

Doctor of Pharmacy Degree Program

Admission

The College of Pharmacy and Health Sciences follows a “rolling” admissions policy. Qualified applicants are accepted to the Doctor of Pharmacy program on a continual basis until the class has been filled, after which they are placed on an alternate list. An application deadline will be set during the recruitment year. Students are encouraged to apply as early as possible. Classes commence in August of each year. Students may request information through our e-mail address: PharmD@mercer.edu

Requirements

Admission requirements and standards are designed to ensure scholastic success in the professional Pharm.D. curriculum. Selecting a candidate for the future practice of pharmacy involves many important factors, including academic background, PCAT scores, evaluation forms and pharmacy experience. Applicants judged to be qualified after evaluation of these criteria are invited for a required personal interview. The Admissions Committee will then review the applicant’s entire record and interview results. Acceptance is competitive.

Grades for all coursework attempted are included in this calculation. The competitive grade point average in order to qualify for a personal interview will be determined by the overall strength of the applicant pool. The average GPA for students accepted in recent years has been between 3.30 and 3.50. Due to the large number of applicants and limited number of positions available, acceptance is selective.

Admission to the four-year Doctor of Pharmacy Program requires two years of pre-professional education at an accredited college or university in the United States. Each applicant must complete a minimum of 60 semester hours of college credit; grades below C cannot be accepted. The specific pre-pharmacy course requirements are as follows:

| | Semester Hours |
|--------------------------------------|----------------|
| General Chemistry | 8 |
| Organic Chemistry | 8 |
| General Biology or Zoology | 8 |
| Physics | 4 |
| Calculus | 3-4 |
| English Composition | 6 |
| Speech | 3 |
| Humanities Electives | 6 |
| Economics | 3 |
| Social/Behavioral Sciences Electives | 6 |
| Other Electives to total | 60 |

All pre-pharmacy requirements must be satisfied prior to matriculation. All science courses (Chemistry, Biology, Physics) must include a laboratory

with each lecture. Biology courses must be either General Biology or Zoology to fulfill pre-pharmacy requirements. Anatomy/Physiology or Microbiology are not accepted.

The speech requirement should be fulfilled with a public speaking class. The economics requirement may be fulfilled with either a microeconomics or macroeconomics course.

Humanities electives may be chosen from one or more of these areas: art, foreign languages, history, literature, music, philosophy, or religion.

Social/Behavioral Sciences courses can be selected from one or more of the following: accounting, anthropology, business, computer science, economics, geography, health, history, management, political science, psychology, sociology, or statistics.

No credit will be accepted for military science or physical education courses.

All applicants are required to take the Pharmacy College Admissions Test (PCAT). All applicants must have their PCAT scores sent to the Office of Student Affairs and Admissions. A composite percentile score above 80 is preferred.

Experience in the pharmacy setting is strongly encouraged. Over 90 percent of entering students in recent years have had work experience.

Application Procedure

Application may be made at any time after the completion of 30 semester hours of college coursework. A centralized online application is available on the PharmCAS website (<http://www.pharmcas.org>). Applicants will need to go to this website, complete the online application and submit the appropriate fees, transcripts from each college previously attended, PCAT scores, and contact information for references to PharmCAS. A minimum of two letters of reference must be sent via the Electronic Letters of Reference (eLOR) Service of PharmCAS. In addition to a PharmCAS application and electronic letters of reference, the applicant will need to obtain a Supplemental Application from the Office of Student Affairs and Admissions, complete and submit it along with a non-refundable \$25 supplemental application fee and a recent photograph. A qualified applicant will be invited to visit the College of Pharmacy and Health Sciences for a required personal interview. Within two weeks of acceptance, a tuition deposit of \$250 must be forwarded to the Office of Student Affairs and Admissions to confirm the position. The deposit is non-refundable. Upon enrollment, \$225 will be applied toward the first semester's tuition, while the remaining \$25 will satisfy the matriculation fee. A second, non-refundable deposit of \$250 will be due by June 1st. This deposit will also be applied toward the first semester's tuition.

Early Acceptance Program

The Early Acceptance Program (EAP) is designed for students enrolled at Mercer University College of Liberal Arts (CLA) in Macon. A student who expresses a desire to pursue the Doctor of Pharmacy degree and has earned less than 30 semester hours of undergraduate coursework may be granted early acceptance to the College of Pharmacy and Health Sciences (CPHS) in Atlanta.

The following requirements must be met by an EAP student:

1. All undergraduate coursework must be completed at CLA.
2. An overall grade point average of 3.0, and a math/science grade point average of 3.0, must be maintained to continue EAP status. A minimum PCAT score is also required to maintain EAP status.
3. Participation in the academic advising and career seminar programs provided jointly by the pre-pharmacy advisor at CLA and the Associate Dean for Student Affairs and Admissions at CPHS is mandatory.

EAP students are also required to take the Pharmacy College Admissions Test (PCAT) and have their scores sent to PharmCAS. EAP students are required to obtain a minimum score on the PCAT.

Students enrolled in EAP are required to submit an application and appropriate fees to PharmCAS (www.pharmacas.org). EAP students are not required to submit a \$25 supplemental application fee or to submit a tuition deposit/matriculation fee to secure a position at CPHS. The \$25 matriculation fee will be waived and full tuition will be due upon enrollment at CPHS.

Any CLA student who does not qualify for EAP may apply to CPHS by following the normal admissions procedure.

Transfer Students

A transfer student is any person who has ever been enrolled in the professional level at another college or school of pharmacy. Attrition rates are low; therefore, the number of transfer students accepted is extremely limited and at times not available.

An individual who wishes to transfer into the four-year Doctor of Pharmacy degree program from an Accreditation Council for Pharmacy Education (ACPE) accredited college or school of pharmacy must send to the Office of Student Affairs and Admissions a letter of intent to transfer. If availability exists, the transfer applicant must submit all transcripts and PCAT scores to the Office of Student Affairs and Admissions. In addition, the Associate Dean for Student Affairs and Admissions must receive a letter from the Dean's Office at the other school granting approval of the transfer to Mercer and stating that the student is in good standing and eligible to continue or return. Transfer students must satisfy Mercer's pre-pharmacy course requirements and meet current admission standards in order to be considered.

If qualified, the applicant must meet personally with the Associate Dean for Student Affairs and Admissions. After the interview, the Associate Dean for Student Affairs and Admissions will make a recommendation regarding admission to the Dean's Office for final action. The number of transfer students accepted will depend upon space availability. The Associate Dean for Student Affairs and Admissions will inform the Dean's Office at the school of transfer of the decision reached. All correspondence will be handled by the Office of Student Affairs and Admissions.

