##### Course Descriptions for the Four-Year Distance Education Pathway

***PCC 1023 PH1 DE – Pharmacy, Drugs and Healthcare – 4 Credit Hours***

This course will introduce students to the profession and how it fits within the U.S. health care delivery system. It will provide an overview of the basic structures and operations of the US health care delivery system including its historical origins, and the technical, economic, political, and social forces that impact it. Students will learn how the profession of pharmacy evolved in the health care delivery system and will understand the history of the profession, pharmaceutical care concepts including ethics, and areas of practice for pharmacists. Students will begin learning information about the most commonly prescribed medications.

***BCH 1003 and BCH 1007 PH1 DE – Biochemistry I – II – 4 Credit Hours***

These courses provide the molecular basis for important physiological processes and disease states and the biological molecules that are the targets of drugs. This course will focus on two broad areas: (1) modern concepts of protein structure and function; and (2) traditional intermediary metabolism, emphasizing relationships to disease states such as diabetes and hyperlipidemia. This course, and the companion microbiology course in the spring semester, will provide the pharmacy student the basic scientific insight into how drug targets are chosen and developed, and the mechanism by which they alleviate a disease.

***PCC 1018 PH1 DE – Pharmaceutics I w/Lab – 4 Credit Hours***

This is the first of a two-course sequence optimally designed for first year pharmacy students to teach them basic concepts and topics about the basic chemistry, physical-chemical properties of therapeutics agents and their importance in drug delivery systems. It also covers absorption, acid/base theory and their role in drug absorption and the characterization of powders properties and their utility in the development of safe and effective pharmaceutical dosage forms. Furthermore, this course will integrate important concepts from the physical pharmacy to illustrate design and development of conventional drug delivery systems as well as novel drug delivery systems used currently in pharmacy practice. This course will then integrate physical chemical principles in the design, development, and manufacture of stable, safe and effective dosage forms and finished drug products. Specific topics/concepts will focus on the physical, chemical and biological principles essential for understanding basic pharmaceutics, pharmaceutical dosage forms, principles of biopharmaceutics and pharmacokinetics. The specific topics/concepts will include physical principles of drug degradation, stability and orders of drug degradation and dosage forms like pharmaceutical solutions and disperse systems. The laboratory portion of this course is completed during the summer after the P1 year.

***MCB 1003 PH1 DE – Microbiology and Immunology – 4 Credit Hours***

This course is designed as an introductory course in Microbiology with an emphasis on the basic structure-function (virulence) aspects of microorganisms and targets for antimicrobial action of anti-infectives. The following are the two general objectives of the course: (1) provide a foundation on which the students can build subsequent knowledge on therapeutics and expertise; and (2) convey fundamental concepts that will enable the students to make sound future judgments and consultations.

***PCC 1001 PH1 DE – Pharmaceutical Calculations – 1 Credit Hour***

This course will cover various aspects of pharmaceutical calculations to provide the student with an understanding of what the practice of pharmacy will require of them as practitioners when presented with patient prescriptions or medication orders. The course focuses on the calculations a pharmacist is likely to perform in a contemporary pharmacy. It is designed for the first year pharmacy students to teach basic concepts and principles involved in calculations that are necessary in the compounding as well as intravenous preparations. Specific topics will focus on the calculation of isotonic, milliequivalence, milliosmolar solutions, ratio and proportions, enlarging and reductions in the formula, various percentage calculations, aliquot and allegation methods, dilutions and use of the specific gravity to convert amount into volume and vice-versa.

***PHY 1014 PH1 DE – Physiology and Anatomy – 4 Credit Hours***

This course will relate anatomical structure of cells, tissues and organ systems to physiological functions. Attention also will focus on etiology, homeostasis, and clinical consequences of abnormal physiological function. The course is tailored to the needs of the pharmacy student and includes special emphasis to the molecular basis of physiological function as the target of pharmacotherapeutic intervention.

***PCC 1012 PH1 DE – Pharmacist Provided Care I; PCC 1022 PH2 DE – Pharmacist Provided Care II – 3 Credit Hours***

These courses are designed to provide students with appropriate information and experiences to acquire the necessary skills to become an effective health care practitioner. The courses will engage the students in active learning to enhance their self-care medication knowledge. They also will develop the students’ ability to document patient encounters by writing appropriate patient care plans. These courses will heighten the team concept as well as develop professionalism and communication skills.

