Pharm.D. Curriculum ON-GROUND

For Students Entering Summer 2024 or Later

The South College School of Pharmacy offers a three (3) calendar year Doctor of Pharmacy curriculum. The curriculum is dynamic and will be modified over time in keeping with best educational practices and in response to evaluation by the Accreditation Council for Pharmacy Education.

FIRST PROFESSIONAL YEAR

10 Instructional Weeks + 1 Finals Week: Q1, Q2, Q3
9 Instructional Weeks + 1 Finals Week: Q4

Number	Course Name	4 Digit Code
	Quarter One	
PSC 6111	Biochemistry	4-0-0-4
PSC 6130	Immunology	3-0-0-3
PPR 6151	Pharmacy Practice I – Intro to Pharmacy Practice in the Healthcare System	3-0-0-3
PPR 6261	Basic Communication Skills for Pharmacy Practice	2-0-0-2
PPR 6271	Forum & Professionalism	1-0-0-1
PPR 6250	Pharmacy Practice III – Public Health and Wellness	3-0-0-3
		16 hours
Number	**Course Name**	**4 Digit Code**
	Quarter Two	
PSC 6120	Pathophysiology I	3-0-0-3
PSC 6141	Pharmacy Calculations	2-2-0-3
PSC 6220	Integrated Medicinal Chemistry and Pharmacology I	5-0-0-5
PPR 6230	Pharmacy Practice II – Introduction to Patient Care	3-0-0-3
PPR 6240	Career Paths and Introduction to Practice	1-0-0-1
PPR 6280	Cultivating Personal and Professional Wellbeing	1-2-0-2
		17 hours
Number	**Course Name**	**4 Digit Code**
	Quarter Three	
PSC 6210	Pathophysiology II	3-0-0-3
PSC 6311	Integrated Medicinal Chemistry and Pharmacology II	5-0-0-5
PSC 6321	Pharmaceutics I	3-0-0-3
PSC 6430	Sterile Products	1-2-0-2
PSC 6340	Clinical Laboratory Medicine	2-0-0-2
PPR 6510	Pharmacy Practice IV – Research Methods and Biostatistics	3-0-0-3
		18 hours
Number	**Course Name**	**4 Digit Code**
	Quarter Four	
PSC 6330	Pharmacy Dispensing and Compounding Lab	2-2-0-3
PSC 6410	Integrated Medicinal Chemistry and Pharmacology III	5-0-0-5
PSC 6420	Pharmaceutics II	4-0-0-4
PSC 6440	Basic Biopharmaceutics and Pharmacokinetics	3-0-0-3
PPR 6631	Self-Care I	2-0-0-2
		17 hours

SECOND PROFESSIONAL YEAR

9 Instructional weeks + 1 Finals week, +/- IPPE

Number	Course Name	4 Digit Code
	Quarter Five	
PPR 6550	Drug Information Retrieval and Evaluation	3-0-0-3
PPR 6361	Introductory Pharmacy Practice Experience I	0-0-9-3
PPR 6570	Pharmacotherapy I	4-0-0-4
PPR 6590	Clinical Abilities Lab I	0-4-0-2
PPR 6650	Clinical Pharmacokinetics and Pharmacogenomics	3-0-0-3
PPR 6751	Self-Care II	3-0-0-3
PPR/PSC	*Elective[#] (total of 7 credits electives required during P1 and P2)*	1-0-0-1
		18/19 hours
Number	**Course Name**	**4 Digit Code**
	Quarter Six	
PPR 6641	Pharmacy Practice VI – Pharmacoeconomics	2-0-0-2
PPR 6670	Pharmacotherapy II	4-0-0-4
PPR 6680	Pharmacotherapy III	4-0-0-4
PPR 6690	Clinical Abilities Lab II	0-4-0-2
PPR 6451	Introductory Pharmacy Practice Experience II	0-0-9-3
PPR/PSC	*Elective[#] (total of 7 credits electives required during P1 and P2)*	3-0-0-3
		15/18 hours
Number	**Course Name**	**4 Digit Code**
	Quarter Seven	
PPR 6541	Pharmacy Practice V – Pharmacy Management	2-0-0-2
PPR 6760	Clinical Seminar I	1-0-0-1
PPR 6770	Pharmacotherapy IV	4-0-0-4
PPR 6780	Pharmacotherapy V	4-0-0-4
PPR 6790	Clinical Abilities Lab III	0-4-0-2
PPR/PSC	*Elective[#] (total of 7 credits electives required during P1 and P2)*	3-0-0-3
		13/16 hours
Number	**Course Name**	**4 Digit Code**
	Quarter Eight	
PPR 6840	Pharmacy Practice VIII – Pharmacy Ethics and Law	3-0-0-3
PPR 6561	Introductory Pharmacy Practice Experience III	0-0-9-3
PPR 6851	IPPE-IV Longitudinal Service Learning & Simulation	0-0-3-1
PPR 6860	Clinical Seminar II	1-0-0-1
PPR 6861	APPE Readiness	1-0-0-1
PPR 6870	Pharmacotherapy VI	4-0-0-4
PPR 6290	Advanced Pharmacy Calculations	1-1-0-2
PPR 6890	Clinical Abilities Lab IV	0-4-0-2
PPR/PSC	*Elective[#] (total of 7 credits electives required during P1 and P2)*	3-0-0-3
		17/20 hours

THIRD PROFESSIONAL YEAR

Number	Course Name	4 Digit Code
	Quarters One through Four	
PPR 69XX	APPE Ambulatory Care (Required)**	0-0-40-4
PPR 69XX	APPE Acute Care (Required)**	0-0-40-4
PPR 69XX	APPE Community (Required)**	0-0-40-4
PPR 69XX	APPE Institutional (Required)**	0-0-40-4
PPR 69XX	APPE Electives (5 electives are required)**	0-0-40-4
PPR 6992	Pharmacy Practice X – Curriculum Summative Evaluation (Required) / (Quarter Four)	4-0-0-4

Each student is required to complete an Ambulatory Care, Acute Care, Community, and Institutional APPE. In addition, each student is required to complete five (5) elective APPEs to be selected from the list below.

