

UNIVERSITY OF SANTO TOMAS

FACULTY OF PHARMACY

BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

First Year – First Term / Semester

Abbreviation	Title	Lec. Units	Lab. Units	Pre-Requisites
BOT 102A	Pharmaceutical Botany with Taxonomy	3	2	None
CHEM 100	General Inorganic Chemistry	3	2	None
ENG 1	Introduction to College English	3	0	None
FIL 1	<i>Komunikasyon sa Akademikong Filipino</i>	3	0	None
MATH 101	College Algebra	3	0	None
PHAR 1	Introduction to Pharmacy	3	0	None
PSY 1	General Psychology	3	0	None
THY 1	Contextualized Salvation History	(3)	0	None
PE	Physical Education 1	(2)	0	None
ROTC	Military Science I (Reserve Officers' Training Corps) <i>* This is an elective. In case students will not choose ROTC in the first year, they will take NSTP in the second year.</i>	(3)	0	None
TOTAL		21	4	

BOT 102A Pharmaceutical Botany with Taxonomy

Description This course is an introduction to the scientific study of plant life and their value as an integral part of ecosystem and the pharmaceutical field. It focuses on the understanding of plant morphology, anatomy, physiology, taxonomy, and recognitive features of plant species of pharmaceutical importance. The students are expected to explain the importance of plants as sources of active and inert raw materials in research and pharmaceutical industry.



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CHEM 100 General Inorganic Chemistry

Description The lecture deals with the fundamental concepts of matter, its properties and chemical behavior in relation to their atomic and molecular structure. It also includes the changes which matter undergoes and the energy associated with it. The laboratory provides opportunities to gather experimental data and explore various aspects of descriptive and theoretical chemistry.

The course focuses on the properties, structure and changes of matter and its relation to chemical reactions and energy transformations.

At the end of this course, the students are expected to perform analyses of chemical concepts which emphasize creation of solutions to problems and prepare students for future professional practice, as well as environmental, ethical and social awareness. The experiments are designed to apply fundamental laboratory operations and techniques that illustrate the various principles and theories in the lecture.

ENG 1 INTRODUCTION TO COLLEGE ENGLISH

Description The course enhances the students' mastery of the basic communication skills in listening, speaking, reading, and writing.

Interactive activities have been designed to develop critical thinking and collaboration among students.



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FIL 1 KOMUNIKASYON SA AKADEMIKONG FILIPINO (Communication for Academic Filipino)

Description *Ang Filipino I ay isang metalinggwistik na pag-aaral ng wikang Filipino. Nakatuon ito sa estruktura, gamit, katangian at kahalagahan ng wikang Filipino sa akademikong larangan.*

Sa lapit multidisiplinaryo at paraang interaktibo, inaasahang matutukoy at matatalakay ang mga pangunahing kaalaman sa wikang ito.

Malilinigang dito ang mga kasanayan sa paggamit ng wikang Filipino tungo sa lalong mataas na komunikasyon sa kritikal na pagdidiskurso.

Filipino 1 is a metalinguistic study of Filipino language which focuses on the structure, usage, nature and its value in the academic field.

Using the interactive and multidisciplinary approach, it is expected to identify and discuss the fundamental concepts of Filipino and to develop the higher language / communication skills in a critical discourse.

MATH 101 COLLEGE ALGEBRA

Description This is a Mathematics course for freshmen, dealing with the fundamental principles and applications of algebra. It begins with sets, the number system, and algebraic expressions.

Focus is given on operations on polynomials, one-variable linear equations and inequalities, quadratic equations, two-variable linear equations, systems of linear equations, and functions and relations.

At the end of the course, students should develop the values of accuracy, analytical thinking and logical reasoning.



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PHIST PHILIPPINE HISTORY

Description This course discusses important events in the history of the Philippines from the earliest period to the contemporary.

The course focuses on the interrelationship of important factors that were responsible for the formation of Philippine, nationhood, the state and the country's economy; how the past affected the country's present and how will it help contribute to its future.

The students are expected to develop an awareness of how events and factors affected the development of the nation and to appreciate how events in the past affected their daily lives.

PHL 2 LOGIC

Description This course exposes the students with the fundamental concepts and principles in the study of human behaviour, sensory modalities, perception, consciousness, and motivation, emotion, stress and health and personality theories

This course provides the students with a broad, eclectic understanding on the importance of understanding human behaviour by addressing the wide range of issues and problems encountered in everyday life.

Each student is expected to apply basic psychological concepts and principles in understanding and enhancing human behaviour.



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THY 1 CONTEXTUALIZED SALVATION HISTORY

Description This Course is a critical and reflective look into the different moments of God's intervention in the history of humanity, gradually disclosing Himself and His plan of salvation through persons and events, until this revelation reached its fullness in the incarnation of His Son, our Lord Jesus Christ.

The whole history of salvation has for its central figure the person of Jesus Christ. Hence, salvation history, in its very nature, is Christocentric. It is in Jesus that the entire history of humanity finds meaning. It is also to him that history tends. Because of this, all events and persons in the history of salvation are seen in the light of the person of Jesus, apart from whom they have no value. The course shall make use of the Sacred Scriptures as its primary source since it is the Bible that contains the record of God's interventions with humanity and the testimonies of the members of early Church about their encounters with Jesus.

The course, therefore, inevitably involves the actual reading of Sacred Scriptures in class in order to discover how God's Word, enveloped in human words, continues to communicate to humanity today; and at the same time to facilitate a dialogue between the text of the Bible and the day-to-day life of the Thomasian students.