***PCC 1019 PH1 DE – Pharmaceutics II w/Lab – 4 Credit Hours***

This second course in this series provides students with a qualitative and quantitative overview of drug disposition and the processes important to disposition, namely, absorption, distribution, metabolism and excretion. Sterile dosage forms will also be introduced teaching the organization and administration of an admixture program and admixture techniques. The proper utilization of parenteral products, as well as parenteral drug compatibility literature is also considered. Several laboratory sessions will be devoted to sterile dosage forms. The laboratory portion is completed during the summer after the P1 year.

***LAW 1003 PH1 DE – Pharmacy Law – 2 Credit Hours***

This course will examine the U.S. legal system, basic jurisprudence, federal and state laws, regulations and related ethical issues regarding the development and approval of drugs, the practice of pharmacy and the regulation and control of drugs, cosmetics, and medical devices. Tort and contract law will also be explained.

***DGI 1003 PH1 DE – Drug Information – 2 Credit Hours***

This course will introduce the concepts of the systematic approach to drug information questions and the information retrieval process needed to answer them. Primary, secondary and tertiary literature will also be introduced. In addition, adverse drug reaction and medication error reporting, clinical practice guidelines, the role of the Pharmacy & Therapeutics committee and drug policy/medication use evaluation will be discussed. Fundamentals of medical writing and documentation and the ethics of providing drug information will be presented. Students will begin to determine the quality of drug information sources, including the internet used by both patients and health care professionals. This course will use active learning strategies to help the students learn important drug information skills. This course is taught as a two week mini course at the start of the P1 Spring semester with assignments completed throughout the semester.

***COM 1003 PH1 DE – Effective Communications – 1 Credit Hour***

This course is designed to provide students with an opportunity to learn, observe, apply and receive feedback on effective communication skills and techniques. It will build on the medication counseling information students learn in Pharmacy, Drugs, and Healthcare. Students will be instructed on important principles required to develop positive relationships and promote positive therapeutic outcomes: engage, empathize, educate and enlist. This course is taught as a two week mini course at the start of the P1 Spring semester with assignments completed throughout the semester. Additionally, some of the coursework will be completed during the summer session after the P1 year such as a final patient counseling experience.

***PHR 1001 PH2 DE – Introductory Pharmacy Practice Experience – Community – 4 Credit Hours***

The goal of this rotation is to have the student gain experience in the competencies necessary in the daily practice of community pharmacy operations through active learning and participation. The emphasis is on the operations, distribution system, professional conduct and direct patient-care in the community environment. The following three (3) steps of the medication-use system will be emphasized: selecting, procuring and storing; ordering and transcribing; and dispensing and preparation.

***PHR 1002 PH2 DE – Introductory Pharmacy Practice Experience – Institutional – 4 Credit Hours***

The goal of this rotation is to have the student gain experience in the competencies necessary in the daily practice of institutional (hospital, long-term care, etc.) pharmacy operations through active learning and participation. The emphasis is on the operations, distribution system, professional conduct and direct patient-care in the hospital environment. The following three (3) steps of the medication-use system will be emphasized: selecting, procuring and storing; ordering and transcribing; and dispensing and preparation.

***PCK 1002 PH2 DE Basic Pharmacokinetics – 3 Credit Hours***

This course will cover the theoretical and practical topics of bio-pharmaceutics and pharmacokinetics as a necessary foundation for competency in the future clinical pharmacokinetics course. The course will provide the student with an understanding of conceptual and mathematical treatment of ADME processes (Absorption, Distribution, Metabolism and Excretion) in a classroom and, perhaps, in a small group learning environment.

***PHC 1006 PH2 DE, PHC 1007 PH3 DE, PHC 1008 PH3 DE –***

***Pharmacology/Medicinal Chemistry I - III – 12 Credit Hours***

These three courses will introduce students to the coordinated study of the molecular, cellular and physiologic bases of drug action, the influence of chemical and physical properties in structural activity relationships and drug design as it relates to drug metabolism and drug action. The course will begin with general principles, and the remainder will familiarize students with various classes of drugs that act at various organ systems. Chemistry and quantitative structural activity relationships, mechanisms of action, toxicity profiles, and pharmacokinetics associated with these drugs will be emphasized.