* **The 4 Digit Code represents the number of weekly hours of lectures, laboratory, clinical site, and the course credit hours consecutively.**

** **A list of APPEs is provided below, the required four APPEs focus on Ambulatory Care, Acute Care, Community, and Institutional.**

**List of APPEs

APPE Ambulatory Care	0-0-40-4
APPE Acute Care	0-0-40-4
APPE Community	0-0-40-4
APPE Institutional	0-0-40-4
APPE Advanced Community Pharmacy - Compounding	0-0-40-4
APPE Behavioral Health	0-0-40-4
APPE Pediatric Medicine	0-0-40-4
APPE Trauma/Critical Care Medicine	0-0-40-4
APPE Oncology Medicine	0-0-40-4
APPE Infectious Disease Medicine	0-0-40-4
APPE Long Term Care Pharmacy	0-0-40-4
APPE Government/Legislative/Board of Pharmacy	0-0-40-4
APPE Academic Pharmacy Practice	0-0-40-4
APPE Nuclear Medicine	0-0-40-4
APPE Nutrition Support	0-0-40-4
APPE Veterinary Pharmacy	0-0-40-4
APPE Medication Safety	0-0-40-4
APPE Drug Information	0-0-40-4
APPE Pharmaceutical Industry	0-0-40-4
APPE Pharmacy Management	0-0-40-4
APPE HIV	0-0-40-4
APPE Medical Anthropology	0-0-40-4
APPE Public Health	0-0-40-4
APPE Drug Diversion	0-0-40-4
APPE Ambulatory Care – Special Topics	0-0-40-4
APPE Acute Care – Special Topics	0-0-40-4
APPE Community – Special Topics	0-0-40-4

****List of APPEs (Continued)**

APPE Institutional – Special Topics	0-0-40-4
APPE Geriatric Medicine	0-0-40-4
APPE Longitudinal – Special Topics	0-0-40-4
APPE Pharmaceutical Science Research	0-0-40-4
APPE Alternative Complementary Medicine	0-0-40-4
APPE Pharmacokinetics	0-0-40-4
APPE Transplant	0-0-40-4
APPE Indian Health Service	0-0-40-4
APPE Cardiology Medicine	0-0-40-4
APPE Pulmonary Medicine	0-0-40-4
APPE Transitional Care	0-0-40-4
APPE Emergency Medicine	0-0-40-4
APPE Informatics	0-0-40-4
APPE Hospice/Palliative Care	0-0-40-4
APPE Infusion/Specialty Pharmacy	0-0-40-4
APPE Antimicrobial Stewardship	0-0-40-4

SCHOOL OF PHARMACY COURSE DESCRIPTIONS

Course Descriptions for the First Year Curriculum

PSC 6111 BIOCHEMISTRY	**4-0-0-4**

This course presents, through lecture and problem-solving activities, basic principles and fundamental concepts of human biochemistry, including the synthesis, metabolism, physicochemical characteristics, function and interactions of amino acids & proteins; nucleotides and nucleic acids; carbohydrates, lipids, and hybrid molecules. The course emphasizes biomolecular structure, metabolic pathways and biochemical signaling processes in normal human health, perturbations of these processes in disease, and as targets for chemical/pharmacological intervention to treat, prevent or diagnosis disease.

PSC 6130 IMMUNOLOGY	**3-0-0-3**

This course presents the fundamentals of immunology. Included in the course is a discussion of the principles and clinical importance of immunology in relation to the structure, growth, disinfection, sterilization and genetics of bacteria, viruses and other microbial infectious, pathogenic organisms. The course also includes a review of antimicrobial/anti-infective agents and mechanisms of emerging resistance.

PPR 6151 PHARMACY PRACTICE I – INTRODUCTION TO PHARMACY PRACTICE IN THE HEALTHCARE SYSTEM	**3-0-0-3**

This course introduces the United States health care system components, with special attention given to Medicare, Medicaid, private insurance, and an introduction to the profession of pharmacy, including the historical perspective, career opportunities, and the future of the practice of pharmacy. The student will be exposed to roles that pharmacists play in health and hospital systems, medication distribution systems, managing medication use, impact of technology on daily functions of the health care system, and drug shortages.

PPR 6261 BASIC COMMUNICATION SKILLS FOR PHARMACY PRACTICE	**2-0-0-2**

This course is designed to introduce student pharmacists to basic communication skills needed for pharmacy practice by combining theory, practice, and application. The course will focus on patient-centered communication and interprofessional communication, both verbal and nonverbal, as well as specific skills such as active listening, empathy, assertiveness, and conflict resolution. Students will participate in activities throughout the course that will reinforce course content (e.g. patient interviewing and counseling). Skills learned in this course will be reinforced throughout the entire Pharm.D. curriculum.

PPR 6271 FORUM & PROFESSIONALISM	**1-0-0-1**

This course is designed for the first year student to address issues related to professional conduct, ethics, career-long learning, self-awareness, diversity and cultural sensitivity, leadership, and innovation. This course prepares students for their role as pharmacists and future healthcare providers.

PPR 6250 PHARMACY PRACTICE III – PUBLIC HEALTH AND WELLNESS	3-0-0-3

This course provides students with an overview of the core topics in public health and wellness, including epidemiology, environmental health, social and behavioral sciences, health disparities and health policy. This course also provides focused attention on the significance of the pharmacist in public health. Pharmacy students are introduced to behavioral theories and the application to culturally competent public health program design. Through the use of case studies, group discussion, and active learning exercises, the student will be able to identify and examine public health issues and populations at risk, and the pharmacist's role in providing public health services.

PSC 6120 PATHOPHYSIOLOGY I	3-0-0-3

The first in a two course sequence that teaches understanding of disease process and trauma in humans as the basis for medical treatment. Etiology, clinical manifestations, complications, diagnostic findings and common treatment are reviewed by body systems and developmental stages. This course focuses on mechanisms of tissue injury to organs and organ systems during selected disease states with the goal of providing students with a rationale for drug therapy. Emphasis is placed on cell pathology, inflammation, neoplasm, and the cardiovascular, respiratory, GI, and hepatobiliary systems during the disease process.

