elimination half-life. Students will be introduced to the major physical, chemical and biological factors that influence the systemic availability of drugs from their dosage forms. Topics included are rates and extent of absorption, gastrointestinal transit and physiologic considerations, membrane transport, first pass effects, parenteral and oral absorption dissolution, bioequivalence, immediate and modified release. Additionally, the principles of therapeutic drug monitoring and dosing will be re-emphasized.

5. Pharmacology III

Credits: 3

Prerequisites: Pharmacology II

Description

Pharmacology III builds on the students' previous knowledge of pharmacology. The core emphasis will be the major drug classifications and their action (to include therapeutic indications and effects, adverse effects, drug interactions, drug receptor interactions, contraindications, pharmacokinetics) on the various body systems and their use in the management of various disease states.

6. Therapeutics II

Credits: 3

Prerequisites: Pharmacology, Therapeutics I, and Dispensing

Description

This course is a continuation of Therapeutics I. The emphasis will continue to be placed on how the pharmacological actions of drugs and their pharmacokinetic properties are

utilized in clinical settings to produce therapeutic effects. In addition, the students will be introduced to the considerations for drug therapy, therapeutic goals, plans of treatment, dosage regimens, therapeutic alternatives and therapeutic endpoints, toxicities, side effects, interactions and contraindications of drugs. This course also enables the student to acquire the necessary skill and knowledge to develop and/ or select the most rational drug regimen for a given patient with the appropriate monitoring parameter to achieve the desired therapeutic outcome. Additionally, it provides the opportunities for the students to select, interpret and integrate patient, drug and disease information in order to prevent, detect and resolve drug related problems.

7. Pharmacy Management

Credits: 3

Prerequisites: Courses done in years 1 & 2

Description

This course is designed to impart the requisite skills and knowledge needed to students to perform managerial functions in community and institutional pharmacy, and/or pharmaceutical industry. Area of study includes planning and integrating professional services, budgeting, inventory management, human resource management, and functioning in a business environment.

8. Forensic Pharmacy & Ethics

Credits: 2

Prerequisites: Introduction to Law

Description

This course introduces the student to pharmacy law and ethical issues that impact the profession. Students will examine the Antigua & Barbuda Pharmacy Laws and Regulations that impact the practice of pharmacy, while emphasizing the legal and ethical principles applied by pharmacists in their daily decision-making. Students will also learn the governance framework within which pharmacy is practiced, and the ethical responsibilities applicable to pharmacists so that they will be able to protect the public and ensure the well-being of the patients. Further, reference will be made to other

Regional and International Pharmacy/Pharmaceutical Regulatory Bodies that impact the practice(s) of pharmacy.

9. Public Health/Epidemiology

Credits: 3

Prerequisites: Programme entry requirements

Description

This course introduces the students to the basic principles of public health and their application to the development of activities that benefit the health status of the population. The skills of epidemiology, biostatistics, health care planning and policy development, health care administration and community organization are applied to the assessment of public health needs and the development of prevention and control.

10. Basic Life Support (BLS)

Credits: 2

Prerequisites: Anatomy & Physiology

Description

This course introduces the students via case-based scenarios, interactive activities and videos, to the concepts of both single-rescuer and team basic life support. It is designed to provide healthcare professionals with the ability to recognize several life threatening emergencies, provide CPR, use an Automated External Defribulator (AED), and relieve choking in a safe, timely and effective manner. At the end of this course students will be proficient in the basic BLS techniques.

11. Clinical Rotation

Credits: 6

Prerequisites: Completion of all courses taught in the program

Description

This course provides the students with the opportunity to offer direct patient care in hospital / institution settings and a community pharmacy under supervision of a registered pharmacist. General emphasis is on communicating effectively with patients and

personnel, developing proper employee attitude, application of pharmaceutical knowledge and dispensing medication.

Community pharmacy rotation will provide the students with advanced knowledge of prescription and drug order processing. This will assist students in the development of appropriate skills necessary for provision of pharmaceutical care to patients in the community setting, through the use of medication and patient profiles, patient counseling, and appropriate prescription and non-prescription drug information

While in hospital / institutional settings students are exposed to the practice of clinical pharmacy. On completion of this course, students are expected to demonstrate the competency of a qualified pharmacist.

12. Final Project

Credits: 3

Prerequisites: Completion of all courses taught in the program

Description

Students will be expected to apply the knowledge gained during the three (3) years of study, to a research area for their final project. Students will be provided with guidance on the expected structure and standard for their final project.

13. Therapeutics III

Credits 3

Prerequisites: Pharmacology, Therapeutics II, and Dispensing

Description

This course is a continuation of Therapeutics II. The emphasis will continue to be placed on how the pharmacological actions of drugs and their pharmacokinetic properties are utilized in clinical settings to produce therapeutic effects. In addition, the students will be introduced to the considerations for drug therapy, therapeutic goals, plans of treatment, dosage regimens, therapeutic alternatives and therapeutic endpoints, toxicities, side effects, interactions and contraindications of drugs. This course also enables the student to acquire the necessary skill and knowledge to develop and/ or select the most rational drug regimen for a given patient with the appropriate monitoring parameter to achieve the desired therapeutic outcome. Additionally, it provides the opportunities for the students

to select, interpret and integrate patient, drug and disease information in order to prevent, detect and resolve drug related problems.

14. Dispensing IV

Credits: 3

Prerequisites: Dispensing III, Therapeutics II, Pharmacology III

Description

This course is a continuation of Dispensing I,II& III but the emphasis is placed on the role of the pharmacist in medication dispensing and patient care. Students will be expected to apply the knowledge gained from the different courses to patient profiling, medication monitoring, counseling, drug product selection and generic substitution. Emphasis will also be placed on compliance with relevant Pharmacy laws and Regulations, labeling/auxiliary labeling of prescriptions, technical aspects and knowledge of drug delivery systems. In addition, this course will provide students with information and skills in the areas of intravenous (IV) therapy and physical assessment. It is also expected that students will demonstrate competency in aseptic techniques, IV admixtures, sterile products, drug delivery systems, and drug therapy monitoring.