***RES 1001 PH2 DE – Research Methods and Pharmacoepidemiology – 2 Credit Hours***

Students will be familiarized with statistical designs and their applications in different types of studies. The students will also learn the principles of pharmacoepidemiology and its applications to the practice of Pharmacy and Clinical Sciences. The course will include a group project to develop a research protocol and informed consent to be submitted as a paper and presented to a mock Institutional Review Board.

***CLP 1001 PH2 DE – Clinical Laboratory and Physical Assessment – 2 Credit Hours***

The students will learn the basics in physical assessment and monitoring the effects of drugs in patients. The clinical laboratory component will cover the normal and abnormal laboratory values from different organ systems. This course will prepare the students for upcoming courses in pathophysiology and therapeutics. A portion of this course will be taught during the summer after the P2 year. This will include skills such as taking a blood pressure and injecting insulin.

***PHT 1001 PH2 DE, PHT 1007 PH3 DE, PHT 1008 PH3 DE –***

***Pharmacotherapeutics I – III – 12 Credit Hours***

These three courses will cover pathophysiology and therapeutics of each organ system. Course work will cover the following therapeutic topics: dermatology, respiratory and cardiovascular ailments, degenerating diseases, genital-urologic diseases, endocrinology/gastrointestinal diseases, critical care, infectious diseases, neurology, psychiatry, oncology, and women’s health. The courses of Pharmacotherapeutics will be taught in a sequential and integrative manner to tie in the knowledge and concepts from medicinal chemistry coupled with the pharmacology of the drugs involved in the corresponding organ system and to the pathophysiology and therapeutic principles in clinical practice. This will enable the students to relate the knowledge from both basic sciences and clinical sciences.

***PHT 1016 PH2 DE, PHT 1017 PH3 DE, PHT 1018 PH3 DE –***

***Pharmacotherapeutics Recitation I – III – 3 Credit Hours***

These courses are the active learning and clinical application supplement to the pharmacotherapeutics lecture series. Course work will include analyzing patient cases to develop pharmaceutical care plans and SOAP notes in a student group or on an individual basis. Students will also have the opportunity to practice interviewing and counseling patients and interacting with physicians and other members of the health care team. Some of this course will be completed in the summers following the P2 and P3 years. Summer sessions will involve working on patient cases.

***PHG 1001 PH3 DE – Pharmacogenomics – 2 Credit Hours***

This course provides students with an understanding of the ways that inherited variations in genes affect response to drugs, and how an understanding of these variations can be used to predict response. The course will provide an overview of the principles of genetic medicine and bioinformatics, and consider ethical, legal and social issues in genomics. The impact of genetics on drug metabolism and drug transporters will be discussed as well as the role of pharmacogenomics in drug discovery and development. The role that pharmacogenomics plays in treatment of specific diseases will complete the course.

***DGI 1004 PH2 DE – Drug Literature Evaluation – 2 Credit Hours***

Students will read and critically evaluate current topics in the medical and scientific literature using the evidence based approach to clinical decision-making. Students will learn strategies to delineate relevant questions, critically appraise evidence and its applicability to the clinical question and formulate conclusions and/or recommendations based on scientific data. An emphasis will be placed on using landmark clinical trials as examples of the utility of evidence based medicine as it applied to clinical practice.

***PHE 1022 PH3 DE, PHE 1023 PH3 DE –***

***Pharm.D. Seminar I – II – 2 Credit Hours***

This is a required two-course series. Students are expected to research a therapeutic or controversial medical topic which will be presented as an individual oral journal club presentation. Students will therefore be able to display their knowledge and communicate this knowledge to faculty members as well as to their peers. Through attendance at their peers’ presentations, students have the opportunity to compose questions, and in the process, improve their knowledge base and critical thinking skills. Students will continue their work on their therapeutic or controversial medical topic by organizing a professional poster presentation that adequately answers the question by using articles previously analyzed in Pharm.D Seminar I as well as other resources available. Students will be able to present their topic and defend their answer to their therapeutic question to faculty members and peers. They will then present these at a formal presentation expo to take place at the end of the semester.

***RES 1002 PH3 DE – Pharmacoeconomics and Outcomes Assessment – 2 Credit Hours***

Students are introduced to the principles and tools of pharmacoeconomics and outcomes assessment that are commonly used to study the impact of pharmaceutical care services on the health and health care of a patient or community.