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Abbreviation	Title	Lec. Units	Lab. Units	Pre-Requisites
ENG 2	Reading and Thinking Skills for Academic Study	3	0	ENG 1
FIL 2	<i>Pagbasa at Pagsulat tungo sa Pananaliksik</i>	3	0	FIL 1
PHAR 2	Pharmaceutical Calculations	3	0	PHAR 1
PHARCARE 1	General Concepts of Health Care System	3	0	None
PHARCHM 1	Pharmaceutical Chemistry	3	2	CHEM 100, PHAR 1
PHL 2	Logic	3	0	None
RC	Rizal Course	3	0	None
THY 2	Church and Sacraments	(3)	0	THY 1
PE	Physical Education 2	(2)	0	
ROTC	Military Science II (Reserve Officers' Training Corps) <i>* This is an elective. In case students do not take ROTC in the first year, they will take NSTP in the second year instead.</i>	(3)	0	
TOTAL		21	2	

ENG 2 READING AND THINKING SKILLS FOR ACADEMIC STUDY

Description The course aims primarily to develop students' reading and thinking skills for academic study.

It equips students with an understanding of the reading skills and thinking processes; and effective higher order reading strategies for understanding academic texts.

It also aims to prepare them for academic writing.



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FIL 2 PAGBASA AT PAGSULAT TUNGO SA PANANALIKSIK (Reading and Writing Towards Research)

Description *Ang Filipino 2 ay 3-yunit na kurso at ikalawa sa serye ng mga kurso sa ilalim ng kurikulum sa Filipino sa antas kolehiyo.*

Nakasentro ang kursong ito sa paglilinang sa kasanayan at kahusayan ng mga mag-aaral sa matalino at makatuwirang pagbabasa at pagsusulat ng mga akademikong babasahin/sulatin upang makabuo ng mga makabuluhang pananaliksik sa kanilang larangang kinabibilangan gamit ang wikang Filipino.

Filipino 2 aims to develop the proficiency of students in critical reading and academic writing that will guide them to do meaningful researches related to their discipline using the Filipino language.

PHAR 2 PHARMACEUTICAL CALCULATIONS

Description The course introduces beginning students to the metrology and calculations of pharmacy.

It provides insights and understanding of the language of pharmaceutical calculations, interpretation of prescription and medication orders, fundamental concepts of pharmaceutical and pharmaco-economic calculations.

Students are expected to engage in the analysis of the application of the concepts as they relate to the pharmacy practice in a variety of settings, including community, institutional, hospital and industrial pharmacy.

PHARCARE 1 GENERAL PRINCIPLES OF HEALTHCARE SYSTEM

Description A study and analysis of the basic principles of health and the holistic approach in pharmaceutical care.

Focus is on the stages of human development, health problem identification, health care strategies and essential health promotions and interventions.

The students are expected to demonstrate their understanding of the general principles of health care by formulating health care strategies and applying essential health promotions and interventions.



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PHARCHM 1 CHEMISTRY AND PHARMACY OF INORGANIC MEDICINALS WITH QUALITATIVE CHEMISTRY

Description It introduces students with the fundamental concepts of matter, its properties and chemical behavior in relation to their atomic and molecular structure, including the changes which matter undergoes and the energy associated with it and proper techniques in common pharmaceutical preparations.

Analyses of chemical concepts are emphasized and laboratory activities are provided to gather experimental data and explore various aspects of descriptive and theoretical chemistry and apply fundamental laboratory operations and techniques that illustrate the various principles and theories.

Students are expected to demonstrate analysis of problems involving chemical concepts and correct laboratory techniques in preparing pharmaceutical preparations.

PHL 2 LOGIC

Description This course investigates human reason through the academic discipline of logic. It deals with the fundamental logical concepts and principles in simple apprehension, judgment and reasoning; and examines truth-validity and logical fallacies using the traditional (Aristotelian) and modern (Symbolic) logic. This course aims to give students a fundamental training in analytical reasoning using the rules of correct inferential thinking.

RC RIZAL COURSE

Description This course focuses on the life, works, and legacy of the national hero, Dr. Jose Rizal, specifically his role on the development of nationalist thought in the Philippines. It contextualizes Rizal within the 19th century and in the places where he spent time and which in turn, brought influences on his thoughts, ideas and principles.

THY 2 CHURCH AND SACRAMENTS

Description The course deals with the Church and Sacraments. The first part is about the nature, origin, characteristics, and mission of the Church, as having originated from the Trinitarian Community of God Whose love was revealed in the incarnate Son, Jesus Christ Who accomplished God's plan of salvation. The second part of the course deals with the liturgical life of the Church celebrated specifically through the Sacraments as visible signs of God's grace in the believing, worshipping and serving community.



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Abbreviation	Title	Lec. Units	Lab. Units	Pre-Requisites
BIOSCI 3	Human Anatomy, Physiology, & Patho-Physiology	3	2	None
CHEM 200	Organic Chemistry	3	2	CHEM 100
COMP 103	Introduction to Computer with Applications	2	1	None
HETAR	Health Economics with Taxation and Land Reform	3	0	None
INTERN 1	Internship 1: Community Pharmacy	1	1	
PHAR 3	Pharmaceutical Dosage Forms	3	2	PHAR 1, PHAR 2
PHL 5	Christian Ethics	3	0	THY 1, THY 2
PE	Physical Education 3	(2)	0	
NSTP	Literacy Training Service (LTS) I <i>or</i> Civic Welfare Training Service (CWTS) I <i>* This is an elective. Either LTS or CWTS is chosen by the student who has not elected to take ROTC in the first year.</i>	(3)	0	
TOTAL		18	8	

BIOSCI 3 HUMAN ANATOMY, PHYSIOLOGY, & PATHO-PHYSIOLOGY

Description This course deals with the study of the parts and functions of the major organs and organ systems of the human body. It introduces students to the language of anatomy, as well as, the fundamental concepts of cellular structures and functions, integration, organization, and control of all body systems. The students will engage in the analysis and application of these concepts in various real-life settings as they acquire a basic understanding of physiological adaptations to special conditions and some of the common pathophysiological and clinical cases.