PSC 6141 PHARMACY CALCULATIONS	2-2-0-3

This course covers the following topics: International System of Units, pharmaceutical measurement, density and specific gravity, interpretation of prescriptions and medication orders, expressions of concentration, calculation of doses and concentrations, measures of potency, electrolyte solutions, reducing and enlarging formulas, and injectable medications including rate-of-flow. This course focuses on performing mathematical calculations useful in compounding extemporaneously prepared pharmaceutical products and provides a strong foundation in basic pharmaceutical calculations useful in practice.

PSC 6220 INTEGRATED MEDICINAL CHEMISTRY AND PHARMACOLOGY I	5-0-0-5

This is the first in a three quarter course sequence that introduces and integrates the principles and concepts of medicinal chemistry and pharmacology. This course presents students a basis of understanding of how a drug molecule's chemical and physical properties affect its absorption, distribution, metabolism, and elimination. It also considers the site and mechanisms of action of selected drugs and drug classes, and the characteristic structure-activity relationships influencing drug-target interactions that, in turn, determine their pharmacodynamic effects - including adverse drug effects and interactions. The age/sex/gene-related variations that impact drug action or effectiveness are also discussed in this series.

PPR 6230 PHARMACY PRACTICE II – INTRODUCTION TO PATIENT CARE	3-0-0-3

This course focuses on patient care and applying the patient care process in the practice of pharmacy. Student pharmacists are introduced to the steps of the pharmacist's patient care process and to identifying medication-related problems. Throughout this course, student pharmacists also learn and practice skills necessary to interpret prescriptions and dispense medications.

PPR 6240 CAREER PATHS AND INTRODUCTION TO PRACTICE	1-0-0-1

This introductory course teaches student pharmacists basic pharmacy practice concepts and skills associated with community and institutional practices. Examples of topics included in this course are AHA BLS certification, APhA immunization certification, HIPAA certification, Bloodborne pathogens certification, introduction to drug information and professionalism. Journaling and self-reflection are introduced in this course.

PPR 6280 CULTIVATING PERSONAL AND PROFESSIONAL WELLBEING	1-2-0-2

This course is designed for pharmacy students to expand their understanding of personal and professional wellbeing, and to learn transferable skills that will enable them to better serve patients and peers. The course explores individual wellbeing as well as implications for pharmacy practice and the health and wellbeing of others. Students will be introduced to the dimensions of wellbeing, resilience, purpose, gratitude, and principles of culturally competent integrative healthcare, focusing on mind-body practices.

PSC 6210 PATHOPHYSIOLOGY II	3-0-0-3

The second in a two course sequence that teaches understanding of disease process and trauma in humans as the basis for medical treatment. Etiology, clinical manifestations, complications, diagnostic findings and common treatment are reviewed by body systems and developmental stages. This course focuses on mechanisms of tissue injury to organs and organ systems during selected disease states with the goal of providing students with a rationale for drug therapy. Emphasis is placed on fluid, electrolytes, acid-base balance, and congenital disorders, and the urinary, musculoskeletal, integument, neurological, endocrine and sensory systems during the disease process.

PSC 6311 INTEDGRATED MEDICINAL CHEMISTRY AND PHARMACOLOGY II	5-0-0-5

This is the second in a three quarter course sequence that integrates the principles and concepts of medicinal chemistry and pharmacology for selected drugs and drug classes. This course provides basic knowledge and builds on students' understanding of the important chemical and physical properties of a drug molecule that influence its absorption, distribution, metabolism and elimination. The course focuses on understanding the structure-activity relationships and drug- target interactions that constitute the pharmacological mechanism of action leading to the desired pharmacodynamic effects. The course series also provides the basis of understanding for adverse drug effects and interactions. The age/sex/gene-related variations that impact drug action or effectiveness are also discussed in this series.

PSC 6321 PHARMACEUTICS I	3-0-0-3

This course focuses on learning physical pharmacy concepts and developing skills on integrating physical, chemical and biological principles underlying the design and development, preparation, compounding, packaging and manufacture of therapeutically effective, pharmaceutical dosage forms. This course further emphasizes the influence of physico-chemical properties of drugs and excipients to optimize drug bioavailability and drug delivery characteristics from dosage forms. Topics covered will include key areas of pharmaceutics which influence the process of drug development, preformulation and formulation strategies, drug solubility and dissolution, solutions and ionic equilibria, pH and buffer systems, isotonicity, osmotic and thermodynamic properties of pharmaceutical systems, drug stability, drug diffusion and solid dosage form characteristics. Relevant pharmaceutical ingredients and contemporary industrial manufacturing methods will also be discussed in this course.

PSC 6430 STERILE PRODUCTS	1-2-0-2

This laboratory course builds upon the Pharmacy Dispensing and Compounding Lab with a focus on sterile products from the time of receipt of an order for a sterile product through the preparation and dispensing of the finished product. Pharmacy calculations, chemical interactions and stability of the finished product are reviewed. Students learn requirements for a sterile product preparation area, including equipment in the area, and aseptic techniques for compounding piggyback medications, large volume parenterals, parenteral nutrition and sterile irrigation solutions. Review of special procedures and equipment for hazardous product preparation, including chemotherapy, will be included. Students will learn the importance of in-line filters, specialized infusion tubing and protecting certain products from environmental exposures. Technologies such as the central line, PIC lines, infusion ports, and peripheral catheters used in administering sterile products, and OSHA standards for healthcare workers and patients, are addressed.

PSC 6340 CLINICAL LABORATORY MEDICINE	2-0-0-2

This course introduces students to clinical laboratory diagnostic tests. The basic theory, selection, and interpretation of procedures most commonly used in a primary care setting and case presentations are studied. Students study techniques used to obtain, preserve, and handle laboratory specimens as well as use clinical laboratory results to screen, diagnose, evaluate, and monitor patients. Students gain familiarity with Occupational Safety & Health Administration (OSHA) requirements and Clinical Laboratory Improvement Amendments (CLIA) and their implications for laboratory medicine.