Due to differences in curricula of various pharmacy schools, some or all credit may not transfer at the same professional level. Students may not be eligible for professional year advancement at Mercer equivalent to that of their current institution.

Advanced Standing

A transfer applicant who desires advanced professional standing must comply with the appropriate policy and procedure outlined above. Ordinarily credits from an ACPE-accredited college or school of pharmacy, for which grades of C or better have been earned shall be accepted. All course requirements in the current four-year Doctor of Pharmacy curriculum must be satisfied prior to graduation. A minimum of eighteen months in residence at the College of Pharmacy and Health Sciences is required.

In determining advanced standing, the Associate Dean for Student Affairs and Admissions will consult with the appropriate Department Chairperson(s) to determine course equivalence. Based upon this evaluation, the Associate Dean for Student Affairs and Admissions will make a recommendation regarding transfer credit for advanced standing to the Dean's Office for final action. All correspondence will be handled by the Office of Student Affairs and Admissions.

International Students

An applicant who is not a citizen of the United States must follow the normal admissions procedure. This includes completing all pre-pharmacy course requirements in an American college or university.

The College of Pharmacy and Health Sciences Student Affairs and Admissions Office does not evaluate transcripts from outside the United States. If coursework has been earned in a foreign country, the following procedure is required: in order for the College of Pharmacy and Health Sciences Student Affairs and Admissions Office to determine whether the courses taken in a foreign country can be transferred for credit, foreign transcripts must be reviewed or evaluated by an undergraduate American institution. All of the credit accepted for transfer must appear on the transcript of an American college or university. Transfer credit must be identified as courses equivalent to those in the American college or university. In order to receive a transcript including the evaluation of transfer credit, the international student must be enrolled at the undergraduate American institution. Until this procedure has been accomplished, an application for admission cannot be accepted.

Financial resources of the College of Pharmacy and Health Sciences are limited, and therefore financial assistance is not available for international students on an F-1 Visa. Federally funded financial aid is restricted for students who are citizens or permanent residents of the United States. It is important that the student have pre-determined financial support sufficient to meet educational and living expenses.

Retention

Larger applicant pools have allowed the Admissions Committee to be increasingly selective; higher quality has also resulted in excellent retention. Data compiled for all students admitted since the fall of 1995 shows an average retention rate of 96 percent.

Curriculum

Professional Outcomes

1. Find, understand, analyze, evaluate, and synthesize information and make informed, rational and responsible ethical decisions in order to promote pharmaceutical care to patients in both familiar and unfamiliar context.
2. Demonstrate effective reading, writing, speaking, and listening skills and the use of data, media, computers and other information technologies to effectively send and respond to communication for varied audiences and purposes.
3. Demonstrate sensitivity to and facility with personal values, ethical principles and caring in professional and social context.
4. Demonstrate a basic understanding of the strengths and problems of cultural diversity, social awareness and the historic responses of society, as they relate to oneself and others.
5. Effectively self-assess and satisfy learning needs on an ongoing basis.
6. Demonstrate effective leadership and involvement in professional and social endeavors.

Practice Outcomes

1. Properly evaluate the completeness and accuracy of the prescription(s) and medication order(s) prior to dispensing based on interview, reviewing and analyzing the individual history and drug profile.
2. Accurately and legally prepare, process, dispense and administer prescriptions or medication orders in a safe and timely manner.
3. Collect and evaluate patient data to properly assess patients and to determine appropriate courses of action such as prescription drug therapy, non-prescription drug therapy, non-drug therapy, or referral to another health care professional.
4. Integrate basic and clinical knowledge to design, implement, monitor, evaluate and modify patient pharmacotherapy to prevent or resolve medication-related problems.
5. Communicate and collaborate effectively with patients, peers, other health professionals and the general public.
6. Retrieve, analyze and interpret professional, lay, and scientific literature to provide drug information and education to patients, care givers, health professionals, and the public.
7. Evaluate, integrate and manage human, economic, scientific, and technological resources for the effective provision of pharmaceutical care.
8. Apply legal, professional, and ethical principles and regulatory requirements in the conduct of professional activities.

9. Recognize potential risks and consequences of substance abuse by pharmacists; provide professional guidance and scientific information to the public and health professionals regarding substance abuse, chemical dependency, and management of toxic substances.

First Professional Year

| Fall | | Spring | |
|--|----------|---------------------------------|----------|
| Introduction to Pharmacy I 306 | 2 | Introduction to Pharmacy II 307 | 2 |
| Biostatistics, Research Design, and Literature Evaluation 302 | 3 | Anatomy/Physiology 322 | 3 |
| Communication Skills for Pharmacists 303 | 3 | Microbiology/Immunology 323 | 3 |
| Biochemistry 320 | 5 | Pharmacy Management 305 | 4 |
| Principles of Pharmaceutical Sciences 325 | 3 | Pharmaceutics 326 | 4 |
| Practice of Pharmacy I 371 | <u>2</u> | Practice of Pharmacy II 372 | <u>2</u> |
| | 18 | | 18 |

- Satisfactory completion of all P1 coursework is necessary for progression to P2. -

Second Professional Year

| Fall | | Spring | |
|--|----------|------------------------------|----------|
| General Principles of Pharmacotherapy 440 | 4 | Renal/Cardiovascular I 452 | 4 |
| Nervous System Disorders I 450 | 5 | Renal/Cardiovascular II 453 | 4 |
| Nervous System Disorders II 451 | 4 | Renal/Cardiovascular III 454 | 5 |
| Pharmaceutics Laboratory 401 | 1 | Elective | 2 |
| Elective | 2 | Practice of Pharmacy IV 474 | <u>2</u> |
| Practice of Pharmacy III 473 | <u>2</u> | | 17 |
| | 18 | | |

- Satisfactory completion of all P2 coursework is necessary for progression to P3. -

Third Professional Year

| Fall | | Spring | |
|--------------------------------|----------|--|----------|
| Musculoskeletal Disorders 550 | 3 | Infectious Diseases I 554 | 3 |
| Endocrine Disorders 551 | 4 | Infectious Diseases II 555 | 3 |
| Gastrointestinal Disorders 552 | 3 | Integument and Special Senses 556 | 3 |
| Pulmonary Disorders 553 | 3 | Hematology and Oncology Disorders 557 | 3 |
| Elective | 2 | Pharmacy Law and Ethics 502 | 2 |
| Practice of Pharmacy V 575 | <u>2</u> | Elective | 2 |
| | 17 | Practice of Pharmacy VI 576 | <u>2</u> |
| | | | 18 |

- Satisfactory completion of all P3 coursework is necessary for progression to P4. -

Fourth Professional Year

Advanced Practice Experiences 35

Course Descriptions

Required Didactic Courses

PHA 302. Biostatistics, Research Design and Literature Evaluation (3 hours)

This course is designed to enable the student to develop an understanding of basic statistics and research design procedures and terms such that clinical studies in the medical and pharmaceutical literature may be objectively evaluated. The course will also provide the student with the necessary tools such that he or she will be able to effectively describe, summarize, analyze and make valid conclusions from data collected through his or her own research endeavors. Students will be enabled to actively evaluate the clinical literature.