CHEM 200 ORGANIC CHEMISTRY

Description The course prepares the students to apply the principles and techniques of organic chemistry to biochemical and health-related fields of study. It also prepares them for studying higher courses that require knowledge in organic chemistry. The course deals with the different classes of organic compounds, their structures, properties, reactivities and reaction mechanisms. It includes training in both classical and modern semi- micro laboratory techniques in handling, preparing, separating, purifying, identifying and characterizing organic compounds. At the end of this course, the students are expected to use and apply knowledge gained and skills acquired in problem-solving and research in organic chemistry to biochemical and health-related fields of study.



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COMP 103 INTRODUCTION TO COMPUTER WITH APPLICATIONS

Description The students should perform an academic excellence that shows their expertise. To become more critical thinking by solving skills using their innovative ideas and methods of different applications programs and to get more productive and accountable, students must develop new knowledge and understanding that will contribute for sustainable development through the processes of inquiry, research and innovation.

The students need to demonstrate creative application of concepts and methods that geared towards the advancement of various fields of pharmacy. Demonstrate critical applications of concepts, theories and principles in pharmacy using logical and systematic methods to provide practical solutions to real life professional situations and to generate insights and new knowledge that will contribute to sustain the development for the prevention, diagnosis, mitigation and treatment of diseases of man and animals.

Students must need to evaluate their performance in File management skills in using Windows; and apply the Application skills in internet, MS Word, MS Excel, MS Powerpoint, MS Publisher, and Macromedia Flash. To demonstrate and practice the different application skills in using the basic application programs that make use in developing their creativity. And to improve and become responsible on the data handled as to recognize the competency, commitment and compassion of an individual.

HETAR HEALTH ECONOMICS WITH TAXATION AND AGRARIAN REFORM

Description The course deals with the application of concepts and principles of economics in health and medical care, supply and demand , evaluation of health programs and interventions, the health finance and the health sector. Students are expected to engage in economic research related to pharmaceutical health care.

INTERN 1 INTERNSHIP 1: COMMUNITY PHARMACY

Description



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PHAR 3 PHARMACEUTICAL DOSAGE FORMS

Description This course introduces the students to the different pharmaceutical dosage forms and drug delivery systems. Focus is on the principles of dosage form design and development, classification and methods of preparation of pharmaceutical dosage forms.

At the end of the course, students are expected to demonstrate this knowledge in preparing various dosage forms in the laboratory needed in pharmacy practice.

PHL 5 CHRISTIAN ETHICS

Description The course provides an overview of Christian Ethics which is designed to help students begin answering some fundamental questions about Christ-centered life and what makes it worth living.

It is divided into three parts: Human Person's Ethics of Being and Doing, introduces one to the realities of moral life, to an analysis of the moral process (constituents, sources and modifiers of human acts), to the relationship of ethics and morality to religious faith, and to the specific nature of Christian morality; Unit 2, Realizing Human Dignity and Genuine Freedom, deals with the human person as a moral agent, human freedom, conscience, sin and moral obligation in the light of the Word of God in the Sacred Scriptures and in the teachings of the Church enshrined in Her Traditions, Pronouncements and Documents; and, Unit 3, the Christian Response to some Special Contemporary Moral Issues, gives special attention to the Ten Commandments in highlighting the moral principles and virtues vis-à-vis some contemporary moral issues.

The course seeks the formation of a Christian conscience of the students to enable them to make correct judgments in their everyday moral decisions and choices especially about specific moral issues they are encountering and thus lead them towards committed moral living.



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MATH 600	Biostatistics	2	1	MATH 101
PH-BIOCHEM	Pharmaceutical Biochemistry	3	2	CHEM 100, CHEM 200
PH-MCR-PRS	Pharmaceutical Microbiology and Parasitology	3	2	
PHAR 5	Hospital Pharmacy	2	1	PHAR 3
PHYS 201	General Physics	4	1	MATH 101
SCL 3	The Social Teachings of the Church	3	0	PHL 5, THY 1, THY 2
PE	Physical Education 4	(2)	0	
NSTP	Literacy Training Service (LTS) II <i>or</i> Civic Welfare Training Service (CWTS) II <i>* This is an elective. Either LTS or CWTS is chosen by the student who has not elected to take ROTC in the first year.</i>	(3)	0	
TOTAL		17	7	

MATH 600 BIostatISTICS

Description The course deals with the collection, organization, presentation, analysis, evaluation, interpretation, formulation and testing of hypotheses and formulation of generalizations and inferences involving biological data, especially those concerning health care, preventive medicine, clinical and laboratory tests.



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PH-BIOCHEM PHARMACEUTICAL BIOCHEMISTRY

Description Biochemistry is a distinct discipline which seeks to investigate the basic processes of life and explain them in molecular terms. It discusses the complete structures of biomolecules, their behavior during metabolic reactions and their impact on medicine, health, nutrition, and environment. The course prepares pharmacy students to use the principles of biochemistry in understanding and appreciating related major pharmaceutical courses.