PPR 6510 PHARMACY PRACTICE IV – RESEARCH METHODS AND BIOSTATISTICS	3-0-0-3

The aim of this course is to familiarize students with the pros and cons (including potential problems and pitfalls) that different research methodologies present, and to indicate ways in which these are addressed. The students will formulate a focused research question and improve their critical evaluation skills. The course provides students with the knowledge and skills needed to read, interpret, and evaluate quantitative findings found in evidence-based pharmacy and medical literature. It emphasizes recognizing and applying the correct quantitative methods to assist in evaluating observed data and professional practice decision-making.

PPR 6510 PHARMACY PRACTICE IV – RESEARCH METHODS AND BIOSTATISTICS	3-0-0-3

The aim of this course is to familiarize students with the pros and cons (including potential problems and pitfalls) that different research methodologies present, and to indicate ways in which these are addressed. The students will formulate a focused research question and improve their critical evaluation skills. The course provides students with the knowledge and skills needed to read, interpret, and evaluate quantitative findings found in evidence-based pharmacy and medical literature. It emphasizes recognizing and applying the correct quantitative methods to assist in evaluating observed data and professional practice decision-making.

PSC 6330 PHAMACY DISPENSING AND COMPOUNDING LAB	2-2-0-3

This laboratory course will focus on application of physicochemical properties of drugs and excipients, including appropriate pharmaceutical calculations, relevant to extemporaneous preparation and compounding of conventional and specialized non-sterile drug preparations, typically encountered by practicing pharmacists in compounding pharmacy settings. Students will compound, package, and appropriately label their individually prepared drug products: solutions, gels, suspensions, emulsions, ointments, creams, pastes, lotions, suppositories, troches, lollipops, capsules, and effervescent powders. Flavoring, coloring, and taste-masking strategies to achieve patient compliance will also be incorporated during compounding techniques.

PSC 6410 INTEGRATED MEDICINAL CHEMISTRY AND PHARMACOLOGY III	5-0-0-5

This is the last of a three quarter course sequence that integrates the principles and concepts of medicinal chemistry and pharmacology for selected drugs and drug classes. This course provides basic knowledge and builds on students' understanding of the important chemical and physical properties of a drug molecule that influence its absorption, distribution, metabolism and elimination. The course focuses on understanding the structure-activity relationships and drug- target interactions that constitute the pharmacological mechanism of action leading to the desired pharmacodynamic effects. The course series also provides the basis of understanding for adverse drug effects and interactions. The age/sex/gene-related variations that impact drug action or effectiveness are also discussed in this series. Basic principles of toxicology are also presented in this final course.

PSC 6420 PHARMACEUTICS II	4-0-0-4

This course integrates physical, chemical and biological principles underlying the design, preparation and manufacture of pharmaceutical dosage forms and drug delivery systems. Topics covered include liquid dosage forms, disperse systems and semisolids, transdermal drug delivery systems, parenteral dosage forms, pulmonary and nasal drug delivery systems, pharmaceutical inserts, novel drug delivery systems, and products of biotechnology.

PSC 6440 BASIC BIOPHARMACEUTICS AND PHARMACOKINETICS	3-0-0-3

This course provides a conceptual and quantitative background in pharmacokinetic theory and applications needed to pursue advanced studies in clinical pharmacokinetics. The impact of drug data such as physicochemical characteristics, dosage forms, and routes of administration as well as the impact of patient factors such as gastrointestinal, hepatic, and renal function on drug disposition are examined and modeled. Pharmacokinetic, pharmacodynamic, and pharmacogenetic factors and parameters are introduced and calculated as they relate to drug absorption, distribution, metabolism, and elimination.

PPR 6631 SELF-CARE I	2-0-0-2

This is the first of a two-part course series that evaluates the use of nonprescription drug therapies and complementary and alternative medicines in the use of self-care. Throughout the course series, students will learn to evaluate a patient's appropriateness for self-care, and if appropriate, recommend a treatment plan. This course also covers the use of home diagnostic and monitoring devices used in preventive healthcare or in the treatment of common self-care conditions.

Course Descriptions for the Second Year Curriculum

PPR 6550 DRUG INFORMATION RETRIEVAL AND EVALUATIONS	3-0-0-3
This course serves as an introduction to the principles of drug information and literature retrieval and evaluation. Students learn how to answer drug information questions, differentiate types of medical and scientific literature, search and retrieve information, write a drug monograph, report an adverse drug reaction, prepare a presentation to a Pharmacy and Therapeutics Committee, present an article via journal club presentation, and effectively communicate drug information.	

PPR 6361 INTRODUCTORY PHARMACY PRACTICE EXPERIENCE I	0-0-9-3
This sequence of courses gives student pharmacists, in their second year of the curriculum, experiences in independent community pharmacy, chain community pharmacy, and institutional pharmacy allowing them to achieve educational outcomes in the areas of patient care and pharmacy practice. The students will spend 90 contact hours during a 2 week block following the 5th, 6th, and 8th quarters during the second year of the curriculum. The location will change each quarter, allowing the student exposure to three diverse pharmacy practice environments. Student pharmacists will learn the basic distributive, dispensing, and administrative processes in the assigned practice setting gaining initial experience interacting with patients, preceptors, technicians and other pharmacy personnel.	

PPR 6570 PHARMACOTHERAPY I	4-0-0-4
Pharmacotherapy I is the first course in a six-course Pharmacotherapy series. The series of courses occur during the second professional year of the PharmD program. The courses in the Pharmacotherapy course series are designed to develop the student's knowledge of pharmacotherapy and to develop the ability to apply pharmacotherapy concepts and principles to different disease states. The course sequence reinforces pathophysiology and pharmacology and emphasizes clinical symptomatology; diagnostic testing and diagnosis; therapeutic agents and evidence based medicine supporting agents use; applicable clinical practice guidelines; and therapeutic drug monitoring for each disorder/condition.	