PHA 303. Communication Skills for Pharmacists (3 hours)

This course is designed to develop foundational communication skills necessary for effective pharmacy practice. The skills and techniques mastered in this foundational course will be applied throughout the curriculum within the framework of complex patient scenarios and multiple disease states.

PHA 305. Pharmacy Management (4 hours)

This course is designed to provide the pharmacy student with an understanding of those topics relevant to the management and administration of a pharmacy in community and institutional settings.

PHA 306. Introduction to Pharmacy I (2 hours)

The first of a two-course sequence, this course is designed to introduce the first-professional year pharmacy student to the system of health care delivery in the United States and the roles that pharmacy and pharmacists play in it. The social aspects of health and illness are also explored. An introduction to pharmacy law will be included. The course also includes problem-based learning (PBL) that is active and student-driven. Students, working in small groups, and guided by a faculty facilitator, will learn how to analyze a problem, identify and evaluate self-discovered resources needed to solve the problem, and discuss the solution of the problem with peers. They will also acquire the skills of self-directed learning, critical reasoning, self-evaluation, interpersonal communication, and the ability to retrieve, access, synthesize, and present information. The course is designed to provide the student with what to expect from pharmacy and, most important, what pharmacy expects from them.

PHA 307. Introduction to Pharmacy II (2 hours)

The second of a two-course sequence, this course is designed to continue the introduction of the system of health care delivery in the United States and the roles that pharmacy and pharmacists play in it.

PHA 320. Biochemistry (5 hours)

An introduction to the chemistry of living organisms with emphasis on the human system. The course is designed to introduce students to the major metabolic processes that are essential for human life, including biochemical energetics; electron transport system; the Krebs cycle; the metabolism of carbohy-

drates, lipids and amino acids; and the biosynthesis of purines, pyrimidines, nucleic acids and proteins.

PHA 322. Anatomy and Physiology (3 hours)

Anatomy and physiology examines the structural and functional organization of the human body at the tissue, organ, organ system and organismic levels. Essential aspects of histology, anatomy, physiology, and development are integrated in order to provide a fundamental overview of the major systems of the body and their interactions.

PHA 323. Microbiology and Immunology (3 hours)

This course is an introduction to microbiology and immunology with emphasis on biomedical principles and pharmaceutical applications. Microbes as agents of health and disease are discussed with respect to structure, metabolism, genetics, life cycle, and host-microbe interactions. The molecular, cellular, and systemic bases for effective immune function are presented and typical immune responses to various disease states are described. Mechanisms of infectious disease and immunological response are emphasized as foundations for pharmaceutical applications.

PHA 325. Principles of Pharmaceutical Sciences (3 hours)

This course is intended to provide a foundation of the principles that are fundamental to the study of the pharmaceutical sciences. This basic knowledge will allow the student to integrate physical, chemical and biological concepts into various practice functions.

PHA 326. Pharmaceutics (4 hours)

Prerequisite: PHA 325.

This course is intended to give the student a basic knowledge of the pharmaceutical principles involved in formulation, design, compounding and evaluation of dosage forms and drug delivery systems. The course will also familiarize the student with the concepts of drug standards, good manufacturing practice and quality control. The student will gain background knowledge and skills necessary to apply biopharmaceutic principles to the selection and evaluation of drug products for use in patients. Emphasis will be placed on the various formulation and physiologic factors that affect drug response and absorption.

PHA 401. Pharmaceutics Laboratory (1 hour)

This course is designed to acquaint the student with basic compounding skills and techniques related to pharmaceutical dosage forms. The course also involves the study of the mathematics encountered in pharmacy practice and the application of calculations in laboratory exercises. The laboratory is designed around a student-centered, problem-based approach to learning.

PHA 440. General Principles of Pharmacotherapy (4 hours)

This course examines those topics that provide the foundation for the rational use of therapeutic agents. Pharmacology and its two primary subdisciplines, pharmacokinetics and pharmacodynamics, are examined extensively. The drug development and approval process, pharmacogenomics, and techniques for monitoring and assessing pharmacotherapeutic response and patient status are also examined.

PHA 450. Nervous System Disorders I (5 hours)

This course will introduce the student to the anatomy and physiology of the brain structures, the pathophysiology of selected diseases and disorders related to these structures and the medicinal chemistry, pharmacology and therapeutic use of drugs used to treat common diseases and disorders involving the nervous system. At the conclusion of this course, students will be able to explain the rationale for use of specific drug categories in the treatment of Nervous System disorders. In addition to information related to the anatomy and physiology of these brain structures and nervous system disorders, course content will emphasize: drug structure-activity relationships and mechanisms of action; drug mechanisms related to the occurrence of adverse effects; recognition and management of medication-related problems; and decision-making processes including utilization of laboratory tests to monitor drug efficacy and toxicity. Case studies will be used to assist students in monitoring a pharmaceutical care plan for the patient.

PHA 451. Nervous System Disorders II (4 hours)

This course is a continuation of PHA 450.

PHA 452. Cardiovascular/Renal Disorders I (4 hours)

This course is designed to familiarize the pharmacy student with the anatomy and physiology of the cardiovascular and renal systems and a discussion of the effects of drugs that mimic the activity of the autonomic nervous system on these two systems.

PHA 453. Cardiovascular/Renal Disorders II (4 hours)

This course will cover the pathophysiology and treatment of hyperlipidemia, stable angina, acute coronary syndromes, stroke, peripheral vascular disease, and deep vein thrombosis as well as the medicinal chemistry and pharmacology of those drugs used in the treatment of these diseases. The course will be taught by a series of lectures followed by case study discussions and other problem-solving exercises.