The course deals with the structure and function, isolation, purification and characterization of biomolecules: carbohydrates, proteins, lipids and nucleic acids, transmission and expression of genetic information, and generation and storage of metabolic energy.

At the end of the course, students are expected to explain at the molecular level structure and function of biomolecules, describe molecular processes in heredity and expression of genetic information and illustrate metabolic pathways and their control. Students are also expected to demonstrate various research techniques and skills in the qualitative and quantitative analyses of biomolecules.

PH-MCR-PRS PHARMACEUTICAL MICROBIOLOGY AND PARASITOLOGY

Description

PHAR 5 HOSPITAL PHARMACY

Description An introductory course to pharmacy as a hospital department and a patient-oriented unit, which will include how it relates to total hospital operation.

Focus is on the hospital, hospital pharmacy, and medication safety and control.

At the end of the course, the students are expected to analyze core concepts of drug therapy provision in pharmaceutical care cases, assume leadership roles in pharmacy administration and management, critique current issues related to hospital pharmacy practices, evaluate the quality assurance program for pharmaceutical services, analyze the trace of hospital as a health care institution, and apply effective communication and interpersonal skills in monitoring and reporting medication misadventures.



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PHYS 201 GENERAL PHYSICS

Description Physics 201 is a general physics course for Biology students aimed to develop both an understanding of fundamental concepts and principles in general physics, and logical problem-solving skills.

Topics include mechanics, heat and temperature, electricity and fluids, and sound waves. Selected topics on magnetism, optics, and modern physics may be included by the professor in the course if time permits.

At the end of the course, the students are expected to identify and explain the fundamental concepts and principles in those topics, apply these concepts and principles in solving problems, appreciate the role of physics in understanding life processes, and the world and the universe where we live, and demonstrate positive attitudes towards the study of natural phenomena and their causes.

SCL 3 THE SOCIAL TEACHINGS OF THE CHURCH

Description The course is an in-depth thematic study of Catholic social thought as found in the Gospel, in the tradition of primitive Christianity, the Fathers of the Church, the official documents of the social teachings of the Church and the lived experience of peoples.

As Mother and Teacher, the Church keeps alive in the personal and collective memory of the people the saving mission of Christ, who became all things to all human beings except sin, and its implication to the final destiny of the human person. She proposes individual and societal life witnessing in the very real experiences of the human person and the communities of peoples in the socio-cultural, economic, political, technological and ecological environments.

As a true disciple of the Risen Christ and moved by the Spirit, the human person is empowered and challenged to bring about social transformation and development by practical competent acts of compassion and commitment to truth in love.



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Abbreviation	Title	Lec. Units	Lab. Units	Pre-Requisites
INTERN 2	Internship II: Hospital Pharmacy	1	1	PHAR 5
LIT 102A	Philippine Literatures	3	0	None
PHAR 4	Physical Pharmacy	3	1	CHEM 200, PHAR 3, PHYS 201
PHARCARE 2	Public Health	3	0	PHARCARE 1, PH-MCR-PRS
PHARCHM 2	Pharmacy and Chemistry of Organic Medicinals	3	1	PH-BIOCHEM, PHARCHM 1
PHBS 1	Biopharmaceutics and Pharmacokinetics	3	0	BIOSCI 3, PH-BIOCHEM, PHAR 3
PHL 4	Philosophy of Man	3	0	PHL 2
SA	Socio-Anthropology	3	0	None
TOTAL		22	3	

INTERN 2 INTERNSHIP II: HOSPITAL PHARMACY

Description This is a post-internship course which integrates basic concepts of hospital practice, policies and procedures in the provision of pharmacy services, and critical application in the actual setting.

Focus is on drug distribution process and policies, medication orders to administration, clinical services (clinical pharmacy, intravenous admixture program, ambulatory care, and drug information), and education and research.

At the end of this course, the students are expected to engage in the evaluation of pharmacy services, reflection of its impact in health care practices, and creation of quality hospital pharmacy programs.



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LIT 102A PHILIPPINE LITERATURES

Description The course is designed to develop among students an awareness, appreciation, and critical view of the depth and breadth of our country's literature in order to foster among them the desire for truth, love for country and nature, and respect for peoples and cultures, which will eventually constitute a competent, compassionate, and committed Thomasian.

The course is focused on representative literatures from the regions, tackling the wide array of Filipino encounters and experiences that are expressed through themes such as gender, racial identity, class and history.

The students are expected to write a critique on a Filipino novel, epic, drama or any other genre. They are also expected to transform or adapt Philippine literary texts into other art forms or media.

PHAR 4 PHYSICAL PHARMACY

Description This course introduces students to the core concepts of the physico-chemical properties of drug substances.

It provides insights and understanding of the language of physical pharmacy, scientific principles of dosage form design, and its application in drug formulation and practice.

Students are expected to engage in the application of the basic physico-chemical principles and methodology as they relate to drug design, development, and evaluation.

PHARCARE 2 PUBLIC HEALTH

Description This course introduces the students to the different pharmaceutical dosage forms and drug delivery systems.

Focus is on the principles of dosage form design and development, classification and methods of preparation of pharmaceutical dosage forms.

At the end of the course, students are expected to demonstrate this knowledge in preparing various dosage forms in the laboratory needed in pharmacy practice.