***MPS 1001 PH3 DE – Management and Patient Safety – 3 Credit Hours***

This course emphasizes the need for management in pharmacy practice in any venue. Students will learn about managing time, finances, operations, people, technology, and quality. Students will discuss the impact of patient safety on society and mechanisms that can be put in place to improve the health care system. Concepts such as human factors, accident causation, reliability of systems, and preventive strategies will be utilized to focus on quality improvement in medication management.

***PHR 1005 PH3 DE - APPE Advanced Community – 6 Credit Hours***

Under the supervision of the pharmacy preceptor, the student will provide direct patient-centered care in a community pharmacy setting. Students will experience the operation and management of community pharmacy systems and the functions and responsibilities of a pharmacist in a community setting. Students will have the opportunity to be involved in all aspects of the medication use process and health care delivery in the community setting, including the need for continuity of care.

***PHR 1017 PH3 DE - APPE Advanced Institutional – 6 Credit Hours***

Under the supervision of the pharmacy preceptor, the student will provide direct patient-centered care in the institutional, inpatient setting (including hospital long-term care, etc.). The student will experience the operation and management of institutional pharmacy systems and the functions and responsibilities of a pharmacist in the institutional setting. Students will have the opportunity to be involved in all aspects of the medication use process and health care delivery in the institutional setting, including the need for continuity of care.

***PHR 1018 PH3 DE – APPE Inpatient/Acute Care Medicine – 6 Credit Hours***

Under the supervision of the preceptor, students put into application the knowledge of pharmacology, pharmaceutics, drug information, medication safety, communication skills, critical thinking, pathophysiology, and therapeutics to the care of patients (all ages) as well as share their knowledge with health care team members in an inpatient/acute care setting. The student will interact with all members of the health care team to provide patient-centered care and include a focus on continuity of care.

***PHR 1007 PH3 DE – APPE Ambulatory Care – 6 Credit Hours***

This rotation is designed to offer the student the opportunity to experience firsthand the functions and responsibilities of a pharmacist in the Ambulatory Care setting (patients being treated at home or at facilities but not admitted for inpatient services). Under the supervision of the preceptor, students will apply the knowledge of pharmacology, pharmaceutics, drug information, counseling skills, critical thinking, pathophysiology, and therapeutics to the care of patients (all ages), as well as share their knowledge with health care team members. The student will interact with all members of the health care team to provide patient-centered care and include a focus on continuity of care.

***PHR 1014 PH3 DE – APPE Elective I – 6 Credit Hours***

***PHR 1015 PH3 DE – APPE Elective II – 6 Credit Hours***

Each elective rotation offers different and specific learning experiences based on the site and the type of specialties. Examples of potential rotation settings include any of the required rotation sites, research, management, drug information, education, managed care, long-term care, hospice, home health care, nuclear, etc. Students will select elective rotations to individualize their training and experience in preparation for their careers as well as to complement the experiences gained in the required rotations.

***PPE 1001 PH4 DE and PPE 1002 PH4 DE, Pharmacy Practice Essentials I –II – 2 Credit Hours***

This is a longitudinal final year series designed to provide the student with a comprehensive review in preparation to enter the profession. Over the span of the courses, students implement both guided and self-directed learning goals at specific check points, demonstrating effort, and strengthening their confidence.

##### Elective Courses for the Four Year Distance Education Pathway

***PHE 1024 - Cultural Competence for Healthcare Professionals – 2 Credit Hours***

Students will be exposed to both patients and healthcare providers of different races, cultures and lifestyles, and will discuss the healthcare beliefs and habits generally attributed to the different groups. In addition, end-of-life, chronic disease and mental illness issues will also be discussed. Students will be given the skills to develop a culturally competent practice. Multiple teaching methods will be used in this class, including lecture, active learning and case and book discussions.

***PHE 1025 - Leadership in Pharmacy - 2 Credit Hours***

Students will work together to explore opportunities for leadership within the pharmacy profession related to professional organizations, advocacy, advanced training, and other avenues. Students will examine their own interests and strengths in order to begin developing independent learning goals for application during formal education and into their professional lives. The course will consist of journal readings, guest speakers, lectures, and discussion forums, and assessment techniques such as quizzes, writing assignments, projects, and class participation.