PPR 6590 CLINICAL ABILITIES LAB I	0-4-0-2
Clinical Abilities Lab I is the first course in the Clinical Abilities Lab series. The series of courses occur during the second professional year of the PharmD curriculum. This lab-based course provides students with hands-on experiences and practice to achieve proficiency in the abilities, through integration of knowledge, skills, behaviors, and values, that are essential for a pharmacy practitioner to provide patient care using the pharmacists' patient care process. The Clinical Abilities Lab also provides students opportunities to practice and develop trustworthiness when performing entrustable professional activities (EPAs). Students will apply and integrate knowledge from the Pharmacotherapy course sequence to patient cases. Throughout the Clinical Abilities Lab series, students will practice communication with patients and other health care providers, educating patients and caregivers on medications and self-monitoring devices, patient interviewing skills, physical assessment, performing prescription drug utilization reviews, and prescription verification. Knowledge of commonly prescribed medications, drug information, biostatistics, pharmacy law, and pharmacy calculations are reinforced.	

PPR 6650 CLINICAL PHARMACOKINETICS AND PHARMACOGENOMICS	3-0-0-3

This course enables students to critically apply knowledge from basic pharmaceutical sciences, mathematical modeling, and pharmacotherapy courses at a higher level of sophistication in order to optimize drug therapy for individual patients and diverse populations. The focus of this course is on initiating and adjusting individualized drug dosage regimens for selected medications based on targeted and measured drug plasma levels, patient's demographics, organ function, concomitant medications and disease states, and overall patient's response to drug therapy. Altered drug disposition in special patient populations such as pediatrics, geriatrics, obesity, and those with renal or hepatic dysfunction is also addressed.

PPR 6751 SELF-CARE II	3-0-0-3

This is the second of a two-part course series that evaluates the use of nonprescription drug therapies and complementary and alternative medicines in the use of self-care. Throughout the course series, students will learn to evaluate a patient's appropriateness for self-care, and if appropriate, recommend a treatment plan. This course also covers the use of home diagnostic and monitoring devices used in preventive healthcare or in the treatment of common self-care conditions.

PPR 6641 PHARMACY PRACTICE VI - PHARMACOECONOMICS	2-0-0-2

Pharmacoeconomic approaches are increasingly being found in medical and health outcomes research and used as a tool for health care decision making process. This course introduces the basic concepts, terminology, and methods associated with pharmacoeconomic studies. Students understand and review the principles of pharmacoeconomics and discuss their application to the evaluation of medication use and treatment outcomes, how these tools are used in practice and factors that limit their use or interpretation. Students learn the role of study perspective in the selection of cost/consequence parameters and the impact on study design and interpretation of results. The course reviews and compares the commonly used generic and disease-specific measures of health-related quality of life measures. The students examine the definitions for and methods of establishing the validity and reliability of a health-related quality of life measure. Application and reinforcement of pharmacoeconomics will continue throughout the pharmacotherapy series.

PPR 6670 PHARMACOTHERAPY II	4-0-0-4

Pharmacotherapy II is the second course in a six-course Pharmacotherapy series. The series of courses occur during the second professional year of the PharmD program. The courses in the Pharmacotherapy course series are designed to develop the student's knowledge of pharmacotherapy and to develop the ability to apply pharmacotherapy concepts and principles to different disease states. The course sequence reinforces pathophysiology and pharmacology and emphasizes clinical symptomatology; diagnostic testing and diagnosis; therapeutic agents and evidence based medicine supporting agents use; applicable clinical practice guidelines; and therapeutic drug monitoring for each disorder/condition.

PPR 6680 PHARMACOTHERAPY III	4-0-0-4

Pharmacotherapy III is the third course in a six-course Pharmacotherapy series. The series of courses occur during the second professional year of the PharmD program. The courses in the Pharmacotherapy course series are designed to develop the student's knowledge of pharmacotherapy and to develop the ability to apply pharmacotherapy concepts and principles to different disease states. The course sequence reinforces pathophysiology and pharmacology and emphasizes clinical symptomatology; diagnostic testing and diagnosis; therapeutic agents and evidence based medicine supporting agents use; applicable clinical practice guidelines; and therapeutic drug monitoring for each disorder/condition.

PPR 6690 CLINICAL ABILITIES LAB II	0-4-0-2

Clinical Abilities Lab II is the second course in the Clinical Abilities Lab series. The series of courses occur during the second professional year of the PharmD curriculum. This lab-based course provides students with hands-on experiences and practice to achieve proficiency in the abilities, through integration of knowledge, skills, behaviors, and values, that are essential for a pharmacy practitioner to provide patient care using the pharmacists' patient care process. The Clinical Abilities Lab also provides students opportunities to practice and develop trustworthiness when performing entrustable professional activities (EPAs). Students will apply and integrate knowledge from the Pharmacotherapy course sequence to patient cases. Throughout the Clinical Abilities Lab series, students will practice communication with patients and other health care providers, educating patients and caregivers on medications and self-monitoring devices, patient interviewing skills, physical assessment, performing prescription drug utilization reviews, and prescription verification. Knowledge of commonly prescribed medications, drug information, biostatistics, pharmacy law, and pharmacy calculations are reinforced.

PPR 6451 INTRODUCTORY PHARMACY PRACTICE EXPERIENCE II	0-0-9-3

This sequence of courses gives student pharmacists, in their second year of the curriculum, experiences in independent community pharmacy, chain community pharmacy, and institutional pharmacy allowing them to achieve educational outcomes in the areas of patient care and pharmacy practice. The students will spend 90 contact hours during a 2 week block following the 5th, 6th, and 8th quarters during the second year of the curriculum. The location will change each quarter, allowing the student exposure to three diverse pharmacy practice environments. Student pharmacists will learn the basic distributive, dispensing, and administrative processes in the assigned practice setting gaining initial experience interacting with patients, preceptors, technicians and other pharmacy personnel.