PHA 454. Cardiovascular/Renal Disorders III (5 hours)

This course is designed to integrate pathophysiology, medicinal chemistry, pharmacology, pharmacotherapy, patient assessment, clinical pharmacokinetics, social and behavioral aspects, and over-the-counter products related to the treatment of cardiovascular and renal disorders. The specific disorders covered in this module include heart failure, arrhythmias, hypertension, acute and chronic renal failure, end stage renal disease, glomerulonephritis, renal transplant, urinary incontinence, benign prostatic hypertrophy, and erectile dysfunction. The clinical skills and problem-solving skills obtained through completion of this module will prepare the student to properly identify, assess, and resolve complex, medication-related problems and other patient issues.

PHA 502. Pharmacy Law and Ethics (2 hours)

This course is designed to impart to students the legal and ethical basis of pharmacy practice. The course emphasizes the pharmacist's responsibility to care for patients and to respect patients as autonomous individuals. It also queries how far the government and licensed health care professionals should go to protect people from the consequences of their own potentially risky choices in drug use.

PHA 550. Musculoskeletal Disorders (3 hours)

This is an integrated course which will include discussion of the anatomy and physiology of bones, muscles and joints; describe the etiology and pathogenesis of diseases affecting the musculoskeletal system; introduce the medicinal chemistry and pharmacology of drugs used to treat each of these disorders and apply this information in the overall clinical treatment of the disease. Emphasis will be placed on structure-activity relationships, mechanisms of drug action, overall pharmacological effects and mechanisms of adverse effects produced by drugs used to treat these disease states. Interpretation of the clinical literature will be required in making decisions regarding drug efficacy, drug of choice, adverse drug reactions and other medication-related problems. A case study approach will be utilized with each disease state to assist the student in monitoring a pharmaceutical care plan for the patient.

PHA 551. Endocrine Disorders (4 hours)

This course is designed to introduce to the student the physiology, pathophysiology and pharmacotherapy of diseases of the endocrine and reproductive systems. Students should be able to explain why drugs are effective in specific disorders of these systems. Emphasis will be placed on structure activity relationships, mechanisms of drug action, overall pharmacological effects and mechanisms responsible for the adverse effects produced by these drugs. Other areas that the course will focus on will include: recognition and management of medication-related problems, social and behavioral aspects of the different disease states, decision-making processes and utilization of laboratory tests to monitor drug efficacy and toxicity will be discussed. The case study approach will be utilized to assist the student in monitoring a pharmaceutical care plan for the patient.

PHA 552. Gastrointestinal Disorders (3 hours)

This course will acquaint the student with the anatomy and physiology of the alimentary tract and accessory organs of digestion, the pathophysiology of selected diseases and disorders related to the alimentary tract and the medicinal chemistry, pharmacology and therapeutic use of drugs used to treat selected disorders and diseases of the alimentary tract. In addition to information related to anatomy, physiology and pathophysiology, the course will also emphasize: drug structure-activity relationships and mechanisms of action, drug mechanisms of action related to adverse events, recognition and management of medication-related problems, and decision-making processes, including utilization of laboratory tests to monitor drug efficacy and toxicity. Patient case studies will be used to assist students in developing and monitoring pharmaceutical care plans.

PHA 553. Pulmonary Disorders (3 hours)

This course is designed to integrate the anatomy, physiology, pathophysiology, patient assessment, social and behavioral aspects of pulmonary disorders with the medicinal chemistry, pharmacology, pharmacotherapy and clinical pharmacokinetics of the prescription and non-prescription medications used to treat and prevent these disorders. The specific disorders covered in this module include asthma, chronic obstructive pulmonary disease (COPD), allergic rhinitis, cough and cold, acute respiratory distress syndrome, neonatal respiratory distress syndrome and the pulmonary component of cystic fibrosis.

PHA 554. Infectious Diseases I (3 hours)

This is an integrated course which will discuss the pathophysiology of infectious diseases as it relates to the microbial organisms that cause these diseases. Students will be introduced to the medicinal chemistry and pharmacology of chemotherapeutic agents used to treat microbial infections and apply this information to the clinical treatment of the diseases. Emphasis will be placed on structure-activity-relationships, mechanisms of action, overall pharmacological effects and mechanisms of adverse effects produced by drugs used to treat these disease states. Interpretation of the clinical literature will be required in making decisions regarding drug-efficacy, drug of choice, adverse drug reactions and other medication-related problems.

PHA 555. Infectious Diseases II (3 hours)

This course is a continuation of PHA 554.

PHA 556. Integument and Special Senses (3 hours)

This course is designed to integrate the anatomy, physiology, pathophysiology, patient assessment, social and behavioral aspects of dermatological and eye/ear/oral disorders with the medicinal chemistry, pharmacology, pharmacotherapy, and relevant pharmaceuticals of the prescription and non-prescription medications used to treat and prevent these disorders. The specific topics covered in this module include burns, drug-induced sun and skin reactions, cancer of the skin, contact and atopic dermatitis, diaper rash, eczema, scaly dermatoses, psoriasis, hemorrhoids, lice and scabies, acne, impetigo, pressure sores/decubiti, insect bites, fungal infections, foot care, alopecia/hirsutism, glaucoma, conjunctivitis, cataracts and macular degeneration, contact lenses, dry eye, external ear and oral care including canker and cold sores.

PHA 557. Hematology and Oncology Disorders (3 hours)

This course is a study of cancer including (but not limited to): biology, etiology, confounding factors, diagnosis, biological markers, drugs, treatment, quality of life, positive and negative outcomes of treatment. Anatomy and physiology of cancer will be covered as well as a presentation of pathophysiology. Diagnostic procedures used in wellness care, diagnosis and treatment of follow up will be presented along with sensitivity and specificity of the procedure. Quality of life for the patient and family will be presented.

Elective Didactic Courses

PHA 505. Community Pharmacy Ownership (2 hours)

A course in retail pharmacy operation designed to acquaint the student with select behavioral and administrative aspects of community pharmacy ownership. Emphasis is placed on professional and personal relations within the community pharmacy and on the mechanics involved with the operations of a small retail business.

PHA 509. Introduction to Teaching (2 hours)

This is an elective course designed to stimulate interest of pharmacy students in a career in teaching. Through facilitating small groups of students, discussing readings from the literature, and assisting faculty in a variety of teaching activities, the student is better able to evaluate the possibility of a career in teaching.

PHA 511. Basic Management Principles (1 hour)

A course intended for those students in the combination Pharmacy/Master of Business Administration Program. It involves an examination of the basic principles and theories of management literature primarily focusing on those theories that explain the functioning of the management process.