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PHARCHM 2 PHARMACY AND CHEMISTRY OF ORGANIC MEDICINALS

Description The course deals with chemical characterization of naturally occurring medicinal compounds, structurism, properties, synthesis, reactions and the correlation between chemical structure of bioactive constituents and biological activity and its clinical application, and current therapeutic agents. Analyzes the chemistry of organic medicinals which focuses on the chemical nomenclature, characterization of naturally occurring and synthetic medicinal compounds, properties, synthesis and reactions, structure-activity relationship in correlation with the biological activities and clinical application of drugs, and current therapeutic agents.

PHBS 1 BIOPHARMACEUTICS AND PHARMACOKINETICS

Description A study of the intrinsic, formulation, physiologic and pathologic factors affecting bioavailability of drugs from drug products.

Focus on drug absorption, distribution, metabolism, excretion, and how these processes are modified by different factors affecting the presence and action of the drug in the biologic system.

Students are expected to rationalize the design of drug delivery systems in relation to dose, dosage form and clinical efficacy and to explain the construction of a dosing regimen in relation to optimizing therapeutic outcomes.

PHL 4 PHILOSOPHY OF MAN

Description This course explores significant philosophical principles and theories affecting the human existence.

It focuses on Thomistic and Phenomenological/Existential philosophical frameworks concerning man's embodied subjectivity, man's search for truth, man's being-in-the-world and man's constant search for happiness.

Students are expected to generate solutions grounded on the philosophical frameworks applicable in the practical life.



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SA SOCIO-ANTHROPOLOGY

Description The course explores selected fundamental concepts in the study of Philippine society and culture, and its relation to the global world using basic theories, research methodologies, and substantive issues defining the scientific practices of Sociology and Anthropology as social sciences.

The course exposes students to the unique use of the sociological imagination and anthropological worldview in understanding the world they live in so that they may find it relevant, useful and practical in developing paradigms relevant in the analysis of groups and organizations, social institutions and social behavior, culture and stratification, social interaction and social processes, and social change and social development.



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Abbreviation	Title	Lec. Units	Lab. Units	Pre-Requisites
ENG 3	Academic Writing Skills	3	0	ENG 1, ENG 2
PHAR 6	Pharmaceutical Manufacturing	3	2	PHAR 4
PHARCARE 3	Communication and Interpersonal Skills	3	0	ENG 1, ENG 2, PHARCARE 1, PHARCARE 2, PHL 4, PSY 1
PHARCHM 3	Quality Control I	3	2	PHAR 4, PHARCHM 1
PHBS 2A	Pharmacology I and Therapeutics	4	0	PH-MCR-PRS, PHBS 1
PHBS 3	Pharmacognosy with PMP and Plant Chemistry	3	2	BOT 102A, PH-BIOCHEM
RTW 1	Research and Thesis Writing I	1	0	MATH 600, PHARCHM 2
TOTAL		20	6	

ENG 3 ACADEMIC WRITING SKILLS

Description This course centers on honing college students' writing and research skills for academic study. It equips students with effective techniques in writing expository, persuasive, and argumentative compositions and any other academic texts, e.g., library, term, and research papers.

This course engages students to craft academic papers with strong, effective, and clear theses, body paragraphs, and conclusions. It likewise helps them edit their writing to be more formal and appropriate. It also provides the students with various strategies for generating ideas about a topic and teaches them organizational patterns, topic development, and methods for making their writing more coherent. Additionally, this course helps the students develop revision strategies that can be used in other courses and trains them to use and cite references properly in their writing to avoid plagiarism.



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PHAR 6 PHARMACEUTICAL MANUFACTURING

Description This course introduces the students to study and analysis of the basic principles, methods and technology involved in the design and production of various pharmaceutical dosage forms and delivery systems. It focuses on current Good Manufacturing Practices (cGMP), drug product development, different unit operations including equipment and the manufacture of pharmaceutical products.

At the end of the course, students are expected to design a product formulation with processing and packaging procedures based on the physico-chemical properties of a drug substance and in accordance with the cGMP.

PHARCARE 3 COMMUNICATION AND INTERPERSONAL SKILLS

Description This course introduces students to the core concepts of patient-centered communication as basic support to the implementation of pharmaceutical care.

It focuses on the aspects of interpersonal relationships through communication skills that enhance the clinical efforts of pharmacist in establishing therapeutic relationships and alliances with patients, physicians and other healthcare providers.

At the end of this course, the students are expected to demonstrate appropriate communication and interpersonal skills in actual and or simulated situations of pharmaceutical care .

PHARCHM 3 QUALITY CONTROL I

Description This course is designed to introduce students to the principles of quantitative analytical chemistry as applied to pharmaceutical analysis in the manufacturing laboratory.

This course will provide in-depth understanding of the utility of official compendial tests and other industry-accepted standards and specifications in the evaluation of drug material and product quality.



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PHBS 2A PHARMACOLOGY I AND THERAPEUTICS

Description A course that deals with the study of different classes of drugs used in the treatment and prevention of diseases.

It focuses on drugs structural activity relationship, mechanism of action, biochemical and physiological effects on organ systems, pharmacokinetic properties, common adverse drug reactions and important drug interactions encountered with the therapeutic uses of these drugs. This course focuses on drugs affecting the blood, immunity, dyslipidemia, gastrointestinal, respiratory drugs; drugs for infectious diseases; chemotherapeutic agents and hormonal agonist and antagonists.

At the end of the course, the students are expected to apply pharmacodynamics and pharmacokinetic principles on normal and diseased animal models including understanding its importance in disease management.

