COLLEGE OF PHARMACY

Sheila Mitchell (2007). Dean for the College of Pharmacy. B.S. and Pharm.D., University of Tennessee Health Science Center.

George DeMaagd (2008). Associate Dean for Academic Administration and Professor of Pharmacy. B.S., Western Michigan University; Pharm.D., University of Michigan.

Kim Madewell Jones (2007). Assistant Dean for Student Services and Associate Professor of Pharmacy. B.S., Middle Tennessee State University; Pharm.D., University of Tennessee College of Pharmacy.

Mark Stephens (2007). Assistant Dean, Experiential Education and Professor of Pharmacy. B.S. and Pharm.D., University of Tennessee College of Pharmacy.

Jodi Leke Taylor (2009). Chair, Pharmacy Practice and Associate Professor of Pharmacy. B.S., Middle Tennessee State University; Pharm.D., University of Tennessee.

Blake Watkins (2008). Chair, Pharmaceutical Sciences and Professor of Pharmacy. B.S., Union University; Ph.D., University of Georgia.

Sean King (2009). Director for the Center for Population Health and Rural Medicine and Associate Professor of Pharmacy. B.S., M.S., and Ph.D., University of Mississippi.

Kimberly Lindsey-Goodrich (2008). Director for Interprofessional Education and Associate Professor of Pharmacy. B.S. and Pharm.D., University of Tennessee.


Kristina Martin (2010). Director for Pharmacy Admissions. B.S.B, Murray State University.

Carol Courtner (2004). Coordinator of Continuing and Experiential Education, College of Pharmacy. B.S., Union University.

A list of faculty who teach in graduate programs is available online at www.uu.edu/academics/faculty/.
Available on the Jackson Campus

Union University’s Doctor of Pharmacy program is accredited by the Accreditation Council for Pharmacy Education (ACPE, www.acpe-accredit.org), the national organization that accredits Doctor of Pharmacy programs offered by Colleges and Schools of Pharmacy in the United States and selected non-U.S. sites. Questions about the status of the University’s accreditation may be posed to the Dean of the College of Pharmacy’s office (731.661.5958) or to ACPE (312.664.4652).

College of Pharmacy Vision

To transform students, patients, pharmacists, and community, through innovative pharmacy education and research in a Christ-centered environment.

College of Pharmacy Mission

To develop comprehensively trained, patient-centered practitioners of strong personal and professional character, equipped to meet the demands of an ever-changing health care environment.

College of Pharmacy Goals

The College of Pharmacy (COP) strives to fulfill its mission by:

• Promoting an excellence-driven academic culture that instills knowledge and advances understanding of the biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences,

• Providing a Christ-centered environment that focuses on the intellectual, spiritual, and moral development of students in committing themselves to the service and needs of society,

• Developing pharmacy students as practitioners who are people-focused, equipped to provide optimal care, in an interprofessional environment, based on evidence and best-practice standards, and

• Supporting an academic environment that fosters the future-directed growth of students and faculty as it relates to education, practice, research, and scholarship initiatives.

Educational Outcomes

1. Acquire, integrate, and apply knowledge from biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences to explain drug products and action, evaluate scientific literature, solve therapeutic problems, provide patient-centered care, and promote population health (1. Learner)

2. Identify problems (e.g., operational, research, clinical, business), explore and prioritize potential strategies, design and implement viable solutions, and evaluate outcomes (2. Problem Solver)

3. Collect and assess patient information and develop, implement, monitor, evaluate, and document a Pharmacists’ Patient Care Process (PPCP) in order to provide patient-centered care (3. Caregiver)

4. Identify and utilize human, financial, physical, and technological resources to optimize safety and efficacy of medication use systems (4. Manager)

5. Design and provide strategies in collaboration with other healthcare professionals for the prevention and management of chronic diseases and education of individuals and communities to improve health and wellness (5. Promoter)

6. Utilize population-based information and evidence-based best practices to provide patient-centered care (6. Provider)

7. Identify the learning needs of an individual or audience to determine effective ways to impart information and assess understanding (7. Educator)

8. Represent the interests of patients, patient populations, and the profession of pharmacy (8. Advocate)

9. Participate as an interprofessional healthcare team member to meet patient care needs (9. Collaborator)

10. Assess social and cultural influences on delivery and access to quality care (10. Includer)

11. Communicate in an appropriate manner when interacting with an individual or group (11. Communicator)

12. Examine and reflect on personal attributes that enhance or limit personal and professional growth (12. Self-aware)

13. Influence the development or attainment of shared goals, regardless of position (13. Leader)

14. Participate in activities using creative thinking to envision innovative ways of accomplishing goals (14. Innovator)

15. Exhibit behaviors and values that are consistent with tenets of the pharmacy profession (15. Professional)

Admissions Criteria

Students seeking admission to the College of Pharmacy should visit the College website at www.uu.edu/programs/pharmacy/admissions/.

Financial Information

Tuition is $34,450 per year with a $2,000 general student fee ($1,000/semester) for the Doctor of Pharmacy. Full payment for a term (Fall, Winter, Spring, Summer Semesters or other non-regular terms) is expected at the time of registration for classes. Audit of a course is $420/hr.

Laptop...............................................................actual cost*
Cap & Gown Purchase.............................approximately $80
Annual Background Check ......................approximately $150

All financial information is subject to change without notice.
Financial Assistance

Financial aid information for graduate students is available on our website at www.uu.edu/financialaid/graduate/. Generally, graduate students may be eligible for Federal Direct student loans or private alternative student loans, depending on the program of study and the eligibility of the borrower. Union University is also approved by the Department for Veterans Affairs to offer educational benefits to veterans, reservists, and dependents of veterans who qualify for Veterans Benefits. Any person who qualifies for VA Benefits should check with the Office of Student Financial Planning as soon as possible after acceptance into a graduate program.