PHA 512. Basic Marketing Principles (1 hour)

A course intended for those students in the combination Pharmacy/Master of Business Administration Program. It involves an examination of the basic principles and theories of marketing. The course emphasizes a critical review and discussion of the marketing literature primarily focusing on those theories that explain the functioning of the marketing process.

PHA 525. Isotope Tracer Techniques (2 hours)

A lecture course designed to acquaint the student with the theoretical foundations and experimental techniques needed for the proper use of isotopic tracers in scientific research. Emphasis will be given to the use of radioactive tracers and their applications to pharmaceutical and biomedical research.

PHA 526. Toxicology (2 hours)

A lecture course designed to acquaint the student with the science of toxicology. The course will survey the different areas of toxicology and introduce basic toxicological principles but will place special emphasis on the areas of mechanistic toxicology and toxicological modeling.

PHA 527. Biotechnology (2 hours)

This course is designed to familiarize the student with current technology. Emphasis will be given to methods involving genetic manipulations and immunologic tools. In addition, the course will include a thorough review of the most current agents (both those approved and those undergoing testing) including a discussion of how they function and how they are produced.

PHA 528. Pharmacognosy (2 hours)

This course encompasses a study of drugs obtained from natural sources. The botanical and animal origins of such drugs, their historical importance, physicochemical properties, and their pharmacological applications are discussed. Basic terminology associated with the area of pharmacognosy as well as extraction and purification procedures for natural drugs are also discussed.

PHA 529. Contemporary Compounding (2 hours)

This course involves learning the concepts of contemporary compounding practice. This course will include a discussion of the regulations governing compounding, USP and scientific/professional organization recommendations for compounding, and mechanisms for evaluation and analysis of the quality of a compounded product. The course will use discussions, problem-solving cases and skill-building laboratories to help the student learn the contemporary compounding process.

PHA 530. Advanced Mechanisms of Action and Pharmacological Effects of Drugs (2 hours)

This elective course is designed to teach not only detailed mechanisms of action and pharmacological effects of drugs used to treat a variety of disease

states but also to teach the processes of obtaining and evaluating this information, as well as the oral presentation of this information. Third professional year standing is required to take this course.

PHA 548. Project Development (2 hours)

Prerequisites: consent of instructor and a GPA of 2.5 or better is required.

This course is designed to acquaint the student with the techniques involved in the development of a project in either the basic or clinical sciences. A project will be assigned to the student and the student will be expected to perform literature reviews and other work deemed necessary by the faculty instructor to produce an acceptable final written report. (This course may be taken up to two times for credit.)

PHA 549. Introduction to Research (2 hours)

Prerequisites: consent of instructor and a GPA of 2.5 or better is required.

This course is designed to acquaint the student with current techniques utilized in basic and clinical research. A problem will be assigned by the instructor and the student will be expected to do the library and laboratory or clinical work required to prepare a report. (This course may be taken up to three times for credit.)

PHA 560. Substance Abuse (2 hours)

This course is designed to give the student a basic introduction to the area of substance abuse and dependency. It is intended that upon completion of this course the student will have an appreciation for the terminology and diagnostic criteria appropriate to this specialty, a clear understanding of the drugs involved, their effects and be able to explain pharmacological intervention.

PHA 562. Self-Care and Self-Medication (2 hours)

This course is designed to give the interested student additional knowledge and skills on health promotion in order to be a better educated pharmacist and consumer. The primary focus will be on the prevention and detection of heart disease, cancer, infectious diseases, osteoporosis and mental illness. The impact of lifestyle changes, such as diet, exercise, weight loss, smoking cessation, alcohol moderation and stress reduction on disease management will be explored by reviewing the latest medical research. The use of home and diagnostic tests, utilized to screen and monitor patient response to selected drug therapy, will be discussed and demonstrated. Reimbursement, marketing strategies and liability will also be considered.

PHA 564. Geriatric Pharmacy (2 hours)

This course will review the basic physiological changes occurring with increasing age and define their impact on pharmacokinetics of drugs in the geriatric patient. Managerial, pharmaceutical, and consultant aspects of pharmacy services provided to long-term care facilities and alternate types of care available to the elderly patient will be emphasized. Health care issues impacting geriatric patient care and future trends in pharmacy services for geriatric patients will also be presented. Third professional year standing is required to take this course.

PHA 565. Drug Misadventures (2 hours)

This course is designed to provide a deeper understanding of serious drug misadventures including: adverse drug reactions, medication errors, drug interactions, and drug allergies. Learning is from a drug-induced disease (outcome)

perspective and most of the course uses problem-based learning (PBL). Emphasis is on problem solving and the identification of preventative measures.

PHA 566. Women's Health (2 hours)

This course is designed to enable the student to develop an understanding of issues of importance in women's health, including health promotion and prevention, health problems with a higher prevalence or a different presentation in women than men, cultural diverseness and women's health, and women's health policy and research. Problems unique to women's health and therapy important in the pharmacist's provision of pharmaceutical care to female patients will be emphasized. The topics discussed will be those relevant to women's health that are not covered in required courses or those that are not covered in detail in required courses.

PHA 567. Fundamentals of Neonatology (2 hours)

This course is intended to develop an appreciation for the unique aspects of the neonatal patient. This course will involve active classroom participation utilizing problem assisted based learning directed in a systematic pattern of interpreting patient assessment, laboratory and radiographic information, therapeutic rationale and pharmacokinetics adjustments if warranted. The principles of each case will be directed by the instructor so that key concepts can be fully appreciated in a timely fashion. This method will be called: Problem Assisted Based Learning Utilizing Multifactorial Methods or PABLUMM. Third professional year standing is required to take this course.

PHA 568. Special Topics in Pharmacotherapy (2 hours)

This course is intended to develop the student's critical thinking and appreciation of various controversial pharmacotherapeutic topics. Students will be initially provided with clinical case studies related to the controversial pharmacotherapeutic topics that will form the foundation of the critical thinking process. Students will work together in small groups. Students will be evaluating the clinical cases using the Problem-Based Learning Method and the ASHP Clinical Skills format. During the class, a group will select a controversial topic for presentation either supporting or questioning the current pharmacotherapeutic approach to treatment.

PHA 569. Diabetes Care (2 hours)

This course is designed to provide students with additional education in the care of patients with diabetes. The course's primary objective is to increase students' aptitude and confidence in providing pharmaceutical care to patients with diabetes. Throughout the course, students will be increasing their effectiveness in assisting patients with managing their diabetes care and be able to: assist patients in the management of diet, exercise, glucose monitoring, and medication and insulin administration; describe the requirements for implementing pharmaceutical care for patients with diabetes in a community pharmacy setting; and describe ongoing research in diabetes and new diabetic drugs and technology.