PHBS 3 PHARMACOGNOSY WITH PMP AND PLANT CHEMISTRY

Description A course covering the biological, biochemical and economic features of natural drugs and their constituents, including the Philippine medicinal plants and animals, official and unofficial with emphasis on biosynthesis of their active constituents and uses. Focus is on the chemical classification of natural and crude drugs, their taxonomic classification and origin as well as their biological activities.

It will also include the synthesis of the active constituents isolated and the phytochemical screening of endemic Philippine medicinal plants.

At the end of this course, the students are expected to demonstrate understanding of the crude drugs, their biological activities, biosynthesis and economic features which may be utilized in research and product development.

RTW RESEARCH AND THESIS WRITING I

Description Introduces students to the core concepts of research and methodologies applicable to pharmaceutical investigations. Focus is on the rigors of topic selection and development as well as presentation and defense of output.

Students are expected to write a thesis reflective of technical/technological expertise and values of a pharmaceutical scientist.



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FACULTY OF PHARMACY

BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

Fourth Year – First Term / Semester

Abbreviation	Title	Lec. Units	Lab. Units	Pre-Requisites
INTERN 3	Internship III: Manufacturing Pharmacy	1	1	PHAR 6
PH-INFO	Pharmacy Informatics	2	1	COMP 103, MATH 600, PHBS 2B
PHAR 13	Drug and Disease Management I	3	0	
PHARCARE 4	Dispensing and Medication Counseling	3	1	PHARCARE 3
PHARCHM 4	Quality Control with Instrumentation	3	1	PHAR 6, PHARCHM 3
PHBS 2B	Pharmacology II and Therapeutics	3	1	PHBS 2A
RTW 2	Research and Thesis Writing II	1	2	RTW 1
TOTAL		17	6	

INTERN 3 INTERNSHIP III: MANUFACTURING PHARMACY

Description This course deals with the hands-on application of the basic manufacturing processes, validation and regulatory concepts in the manufacturing industry.

It focuses on the current good manufacturing practices, drug product development, regulatory and registration requirements, and different unit operations in the manufacture of pharmaceutical and cosmetic products.

Students are expected to critique drug literatures in accordance with regulatory practices and to apply their competencies in processing and packaging procedures, quality control and quality assurance of drug products.

PH-INFO PHARMACY INFORMATICS



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Description This course emphasizes the importance of information technology in searching, gathering, analyzing and providing drug and health-related information. It deals with the application of skills to logically and scientifically respond to drug and health-related inquiries from the members of the health care team through the use of available information databases and other information resources.

It focuses on methods of gathering, integrating and managing drug and health-related information from various sources and on acquiring both the skill set and the strategic approach necessary to search, identify, analyze, synthesize and apply healthcare information in a variety of pharmaceutical practice.

Students are expected to have a complete understanding on the concepts necessary for responding to drug and health-related inquiries. Students are also expected to be able to apply the skills in searching, gathering and analyzing information from various resources and synthesize all information and come up with a response to drug and health-related inquiries.

PHAR 11 PRINCIPLES OF PHARMACY ADMINISTRATION AND MANAGEMENT I

Description The course offers beginning pharmacists the knowledge and theories of management and its application to the various pharmacy practices.

Understanding of functions of management and the concepts, theories and techniques in the field of organizational behavior and its application to pharmacy practices.

At the end of this course, the students are expected to understand concepts of management and administration, the management functions and their use in organizational effectiveness and efficiency, the role of management principles, functions, and information systems in pharmacy practice.



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FACULTY OF PHARMACY

BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

PHARCARE 4 DISPENSING AND MEDICATION COUNSELING

Description The course deals with the compounding, dispensing and medication counseling principles in Good Practice of Pharmacy.

It focuses on contemporary issues relevant to aspects concerning drug compounding, dispensing and therapeutic medication counseling.

The students are expected to execute the skills in accurate and safe drug compounding and dispensing with the proper attitude in conducting patient medication counseling.

PHARCHM 4 QUALITY CONTROL WITH INSTRUMENTATION

Description A course that deals with the application of concepts and tools of quality management systems in the manufacture of safe and effective pharmaceutical and cosmetic products.

It focuses on the organization and principles of quality assurance, and quality control of raw materials, intermediate products, bulk products and finished products, with emphasis on the instrumental methods of analysis.

At the end of the semester, the students are expected to apply principles of quality assurance in the manufacture of pharmaceutical and cosmetic products; execute quality control procedures; and demonstrate proficiency on different instrumental methods of drug product analysis.

PHBS 2B PHARMACOLOGY II AND THERAPEUTICS

Description A course that deals with the study of different classes of drugs used in the treatment and prevention of diseases. It focuses on drugs structural activity relationship, mechanism of action, biochemical and physiological effects on organ systems, pharmacokinetic properties, common adverse drug reaction and important drug interactions encountered with the therapeutic use of these drugs.

This course deals with basic pharmacodynamics and pharmacokinetic concepts, cardiovascular drugs and drugs affecting the central and autonomic nervous system.

At the end of the course, the students are expected to apply pharmacodynamics and pharmacokinetic principles on normal and diseased animal models including understanding its importance in disease management.



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FACULTY OF PHARMACY

BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

RTW 2 RESEARCH AND THESIS WRITING 2

Description Introduces students to the core concepts of research and methodologies applicable to pharmaceutical investigations. Focus is on the rigors of topic selection and development as well as presentation and defense of output.