PPR 6541 PHARMACY PRACTICE V – PHARMACY MANAGEMENT	2-0-0-2

The purpose of this course is to introduce the basic principles of management as they apply in pharmacy practice settings in an ever-changing health care environment. These principles include financial analysis, strategic planning, leadership, organizational design, quality control, supervision, personal motivation and management. The course addresses those who will be entrepreneurs, own or lease a pharmacy, practice in a hospital or community pharmacy, or want to develop and establish a new pharmacy.

PPR 6760 CLINICAL SEMINAR I	1-0-0-1
This course is the first of a two part series, and provides the formal instruction component of the series. In this class, students receive instruction on the preparation of formal clinically-oriented presentations, including drug information responses, patient questions in the community environment and case presentations. These activities are devised to prepare students to formulate and present formalized patient data to other healthcare professionals as well as patients.	

PPR 6770 PHARMACOTHERAPY IV	4-0-0-4
Pharmacotherapy IV is the fourth course in a six-course Pharmacotherapy series. The series of courses occur during the second professional year of the PharmD program. The courses in the Pharmacotherapy course series are designed to develop the student's knowledge of pharmacotherapy and to develop the ability to apply pharmacotherapy concepts and principles to different disease states. The course sequence reinforces pathophysiology and pharmacology and emphasizes clinical symptomatology; diagnostic testing and diagnosis; therapeutic agents and evidence based medicine supporting agents use; applicable clinical practice guidelines; and therapeutic drug monitoring for each disorder/condition.	

PPR 6780 PHARMACOTHERAPY V	4-0-0-4
Pharmacotherapy V is the fifth course in a six-course Pharmacotherapy series. The series of courses occur during the second professional year of the PharmD program. The courses in the Pharmacotherapy course series are designed to develop the student's knowledge of pharmacotherapy and to develop the ability to apply pharmacotherapy concepts and principles to different disease states. The course sequence reinforces pathophysiology and pharmacology and emphasizes clinical symptomatology; diagnostic testing and diagnosis; therapeutic agents and evidence based medicine supporting agents use; applicable clinical practice guidelines; and therapeutic drug monitoring for each disorder/condition.	

PPR 6790 CLINICAL ABILITIES LAB III	0-4-0-2
Clinical Abilities Lab III is the third course in the Clinical Abilities Lab series. The series of courses occur during the second professional year of the PharmD curriculum. This lab-based course provides students with hands-on experiences and practice to achieve proficiency in the abilities, through integration of knowledge, skills, behaviors, and values, that are essential for a pharmacy practitioner to provide patient care using the pharmacists' patient care process. The Clinical Abilities Lab also provides students opportunities to practice and develop trustworthiness when performing entrustable professional activities (EPAs). Students will apply and integrate knowledge from the Pharmacotherapy course sequence to patient cases. Throughout the Clinical Abilities Lab series, students will practice communication with patients and other health care providers, educating patients and caregivers on medications and self-monitoring devices, patient interviewing skills, physical assessment, performing prescription drug utilization reviews, and prescription verification. Knowledge of commonly prescribed medications, drug information, biostatistics, pharmacy law, and pharmacy calculations are reinforced.	

PPR 6840 PHARMACY PRACTICE VIII – PHARMACY ETHICS AND LAW	3-0-0-3

This course consists of a study of federal and state pharmacy, drug, and related laws. Through self- study, lecture, and case studies, students learn the substance of these laws and application to pharmacy practice. Discussion of societal and health care system issues, such as abortion and the right to die, demonstrates the broader societal role of the pharmacist. In light of continuing expansion of the pharmacist's role in the delivery of healthcare services, attention is given to ethical and legal issues surrounding direct patient care services, including an examination of professional liability (civil, criminal, and disciplinary). While the importance of the above issues has grown significantly in very recent years, these issues have not displaced the need to study the expansive body of traditional pharmacy and drug law.

PPR 6561 INTRODUCTORY PHARMACY PRACTICE EXPERIENCE III	0-0-9-3

This sequence of courses gives student pharmacists, in their second year of the curriculum, experiences in independent community pharmacy, chain community pharmacy, and institutional pharmacy allowing them to achieve educational outcomes in the areas of patient care and pharmacy practice. The students will spend 90 contact hours during a 2 week block following the 5th, 6th, and 8th quarters during the second year of the curriculum. The location will change each quarter, allowing the student exposure to three diverse pharmacy practice environments. Student pharmacists will learn the basic distributive, dispensing, and administrative processes in the assigned practice setting gaining initial experience interacting with patients, preceptors, technicians and other pharmacy personnel.

PPR 6561 INTRODUCTORY PHARMACY PRACTICE EXPERIENCE III	0-0-9-3

This sequence of courses gives student pharmacists, in their second year of the curriculum, experiences in independent community pharmacy, chain community pharmacy, and institutional pharmacy allowing them to achieve educational outcomes in the areas of patient care and pharmacy practice. The students will spend 90 contact hours during a 2 week block following the 5th, 6th, and 8th quarters during the second year of the curriculum. The location will change each quarter, allowing the student exposure to three diverse pharmacy practice environments. Student pharmacists will learn the basic distributive, dispensing, and administrative processes in the assigned practice setting gaining initial experience interacting with patients, preceptors, technicians and other pharmacy personnel.

PPR 6851 IPPE – IV LONGITUDINAL SERVICE LEARNING & SIMULATION	0-0-3-1

Service learning provides the student pharmacist opportunities to learn personal and professional skills while providing the community with needed services. This course is a longitudinal course in which the student pharmacist will be introduced to in the second quarter of the Doctor of Pharmacy curriculum. This course will reinforce learning from the classroom and problem-based simulations with community-based needs in the patient-care environment. This course will involve learning extended beyond the classroom and will culminate at the end of the didactic curriculum.