PHA 570. Physical Pharmacology (2 hours)

This course is designed to explain physiological and pharmacological structures and functions in terms of fundamental physical and chemical principles. The course focuses on development and use of unified concepts and models

that offer simple descriptions of apparently complex systems and rational explanations for seemingly arbitrary and chaotic processes.

PHA 571. Pediatric Pharmacotherapy (2 hours)

This elective course will provide students with an understanding of the health care needs of the pediatric patient. In addition, the students will develop the knowledge and skills to provide pharmaceutical care to pediatric patients in both ambulatory and inpatient settings. The course will focus on developmental stages of growth, common pediatric disease states, and specific pharmacotherapeutic considerations unique to the pediatric patients. The course will be taught through a combination of lectures and small case discussions.

PHA 572. Spanish for Pharmacists (2 hours)

This course is designed to give the student a solid basis in verbal communication in a pharmacy setting with patients who speak mostly or all Spanish. By speaking Spanish, students will be better equipped to provide pharmaceutical care to their Spanish-speaking patients. The primary focus of the course will be pharmacy specific terms, phrases and communication skills with a secondary emphasis on elementary and practical Spanish. In addition, the course will educate students about health beliefs and practices in Hispanic cultures.

Pharmacy Practice Experiences

Required Introductory Pharmacy Practice Experiences

Students are required to complete the following introductory practice experiences during the first, second, and third professional years. In addition to academic credit, the student receives internship credit at graduation towards pharmacy licensure. End of year examinations are a required component for successful completion of Practice of Pharmacy II, IV and VI. These examinations cover material from all required coursework in the current year. The results of the examination are used by the students for self-directed review.

PHA 371. Practice of Pharmacy I (2 hours)

This course is a combination of lectures, activities, assignments, laboratories, skills development, and assessments that are intended to provide reinforcement of concepts taught in the didactic portion of the curriculum. Continual assessment of basic knowledge and skills important to pharmacy practice and patient care will occur, as well as the application of skills necessary to provide pharmacy care.

PHA 372. Practice of Pharmacy II (2 hours)

This course is a combination of lectures, activities, assignments, laboratories, skills development, and assessments that are intended to provide reinforcement of concepts taught in the didactic portion of the curriculum. Continual assessment of basic knowledge and skills important to pharmacy practice and patient care will occur, as well as the application of skills necessary to provide pharmacy care.

PHA 473. Practice of Pharmacy III (2 hours)

This course is a continuation of the Practice of Pharmacy series of courses and

is a combination of lectures, activities, assignments, laboratories, skills development, and assessments that are intended to provide reinforcement of concepts taught in the didactic portion of the curriculum. Continual assessment of basic knowledge and skills important to pharmacy practice and patient care will occur, as well as the application of skills necessary to provide pharmacy care.

PHA 474. Practice of Pharmacy IV (2 hours)

This course is a continuation of the Practice of Pharmacy series of courses and is a combination of lectures, activities, assignments, laboratories, skills development, and assessments that are intended to provide reinforcement of concepts taught in the didactic portion of the curriculum. Continual assessment of basic knowledge and skills important to pharmacy practice and patient care will occur, as well as the application of skills necessary to provide pharmacy care.

PHA 575. Practice of Pharmacy V (2 hours)

This course is a continuation of the Practice of Pharmacy series of courses and is a combination of lectures, activities, assignments, laboratories, skills development, and assessments that are intended to provide reinforcement of concepts taught in the didactic portion of the curriculum. Continual assessment of basic knowledge and skills important to pharmacy practice and patient care will occur, as well as the application of skills necessary to provide pharmacy care.

PHA 576. Practice of Pharmacy VI (2 hours)

This course is a continuation of the Practice of Pharmacy series of courses and is a combination of lectures, activities, assignments, laboratories, skills development, and assessments that are intended to provide reinforcement of concepts taught in the didactic portion of the curriculum. Continual assessment of basic knowledge and skills important to pharmacy practice and patient care will occur, as well as the application of skills necessary to provide pharmacy care.

Advanced Pharmacy Practice Experiences

Students are required to complete seven advanced practice experiences during the fourth professional year. Students must have satisfactorily completed all required and elective courses in the professional curriculum to be eligible for fourth year standing and to start the advanced experience sequence. Advanced pharmacy practice experiences are preferentially assigned to students on normal academic progression. Students who interrupt their normal academic progression will be assigned to experiential sites as they become available. Exceptions may be made at the discretion of the Chairperson of the Clinical and Administrative Sciences department.

Specific practice experiences are required encompassing ten weeks of inpatient care, ten weeks of outpatient care and five weeks of institutional practice: Acute Care Section A and B, Primary Care Section A and B and the Advanced Institutional. Two practice experiences are elective. Each advanced pharmacy practice experience is 5 weeks in length, 40 hours weekly. The summer semester is also utilized for pharmacy practice experiences; students may be enrolled for one or both five-week sessions of the summer semester. The fall and spring semesters each consist of 3 five-week pharmacy practice experience blocks. In addition to academic credit, the student receives 1,000 hours of internship credit at graduation towards pharmacy licensure in Georgia. This number is different in other states.

During advanced pharmacy practice experiences, students will gain competency in the following areas: problem-oriented drug monitoring; therapeutic drug monitoring; medication histories; managing a patient's drug therapy; identification, resolution and prevention of drug-related problems; drug information/retrieval skills; application of knowledge of diseases and drug therapy to pharmaceutical care; consulting and counseling with health care professionals and patients; education of health care professionals; communication and presentation skills; and professional conduct.

Students are surveyed during the third professional year to determine elective preferences and eligibility for assignment. Assignments are made through an Internet based program which randomly assigns students based on site availability. All students must submit a 2" x 2" passport-type photo with their completed biographical sheet and survey form to the Director of Experiential Education prior to pharmacy practice experience assignments. College policy requires that all students have proper records of immunization and proof of current health insurance on file with Campus Health Care Services prior to any assignment to a patient care setting.