Students are expected to write a thesis reflective of technical/technological expertise and values of a pharmaceutical scientist.



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BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

Fourth Year – Second Term / Semester

Abbreviation	Title	Lec. Units	Lab. Units	Pre-Requisites
HETHICS	Health Ethics	3	0	PHL 5
PHAR 14	Drug and Disease Management II	3	0	PHAR 11
PHAR 16	Drug Information and Literature Information	3	0	
PHARCARE 5	Clinical Pharmacy I	3	1	PHARCARE 4, PHBS 2B
PHARCHM 5	Clinical Toxicology	2	1	PHARCHM 3, PHBS 2B
PHISTCONS	Philippine History and Constitution	3	0	None
SCL 9	Marriage and Family	3	0	PHL 5, SCL 3, THY 1, THY 2
TOTAL		20	2	

HETHICS HEALTH ETHICS

Description The course presents the concepts and principles of Ethics in general and health care ethics in particular, in relationship to pharmaceutical practice. The course is necessary in order for the students to be aware of what they need to learn and internalize to what ethics is all about in order to make him serve the perfect human nature that is ordered to truth and goodness to which he/she is intended.

The course emphasizes concepts and principles of Ethics in general and health care ethics in particular, in relationship to pharmaceutical practice. Relate general and health care ethics in to pharmacy practice in order to offer moral based solution. Communicate a morally sound position on views expressed in all medium pertaining to health care issues so that careful consideration may be made in making generalization on the issues without destroying professional relationship.



UNIVERSITY OF SANTO TOMAS

FACULTY OF PHARMACY

BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

PHAR 12 PHARMACEUTICAL MARKETING AND ENTREPRENEURSHIP

Description The course offers beginning pharmacists the knowledge and theories of marketing and entrepreneurship and its application to the various pharmacy practices.

This course will give more emphasis on the functions of marketing management process, decisions and strategies that can be applied to the different pharmacy practices and the necessary knowledge and skills needed to be successful entrepreneurs.

Students are expected to engage in reflective and critical analysis of actual cases and scenarios and affecting pharmaceutical pharmacy marketing and entrepreneurship. At the end of this course, the students are expected to understand concepts of marketing and entrepreneurship, the business organizational effectiveness and efficiency, marketing decisions, and skills needed to be successful entrepreneurs.

PHARCARE 5 CLINICAL PHARMACY I

Description The course deals with the study of the concepts of patient- centered pharmacy practice in health care settings and situations.

The course focuses on the medical process, the relationship of drugs and disease and the recognition of cases requiring pharmacist intervention.

The student is expected to value the pharmacist's role in clinical situations requiring the responsible and accountable provision of drug therapy to achieve definite outcomes that improve a patient's quality of life.

PHARCHM 5 CLINICAL TOXICOLOGY

Description This course will provide a systematic evaluation of the many classes of toxicological agents with an emphasis on the molecular mechanisms underlying their toxicity.

This course will also demonstrate physiologically based pharmacokinetic modeling and risk assessment methods that are used to solve present day problems in toxicology.

Students are responsible for readings on assigned topics related to the course, which complements the material presented in class. This exercise is designed to help the student to understand some of the general principles that are important to toxicologists in their quest to understand the biological effects of these toxic chemicals (xenobiotics).



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BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

PHISTCONS PHILIPPINE HISTORY AND CONSTITUTION

Description This course discusses significant events in the history of the Philippines from the early period to contemporary, the Philippine Government and the fundamental law that governs the land.

SCL 9 MARRIAGE AND FAMILY

Description The course Marriage and Family is an inter-disciplinary approach to preparation for and understanding of love, marriage and family life includes the Biblical, theological, sacramental, canonical, legal, psychological and sociological dimensions.

It is rooted in the Catholic spirituality that promotes the culture and transmission of life, faithful to the teachings of the Church, it includes education in human sexuality and responsible parenthood based on the magisterial documents.



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FACULTY OF PHARMACY

BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

Fifth Year – First Term / Semester

Abbreviation	Title	Lec. Units	Lab. Units	Pre-Requisites
MICR 228	Immunology	3	1	PH-MCR-PRS, PHAR 14
PHAR 11	Principles of Pharmacy Administration and Management I	3	0	PHAR 6, PHARCARE 3, PHARCHM 2, PHARCHM 3, PHBS 2A
PHAR 15	Drug Disease and Management II	3	0	PHAR 14
PHAR 17	Adverse Drug Reaction	3	0	PHARCHM 5
PHAR 18	Radiopharmacy	3	0	PHARCARE 4, PHARCHM 4
PHARCARE 6	Clinical Pharmacy II	3	1	PHARCARE 5
TOTAL		18	2	

MICR 228 IMMUNOLOGY

Description The course deals with the study of the structure, components and the functions of the immune system.

Focus is on the basic concepts, properties and physiologic behavior of antigens, antibodies and their interactions. It is also concerned with the various aspects of immune response to antigenic challenges in state of both health and diseases.

Clinical aspects of immunologic disorders (autoimmunity, hypersensitivities, transplant rejection) and the role of cytokines and different biologic response modifiers are also discussed.

PHAR 11 PRINCIPLES OF PHARMACY ADMINISTRATION AND MANAGEMENT I

Description The course offers beginning pharmacists the knowledge and theories of management and its application to the various pharmacy practices.

Understanding of functions of management and the concepts, theories and techniques in the field of organizational behavior and its application to pharmacy practices.