PPR 6860 CLINICAL SEMINAR II	1-0-0-1

This course is the second of a two part series, and provides the formal instruction component of the series. In this class, students receive instruction on the preparation of formal clinically-oriented presentations, including drug information responses, patient questions in the community environment and case presentations. These activities are devised to prepare students to formulate and present formalized patient data to other healthcare professionals as well as patients.

PPR 6861 APPE READINESS	1-0-0-1

This course is designed to help prepare students for advanced pharmacy practice experiences (APPEs) by supporting student development of professional attitudes and behaviors that are expected of pharmacists. Topics covered within this course include, but are not limited to professionalism, ethic, career development, and advocacy.

PPR 6870 PHARMACOTHERAPY VI	4-0-0-4

Pharmacotherapy VI is the sixth course in a six-course Pharmacotherapy series. The series of courses occur during the second professional year of the PharmD program. The courses in the Pharmacotherapy course series are designed to develop the student's knowledge of pharmacotherapy and to develop the ability to apply pharmacotherapy concepts and principles to different disease states. The course sequence reinforces pathophysiology and pharmacology and emphasizes clinical symptomatology; diagnostic testing and diagnosis; therapeutic agents and evidence based medicine supporting agents use; applicable clinical practice guidelines; and therapeutic drug monitoring for each disorder/condition.

PPR 6290 ADVANCED PHARMACY CALCULATIONS	1-1-0-2

This course focuses on the retention, integration, and application of knowledge, skills, and attitudes to accurately perform practical mathematical calculations useful in everyday hospital and community pharmacy practice. This course serves as a comprehensive review of all pharmacy-based calculations taught throughout the P1 and P2 curriculum. This course serves as a culminating review of the pharmaceutical calculations to ensure students have the knowledge and skills to serve as pharmacists and pass the NAPLEX (North American Pharmacist Licensure Examination.

PPR 6890 CLINICAL ABILITIES LAB IV	0-4-0-2

Clinical Abilities Lab IV is the fourth course in the Clinical Abilities Lab series. The series of courses occur during the second professional year of the PharmD curriculum. This lab-based course instructs students through in class lectures and discussions that are essential for a pharmacy practitioner to provide patient care using the pharmacists' patient care process. The Clinical Abilities Lab also provides students opportunities to practice and develop trustworthiness when performing entrustable professional activities (EPAs). Students will apply and integrate knowledge from the Pharmacotherapy course sequence to patient cases. Throughout the Clinical Abilities Lab series, students will practice communication with patients and other healthcare providers, educating patients and caregivers on medications and self-monitoring devices, patient interviewing skills, physical assessment, performing prescription drug utilization reviews, and prescription verification. Knowledge of commonly prescribed medications, drug information, biostatistics, pharmacy law, and pharmacy calculations are reinforced.

Course Descriptions for the Third Year Curriculum

PPR 6901-6949 ADVANCED PHARMACY PRACTICE EXPERIENCE	0-0-40-0
The overall purpose of the advanced pharmacy practice experience (APPE) is for the student pharmacist to develop, practice, and gain confidence in clinical decision-making skills for managing pharmacotherapy in a variety of patient populations. APPE courses generally involve direct patient care utilizing the Pharmacist Patient Care Process (PPCP). Students are evaluated via Entrustable Professional Activities (EPAs) to gain professional skills in various pharmacy practice experiences. Student evaluations are mapped to the corresponding EPA value gauging their readiness for practice. The student also develops inter-professional relationships within the various practices. The PPCP and EPAs are explained at the beginning of each student evaluation for clarity.	

PPR 6992 PHARMACY PRACTICE X – CURRICULUM SUMMATIVE EVALUATION	4-0-0-4
During the advanced pharmacy practice experiences, students continue their development by participating in several activities such as interprofessional education and collaboration activities, job application workshop, and discuss post-graduate professional and financial decisions. Students also reflect on curriculum components by reviewing and assessing performance in several topics. Activities in this course prepare students to become practitioners.	

School of Pharmacy Elective Course Descriptions

Didactic course electives have a pre-requisite requirement of completion of the entire first professional year of study. There are limited didactic elective course offerings that may not hold this pre-requisite, and will be available to first professional year students. The School of Pharmacy will inform students of didactic elective course offerings that are eligible for first professional year student enrollment prior to student registration each quarter.

PPR 6001 EVALUATION AND SELECTION OF CARDIOVASCULAR DRUGS	2-0-0-2
This is a self-study course involving writing approximately a 10-page paper that either evaluates the role of a new cardiovascular drug in therapy or explores the effect of drugs on the heart. The topics should be focused, and go beyond the material offered in the prerequisite. It is the intent of this course to develop critical thinking skills in evaluating the cardiovascular effects of drugs, utilizing recent primary literature. The student will demonstrate in-depth knowledge of pathophysiology, pharmacology, therapeutics and, when applicable, pharmacoeconomics. The final paper will be well-referenced, thorough and accurate in its description of the cardiovascular drug and/or topic selected.	

PPR 6002 SUBSTANCE ABUSE, DIVERSON, AND ADDICTION	3-0-0-3
This course provides the student with essential pharmacological, medical, and legal knowledge to impact patient care regarding prescription and non-prescription drugs of abuse and misuse. This course prepares the student with knowledge and skills to conduct conversations with patients, families and other healthcare professionals regarding the abuse, misuse and addiction of medications and other substances. The students also learn prevention and diversion strategies aimed at reducing medication abuse and misuse.	

PPR 6006 GERIATRICS PHARMACOTHERAPY	3-0-0-3

This course is designed to introduce the student to the physiologic, pharmacologic, and sociologic aspects of aging and to allow the student to gain a rudimentary appreciation and understanding of drug therapy issues to consider in the elderly. The course will focus on 1) physiological and practical aspects of medication use in the elderly, 2) the pharmacist's role in geriatric care, and 3) the management of disease states and syndromes most commonly encountered in the elderly. The use of a case study format in class along with didactic presentations will allow the student to gain experience in designing and monitoring drug regimens for the geriatric patient.