***PHE 1044 - Research Independent Study - 2 Credit Hours***

This Research Elective course provides pharmacy students with independent experiential opportunities in laboratory, clinic and/or literature research in the field of Pharmaceutical Sciences and Pharmacy Practice. This course is planned, individualized and coordinated by the Faculty/Mentor for the specific research activity performed by the student. It utilizes the expertise of the faculty in their respective fields of specialization and/or interests and affords the student the opportunity to learn about contemporary and interdisciplinary areas in the Pharmaceutical Sciences and Pharmacy Practice.

***PHE 1038 – Clinical Toxicology – 2 Credit Hours***

This course will provide an analysis of general principles of clinical toxicology. Emphasis will be laid on physiological, biochemical and molecular mechanisms underlying the adverse effects of frequently encountered toxicants, toxidromes and the approach to affected patients. It will also lay the foundation for study of toxicology and poison prevention in clinical settings as well as providing reviews of career options in areas focusing on clinical toxicology.

***PHE 1034 – Drug Discovery and Development – 2 Credits***

This elective course for pharmacy students will review the process of new drug discovery and development and expose students to the available career opportunities in various departments of the pharmaceutical industry. This course will review, in a general manner, various stages, with emphasis on the research aspects that a chemical entity undergoes prior to becoming a therapeutic agent and available to physicians for safe and effective use.

This course will introduce the students to the different aspects of research and development that are involved in the discovery and preclinical development of therapeutic agents. Furthermore, the course will briefly describe the process of target selection, emerging techniques in drug discovery, strategies for drug design involving tools for synthesis and characterization, and developing and optimizing appropriate formulations to obtain the desired biological effects for therapeutic application. The course will consist of a series of lectures and discussions covering the main aspects of drug design and development. A field trip towards the end of the semester may also be planned.

***PHE 1036 – Drugs of Abuse – 2 Credit Hours***

This course will be designed to help the student develop the knowledge and understanding of drugs and substances of abuse. We will begin the course with a focus on the neurobiology of drug abuse and whether drug abusers are affected differently by abusive drugs. The course will provide the student with the knowledge of the different types of drugs of abuse (psycho depressants, psycho stimulants, psychedelics, etc.). The student will gather knowledge on aspects of drug abuse, such as, personal dimension, societal dimension and time dimension. The class will understand some theories for use and history of abuse for certain drugs. Also the pharmacology, mechanism of actions and side effect profiles will be studied. At the completion of the course, the student will have a full understanding and knowledge of what drugs have an abuse potential. Students will be expected to participate in online threaded discussion. In order to carry on distance education, a student is required to be interactive. This will be accomplished by students posing their questions or concerns about topics presented. The instructor will review the postings and respond with appropriate responses. There will be specific questions posted in the discussion forum from the material presented in the power point presentations. Also, questions will be asked which will require a response in essay form.

***PHE 1067 – Foundations in Personal Finance – 2 Credit Hours***

The goal of this course is to provide students with a foundation for how to think about personal finance. This course provides a practical approach to managing one’s personal finances that includes financial record keeping, personal federal income tax, major consumer purchases, financing, investment fundamentals and other financial topics of interest. Students will take a look at the millionaire culture in America to begin to understand what it means to be rich and how it is possible perceptions created by pop culture do not truly match up with how wealthy families live.

***PHE 1041 – Basic Drug Information Knowledge – 2 Credit Hours***

This elective is intended for those students interested in improving their knowledge of the top 300 drugs.  Using Brainshark technology, students will take quizzes to study these drugs, becoming more familiar with brand/generic names, dosage forms, indications, adverse drug events, contraindications, drug interactions, warnings, patient counseling tips, dosing, and any other unique traits.

***PHE 1082 – Vaccines and Immunizations – 2 Credit Hours***

This course will cover basic concepts in immunization, administration of vaccines, and current trends in immunization.  The course also will include a project that focuses on vaccines in development.  Vaccines that are not currently covered in the required didactic curriculum will be discussed such as travel vaccines.

***PHE 1083 – Exploration of Clinical Pharmacy – 2 Credit Hours***

This course will expand on concepts related to the practice of clinical pharmacy. Students will explore roles and responsibilities of clinical pharmacists practicing in different specialty areas. Students will also learn about post-graduate training opportunities to prepare them to practice as a clinical pharmacist.