Students are assigned to fourth year practice experiences primarily within the Metropolitan Atlanta area. Mercer pharmacy students may also have an opportunity to complete all or part of their fourth year practice experiences at other locations in the Southeast. This offers students who come from these areas a chance to stay "close to home" and save on living costs. Examples of practice sites currently available include Albany, Augusta, Columbus, Dublin, Macon, Savannah, and Valdosta, Georgia; Chattanooga, Knoxville, Nashville, and TriCities area, Tennessee; Lexington and Louisville, Kentucky; and Ft. Lauderdale/Miami, Jacksonville, Orlando, Pensacola, Sarasota, and Tampa/St. Petersburg, Florida. Preference will be extended to those students with family or relatives in the area. Additional, practice experiences are available within the United States. Some examples include practice sites in Texas, Maryland, and Alaska. A complete list of sites available in the Experiential Education Office. Site availability is subject to change. Selection of students for these sites is competitive. Students requesting an out-of-town fourth year practice experience must have a GPA of 2.75 or better.

Four unique programs are available for practice experience outside the Southeast. Current sites for the Indian Health Service (IHS) Program are Gallup, New Mexico, San Carlos, Keams Canyon and Parker, Arizona. Students going to Parker, Keams Canyon and Gallup work as members of the health care team in a primary care clinic with IHS pharmacists, physicians, and nurses. This program is considered an Ambulatory Medicine practice experience. The program in San Carlos is primarily working with the pharmacy team and is considered an Advanced Community Experience. Students interested in participating in the Indian Health Service Program must have a GPA of 2.75 or better.

The International Pharmacy Program offers students an opportunity to gain insight into the health care system, practice of pharmacy, and pharmaceutical education in other countries. Approved practice sites are Australia, Japan, England, Denmark, Scotland and the Bahamas. Students interested in participating in the International Pharmacy Program must have a GPA of 3.0 or better.

Required Advanced Pharmacy Practice Experiences

Acute Care: Section A

PHA 670. Medicine (5 hours)

This required practice experience is designed to give the student a basic understanding of disease states encountered in internal medicine. This course will stress the application of therapeutics in patient care and require the student to develop skill in taking medication histories, monitoring patients, providing drug information, and patient education. This pharmacy practice experience is also designed to expose the student to the team concept of health care.

PHA 671. Cardiology (5 hours)

A practice experience designed to enable the student to acquire skills in the knowledge regarding basic principles of specific cardiovascular disorders, their treatment and care.

PHA 672. Critical Care (5 hours)

A hospital based experience designed to enable the student to acquire skills and knowledge regarding basic principles of specific critical care disease states and their treatment.

PHA 673. Inpatient Geriatrics (5 hours)

This practice experience is designed to give the student a basic understanding of disease states encountered in geriatric internal medicine. This course will stress the application of therapeutics in patient care and require the student to develop skill in taking medication histories, monitoring patients, providing drug information, and patient education. This pharmacy practice experience is also designed to expose the student to the team concept of health care.

PHA 684. General Clinical (5 hours)

This elective experience will expose the student to the broad-based daily duties often required of a clinical pharmacy coordinator in a hospital. The student, who should be self-motivated, will gain experience in at least four of the following six areas: Drug Information, Drug Usage Evaluation, Quality Assurance, Formulary Management, Pharmacokinetics, and Metabolic Support. Due to the nature of the above practice areas, the student will also gain experience in general internal medicine.

PHA 698. Emergency Medicine (5 hours)

This pharmacy practice experience is designed to give the student exposure to managing and monitoring emergency department patients.

Acute Care: Section B

PHA 674. Hematology/Oncology (5 hours)

This experience will enable the student to develop proficiency in the knowledge of neoplastic disease and rational therapy with oncological agents.

PHA 675. Infectious Diseases (5 hours)

A practice experience designed to enable the student to acquire skills and knowledge regarding basic pharmacotherapy of specific infectious diseases.

PHA 676. Neonatology (5 hours)

A hospital-based practice experience designed to enable the student to acquire proficiency and knowledge regarding basic principles of drug therapy in neonates.

PHA 677. Pediatrics (5 hours)

This practice experience is designed to enable the student to acquire skills and knowledge regarding basic principles of pharmacotherapy for common childhood diseases.

PHA 678. Psychiatry (5 hours)

A pharmacy practice experience designed to give the student in-depth exposure to the area of mental health. The student will work with other members of the health care team to monitor drug therapy of patients with psychiatric diseases or drug abuse problems.

PHA 679. Surgery (5 hours)

A hospital-based experience designed to enable the student to acquire proficiency in the basic principles of surgery and drugs used in surgical procedures.

PHA 691. Nutritional Support (5 hours)

This experience is designed to provide the student with the opportunity to gain knowledge, skills, and practical experience in basic nutritional principles, nutritional assessment, and management of the patient requiring enteral and/or total parenteral nutrition.

PHA 692. Pharmacokinetics (5 hours)

This elective is designed to give the student hands-on experience in the functioning of an established clinical pharmacokinetics practice and information on methods for establishing such a service. The student will assess the utility of population averages in predicting drug concentration and dosages as well as learn to base therapeutic recommendation on measured drug concentration. This clinical application learning experience is directed toward monitoring drug therapy based on patient response rather than the mere manipulation of numbers. Expertise in calculations is expected from previous coursework. The student may also have the opportunity to be involved in evaluating and monitoring patients for pharmacokinetic research.

Primary Care: Section A

PHA 681. Advanced Community (5 hours)

This required experience is designed to expose the student to a variety of patient-oriented services in community pharmacy practice. These services may include: (1) patient counseling on appropriate drug use, home diagnostic test kits, durable medical equipment; (2) monitoring therapy for safety and efficacy; (3) providing drug information to physicians and nurses; and (4) providing consultations on home health care and nursing home patients. This experience is designed to give the student further experience in documenting pharmaceutical care interventions in community pharmacy practice.

Primary Care: Section B

PHA 680. Ambulatory Care (5 hours)

This required practice experience will provide the student with the necessary assessment skills to implement and monitor cost effective drug therapy for safety and efficacy in the primary care and/or specialty clinic patient care environment.

PHA 685. Geriatric–Long Term Care (5 hours)

The advanced practice experience in Geriatrics is designed to provide the stu-

dent with an in-depth experience in the provision of pharmaceutical care to older patients and those requiring long term care services. The student will also be exposed to additional aspects of consultant pharmacy practice for institutionalized long term care and subacute patients.

PHA 687. Home Health Care (5 hours)

A home health care experience specializing in home infusion therapy. The student will gain experience working with pharmacists and nurses to care for the home patient. The student will be involved in preparation and monitoring of parenteral and enteral nutrition, antibiotics, cancer chemotherapy, specialty compounded drugs and home health aids.