At the end of this course, the students are expected to understand concepts of management and administration, the management functions and their use in organizational effectiveness and efficiency, the role of management principles, functions, and information systems in pharmacy practice.



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FACULTY OF PHARMACY

BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

PHAR 15 DRUG DISEASE AND MANAGEMENT II

Description A course on rational therapeutics by presenting contemporary drug therapy to prepare student pharmacists in their role in the health care system.

The course includes the general principles of disease management, understanding medical terminology and procedures including interpretation of laboratory data, appropriate drug selection based on clinical practice guidelines including pharmacoeconomic considerations and protocols covering common diseases, Malignant disorders including Cancer Supportive Therapy, special populations (Neonates, Pediatrics & Geriatrics), Obstetric-Gynecologic & Urologic Disorders including Sexual Health, Infectious Diseases.

The students are expected to employ their knowledge of drugs in the management of disease which adheres to the principles of pharmaceutical care.

PHAR 17 ADVERSE DRUG REACTION

Description This course is designed for clinical pharmacy students who shall be responsible for monitoring the occurrence of adverse reactions during drug therapy.

It will enable the student to develop an increased understanding and clinical knowledge of the common, severe, fatal and rare adverse reactions caused by drugs and their circumstances with emphasis on prevention, recognition, detection, mitigation, treatment and reporting of these events.

The students are expected to demonstrate knowledge on the principles and goals of medication safety including procedures in pharmacovigilance.



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FACULTY OF PHARMACY

BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

PHAR 18 RADIOPHARMACY

Description A course to a specialty area of pharmacy practice that deals with radioactivity and radiopharmaceuticals for use in nuclear medicine procedures.

It focuses on radiopharmaceuticals – its characteristics, diagnostic, therapeutic uses, and its drug interactions. It also provides avenue to discuss clinical practice guidelines of these products.

At the end of the course, the students are expected to demonstrate application of concepts of radioactivity in computing for absorbed and effective doses, explain characteristics of different radiopharmaceuticals, and apply clinical practice guidelines in developing diagnostic and therapeutic regimen for a particular condition.

PHARCARE 6 CLINICAL PHARMACY II

Description The course deals with the study of the concepts of patient- centered pharmacy practice in health care settings and situations.

The course focuses on the medical process, the relationship of drugs and disease and the recognition of cases requiring pharmacist intervention.

The student is expected to value the pharmacist's role in clinical situations requiring the responsible and accountable provision of drug therapy to achieve definite outcomes that improve a patient's quality of life.



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FACULTY OF PHARMACY

BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

Fifth Year – Second Term / Semester

Abbreviation	Title	Lec. Units	Lab. Units	Pre-Requisites
CA	Course Audit	5	0	
CLERKSHIP	Clerkship	0	8	PHARCARE6 <i>Must be a regular 5th-year student</i> <i>Must have Fitness Clearance from the UST Health Service</i>
PHAR 12	Pharmaceutical Marketing and Entrepreneurship	3	0	PHAR 11
PHAR 19	Patient Medication and Assessment	3	0	PHAR 15, PHARCARE 6
PHARJUR	Pharmaceutical Jurisprudence and Ethics	3	0	PHAR 5, PHAR 6
TOTAL		11	8	

CA COURSE AUDIT

Description

CLERKSHIP CLERKSHIP

Description

This course is designed to integrate the knowledge and skills required of patient-focused pharmacist-provided services in the institutional setting.

This course will give more emphasis on the understanding of the clinical sites, confidence building, and clinical aspects of drug provision.

At the end of this course, clinical pharmacy students are expected to engage in the application of patient medication processing, collaboration with other members of the patient care team, medication use management, and pharmacist interventions in different point of care areas.



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FACULTY OF PHARMACY

BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

PHAR 12 PHARMACEUTICAL MARKETING AND ENTREPRENEURSHIP

Description The course offers beginning pharmacists the knowledge and theories of marketing and entrepreneurship and its application to the various pharmacy practices.

This course will give more emphasis on the functions of marketing management process, decisions and strategies that can be applied to the different pharmacy practices and the necessary knowledge and skills needed to be successful entrepreneurs.

Students are expected to engage in reflective and critical analysis of actual cases and scenarios and affecting pharmaceutical pharmacy marketing and entrepreneurship. At the end of this course, the students are expected to understand concepts of marketing and entrepreneurship, the business organizational effectiveness and efficiency, marketing decisions, and skills needed to be successful entrepreneurs.

PHAR 19 PATIENT MEDICATION AND ASSESSMENT

Description The course deals with the factors affecting the design of patients' therapeutic regimens with respect to pharmacologic interventions.

The course focuses on the design of medication regimens specifically for patients with multiple pathologic conditions requiring polypharmacy.

The students are expected to engage in purposeful and logical analysis of prescription ingredients alone or in combination and how these are justified or modified in light of rational drug use and consideration of patient, clinical and drug factors, and expected outcomes.

PHARJUR PHARMACEUTICAL JURISPRUDENCE AND ETHICS



UNIVERSITY OF SANTO TOMAS

FACULTY OF PHARMACY

BACHELOR OF SCIENCE IN CLINICAL PHARMACY – COURSE PROSPECTUS WITH DESCRIPTIONS

Description Introduces students to pharmaceutical jurisprudence and ethical duties of pharmacist.

Provides insight and understanding of penal provision affecting the standards, accessibility and control of pharmacy practice, education, food, drugs, cosmetics and medical devices.

Students are expected to engage in reflective and critical analyses of actual cases and scenarios affecting pharmaceutical practice and profession.