PPR 6015 ADVANCED CARDIOVASCULAR LIFE SUPPORT (ACLS)	3-0-0-3

This comprehensive interprofessional course is designed to enable students to learn and develop the cognitive and psychomotor skills and abilities necessary for resuscitation of the adult. Team approach and strategies for managing the cardiopulmonary arrested high fidelity simulated patient are included. The student will practice techniques to assess cardiac dysrhythmias and follow through with appropriate therapeutic interventions such as drug and electrical therapy, airway control, ventilation, and supplemental oxygen. Requirements for AHA-ACLS certification are fulfilled. This course is offered to students enrolled at Health Profession Programs at South College (SC) and, with the approval of course instructors, may be offered to other health profession students or healthcare providers outside SC.

PPR 6027 ADVANCED COMMUNITY PHARMACY TOPICS	2-0-0-2

Advanced Community Pharmacy Topics is an elective course designed to introduce students to other areas of service within community pharmacy. Upon the completion of this course, pharmacy students will earn a point-of-care testing certificate. This course includes pre-reading from current literature and governmental agencies and culminates with a skills assessment. Students will learn how to perform four types of specimen collection (oral swab, nasal swab, throat swab, and finger stick); the legal and management issues associated with point-of-care testing and follow-up care; and using infectious disease models, will learn to assess patients, evaluate vital signs and physical findings to determine if POC testing is appropriate. Students will also learn more about collaborative pharmacy practice agreements with community pharmacy settings, diabetes education, and advanced medication management therapy services.

PPR 6022 INDEPENDENT STUDY IN PHARMACY PRACTICE RESEARCH	2-0-0-2

Independent Study in Pharmacy Practice Research is a specialized course of study providing individual instruction to students in the Concentration in Pharmaceutical Sciences & Pharmacy Research program that specifically addresses potential knowledge gaps in student's training in areas of the pharmaceutical sciences needed to support student research that may not be addressed by other available courses.

PPR 6X08 INDEPENDENT STUDY IN PHARMACY PRACTICE RESEARCH	3-0-0-3

This research elective course provides professional pharmacy students with opportunities in social, administrative, and clinical research in the Pharmacy Practice Department. Through the students' self-directed initiative and expertise of a faculty mentor, the student will advance their knowledge, research acumen and technical skill set in a defined area of the social, administrative, and clinical research.

PPR 6X09 INDEPENDENT STUDY IN PHARMACY PRACTICE RESEARCH	1-0-0-1

The course provides the pharmacy student an opportunity for direct participation in various aspects of Pharmacy Practice research under the supervision of Pharmacy Practice faculty. Defined student activities may range from focused, topical review and summation of scientific literature, to practical experience using a variety research study methods and techniques.

PSC 6003 BASIC PRINCIPLES OF TOXICOLOGY	3-0-0-3

This course introduces the student to the basic principles of toxicology including the absorption and disposition of toxicants, mechanisms of toxicity, non-specific toxicity such as carcinogenesis, gene and developmental toxicity, as well as characteristic target-organ toxicity. The course presents the hallmark toxic responses and mechanisms of action of specific classes of toxicants including drugs, pesticides, environmental and industrial agents, with discussion of standards of treatment and support of the poisoned patient. Concepts and insights into fields of applied toxicology (forensic, clinical, and occupational) will be introduced and discussed.

PSC 6004 DRUG DISCOVERY, DEVELOPMENT AND REGULATION	2-0-0-2

This elective course provides the student a detailed overview of, and insights into how, a drug is discovered and the number and types of nonclinical and clinical studies that are conducted before it can be approved for human use. It also considers the role of regulatory bodies in providing oversight of drug safety and efficacy, as well as illustrates the relationships between and integration of all of these scientific, strategic and regulatory processes.

PSC 6010 CRITICAL EVALUATION OF MOLECULAR THERAPEUTICS	3-0-0-3

Critical Evaluation of Molecular Therapeutics is an adaptive elective course designed to facilitate the students' professional development into competent pharmacists and acquisition of lifelong learning skills. Using a student-centered and team-based learning approaches, the delivery of course content relies heavily on case-based learning and critical evaluation and presentation of patient cases and primary literature using journal clubs. This course consists of patient case discussions, in-class team activities, critical evaluation of primary literature (pre-clinical and translational studies, and clinical trials), and journal clubs. Emphasis is placed on discussing molecular aspects of disease pathogenesis, appropriateness of therapeutic approaches, evaluation of current guidelines and literature, and identifying novel therapeutic strategies. The course is conducted at an Advanced Pharmacy Practice Experience (APPE, P3 year) level with performance-based adjustments to the content and weekly schedule. Thus, by creating an active learning environment that challenges students and promotes cooperation as a team, students improve their critical thinking, clinical reasoning, critical evaluation, and communication skills.

PSC 6021 GLOBAL HEALTH CHALLENGES IN INFECTIOUS DISEASE	2-0-0-2

This course will explore the multifaceted challenges of infectious disease on a global scale. Student pharmacists will gain an understanding of international health organizations, infectious disease surveillance, and different interventions (prevention and disease mitigation strategies). The course will emphasize specific major infectious diseases that have significant global public health impacts both epidemiologically and economically. Mechanisms of antimicrobial resistance and microbiological testing will be introduced and discussed. Social, economic, and environmental factors that affect public health outcomes will also be examined.

PSC 6X02 INDEPENDENT RESEARCH	2-0-0-2
This research elective course provides professional pharmacy students with experiential opportunities in laboratory research in the pharmaceutical sciences. Through the student's self-directed initiative and expertise of a faculty mentor, the student will advance the student's knowledge, research acumen and technical skill set in a defined area of pharmaceutical sciences research.	

PSC 6X06 SPECIAL PROJECTS IN PHARMACEUTICAL SCIENCES RESEARCH	1-0-0-1
The course provides the pharmacy student an opportunity for direct participation in various aspects of pharmaceutical sciences research under the supervision of Pharmaceutical Sciences faculty. Student activities may range from focused, topical review of scientific literature, to hands-on experience with a variety of laboratory techniques and instrumentation.	