PHA 690. Nuclear Pharmacy (5 hours)

This experience introduces the student to the practice of Nuclear Pharmacy and Medicine. The nuclear pharmacy experience will concentrate on pharmaceutical care and radiopharmaceutical compounding, quality assurance, health physics and regulatory compliance. The nuclear medicine experience will offer the student the opportunity to communicate with the nuclear medicine personnel and participate in the clinical use of diagnostic and therapeutic radiopharmaceuticals. The student will also gain experience in the area of health physics as it is practiced in the nuclear pharmacy and hospital.

PHA 699. Advanced Institutional (5 hours)

This required experience will expose the student to the broad-based daily duties often required of an institutional -based pharmacist. The student will gain experience in the dispensatory functions of a pharmacist in the hospital setting.

Elective Advanced Pharmacy Practice Experiences

PHA 661. Industrial Pharmacy Clinical Research (5 hours)

The industrial pharmacy advanced practice experiences are designed to provide those students interested in pursuing a career in the pharmaceutical industry with general knowledge and a high level of exposure to a variety of areas within the pharmaceutical industry. This practice experience is specifically designed to give the student experience in conducting clinical research and is designed for those students who believe they may want to pursue a career in this area.

PHA 662. Industrial Pharmacy Medical and Professional Services (5 hours)

This practice experience is specifically designed to give the student experience in conducting medical and professional services activities and is designed for those students who believe they may want to pursue a career in this area.

PHA 663. Industrial Pharmacy Marketing (5 hours)

During this advanced practice experience, the student will become a member of the Product Management Team to obtain a “working” knowledge of pharmaceutical marketing, involved in an array of activities from marketing plans to tactical tools to field communication. The student will in addition gain industry knowledge by learning about the pharmaceutical industry from a corporate perspective and interacting with or visiting various departments within the organization.

PHA 664. Industrial Pharmacy Sales (5 hours)

This practice experience is specifically designed to give the student experience

in conducting sales activities and is designed for those students who believe they may want to pursue a career in this area.

PHA 665. United States Public Health Service Centers for Disease Control and Prevention Drug Service (5 hours)

This experience will give the student a general understanding of public health issues and the many career opportunities available for pharmacists in the USPHS, the CDC, specifically the Drug Service Division.

PHA 666. The Agency for Toxic Substances and Disease Register (ATSDR) - Division of Toxicology (5 hours)

During this experience, the student will be introduced to ATSDR, a public health agency, whose mission is to prevent or mitigate adverse human health effects and diminished quality of life resulting from exposure to hazardous substances in the environment. The experience will also provide the student with a comprehensive overview of the impact and significance of toxicology and risk assessment principles and practices and how they influence the agency program areas and products.

PHA 668. Pharmacy Association Management (5 hours)

An elective experience which is designed to broaden the student's knowledge and understanding of Pharmacy Association Management. It is structured to provide experiences in national and state practice issues, education, member services, student development, policy and advocacy, and public relations. This experience is by application only and is available at various sites.

PHA 669. Pain Management/Palliative Care (5 hours)

This practice experience will enable to student to develop proficiency in the knowledge of pain management and other targeted symptoms commonly seen during end-of-life situations.

PHA 682. Academic Administration (5 hours)

An elective experience designed to stimulate the interest of pharmacy students in academia and provide the student with an understanding of the function and process of the academy. Through interviews with faculty, readings in the literature, participation in academic and administrative meetings, development of teaching materials with pharmacy faculty chosen as preceptors in the students' area of interest, the exploration of teaching methodologies and several "hands on" projects, the student is better able to evaluate the possibility of a career in academia as well as assume a position in academia. Students interested in participating in the Academic Administration advanced practice experience must have a GPA of 3.0 or better.

PHA 683. Drug Information (5 hours)

During this advanced practice experience, students will research drug information questions, prepare patient education materials, and contribute to the Center's healthcare professional newsletter to enhance their verbal and written communication skills. Through these activities, students will use Internet resources, secondary sources, professional medical/pharmacy journals, textbooks, online bulletin boards, subscription ROMdisk services and newsletters to develop a sense of where to look for specific types of drug information.

PHA 686. Health Outcomes Management (5 hours)

This practice experience is designed to provide the student with a basic under-

standing of health outcomes (clinical, economic, humanistic) focusing on pharmaco-economics and health care quality assessment. Didactic and practical experience in these core areas will expose the student to a variety of competencies utilized in a health outcomes research and consulting firm. The practice environment involves working directly with a number of managed care organizations, pharmaceutical manufacturers, pharmaceutical providers, pharmacy benefit managers and various other health care providers. The student will be exposed to and/or directly involved with the many steps in conducting quality focused, outcomes-based research — from proposal development to analysis and manuscript preparation.

PHA 689. International Pharmacy (5 hours)

An elective practice experience which is designed to broaden the student's knowledge about health care, pharmacy practice, and education specifically in another health care system. The students will spend five weeks in one of the approved sites for the international program (Denmark, England, Scotland, Japan, Australia, or the Bahamas). The practice will vary as the specialty (hospital, community, industry, or government). Assignment is competitive.

PHA 693. Poison Control (5 hours)

The student will gain practical experience in the regional Poison Control Center (PCC) at Grady Memorial Hospital. Initial orientation includes history, functions, duties, policies, and procedures of the PCC. Training includes history taking, creating a record, documentation, coding, and familiarization with poison prevention and toxicology as well as access to microfiche and text resources. The student will become an integral part of the PCC staff responding to questions on intentional and accidental poisonings of drugs, exposures to chemicals, and snake/insect bites from all over the Southeastern United States. Student will recommend antidotes, treatments, and referrals under the supervision of the Poison Control Center staff. Study topics in which the student has special interest or expertise will be assigned.

PHA 694. Prescription Benefit Management (5 hours)

The Prescription Benefit Management experience is designed to give the student general knowledge and a high level of exposure to a variety of activities conducted by a Prescription Benefit Manager. A Prescription Benefits Manager is responsible for managing the drug benefits for a health care plan. Specific activities include Formulary Management and Drug Utilization Review activities.

PHA 695. Advanced Psychiatry (5 hours)

A clinical research experience in psychiatry of child, adolescent or adult neuropsychiatry.

PHA 696. Research (5 hours)

The research experience will provide the student with the opportunity to participate in an ongoing research project and develop skills necessary for pursuit of graduate education, fellowship, or research-oriented career.

PHA 697. Substance Abuse (5 hours)

This experience is designed to expose the student to aspects of drug and alcohol abuse and the treatment most often used in a clinical setting. This experience will enable the student to learn more about the diagnosis, complications, and the management of addictive disease with drug therapy in today's health care environment.