Interprofessional Practice and Education (IPE)

Interprofessional practice and education is incorporated in various courses throughout the curriculum. Pharmacy students are provided multiple opportunities to learn about, from and with other healthcare professionals to gain an understanding of the roles and responsibilities of all healthcare providers and how interprofessional teamwork can improve patient outcomes. IPE enables future pharmacists to become collaborative practice ready providers.

Center for Population Health and Rural Medicine (PHaRM)

The purpose of the Center for Population Health and Rural Medicine (PHaRM) is to advance Union University’s ability to care for the underserved population of West Tennessee while broadening the interprofessional educational experiences of our students and other healthcare providers. Our mission includes affording students opportunities to provide more collaborative and patient-centered care in a structured, real-world setting. The Center achieves its mission through interprofessional learning experiences, community service learning experiences, clinical experiences, research, continuing education programs and simulation education.

Co-curriculum

The purpose of the co-curriculum is to provide students with co-curricular activities and learning experiences to complement and advance learning that occurs within the formal didactic and experiential curriculum of COP. There are five co-curricular educational outcomes, referred to as CEPHS. Each outcome is defined below.

1. C: Career Planning: Set goals in order to be residency or practice-ready upon graduation
2. E: Education: Gain knowledge and skills necessary for life-long learning and the provision of evidence-based patient care
3. P: Personal and Professional Growth: Develop self-awareness to foster personal maturation and professional growth
5. S: Service: Demonstrate selfless concern for meeting the needs of patients, the profession, and the community

The co-curriculum includes both required and optional expectations. Students must complete required activities in the indicated year (e.g., P1, P2, P3 or P4) in order to progress to the next cohort year. Students will also complete optional activities and must earn 8 points from optional activities in order to graduate. Students must earn 4 of 8 optional points by December 10th of the third year. Failure to do so may impede progression to APPEs. Optional activities may be completed at any time during the 4-year curriculum. Failure to complete required and/or optional co-curricular expectations will delay graduation.

Graduation Requirements

- Completion of the coursework for the Doctor of Pharmacy with a minimum cumulative grade point average of 2.33.
- Successful completion of 4-year co-curriculum.
- All didactic, experiential, and co-curricular course requirements must be successfully completed.
- File an application for graduation with the UUCOP Office of Student Services and the Academic Center.
- Pay in full the student’s account balance with the UUCOP Business Office.
- Discharge all other obligations ( fines, credentials, fees, etc.) at the University.

Course Requirements of the Doctor of Pharmacy—150 hours

I. Year One Courses: BIO/PHRM 505, 507, and 510; PHRM 700, 705, 710, 716, 718, 723, 726, 728, 729, 730, 731, 739; 752, 755, 763.
II. Year Two Courses: BIO/PHRM 514; PHRM 709, 733, 734, 735, 736, 738, 740, 741, 746, 750, 751, 764, 767, 773.
III. Year Three Fall Courses: PHRM 744, 760, 761, 765, 766, 768, 770, 772.
IV. Year Four Spring Courses: PHRM 774 and 775
V. Electives: 8 hours from PHRM Electives or other graduate elective courses as approved by the College of Pharmacy Curriculum Committee. 6 of the 8 hours must be designated as Board-preparatory electives. Students may take up to 4 hours of additional electives as part of their cohort tuition expense.
VI. Co-Curriculum: Students must complete required activities as outlined per cohort year. Also, students are required to earn 8 points from optional activities for co-curriculum completion. Optional activities can be completed at any time during the 4-year curriculum but a minimum of 50% of optional points must be earned prior to the start of APPEs.
VII. Experiential Education: Students must complete 10 advanced pharmacy practice experiences (APPEs). Six required APPEs include APPE 700, 710A, 710B, 720, 730A, and 730. Four additional APPEs are chosen by the student. No more than 2 non-direct care rotations are allowed.
Dual-Degree Option

Union University’s College of Pharmacy and the McAfee School of Business offer a dual degree option. Interested students enrolled in the Doctor of Pharmacy program may dually enroll in the MBA Program. Students will follow the curriculum as outlined below under Graduation Requirements but will also include an additional 24 hours of MBA core coursework. The remaining 12 hours of MBA coursework will be from the Pharm.D. program as approved by the College of Pharmacy: PHRM700; PHRM743; PHRM744; PHRM765; PHRM772; PHRM 759. Please see the Master of Business Administration section of the Graduate Catalog for MBA core coursework and prerequisite coursework. MBA core coursework can be done on either Union’s Jackson or Germantown campuses or a combination of the two. Please contact the MBA Director (731-661-5341) in the McAfee School of Business for any questions you may have regarding the Pharm.D. MBA Dual Degree Program.

Course Descriptions: Pharmacy (PHRM)

BPE: Board-preparatory elective
NBPE: Non board-preparatory elective

505. Applied Anatomy & Physiology I (3)
Reciprocal Credit: BIO 505
An intensive examination of the human body that addresses the normal complex physiological processes of the cell, fluids and electrolytes, acid-base balance, temperature regulation, vascular hemodynamics, mobilization of fluids through the body and lymphatic system, musculoskeletal systems and function of the myocardium. The acquired information will provide the student with a body of knowledge to critically evaluate co-existing conditions of the surgical patient.

507. Applied Anatomy & Physiology II (3)
Prerequisite: BIO 221 and 222
A continuation of 505 focusing on the normal complex physiological processes of blood components and coagulation and the respiratory, renal, endocrine, digestive and nervous system

510. Advanced Human Gross Anatomy (3)
Prerequisites: PHRM 505 & 507, or BIO 221 & 222.
Reciprocal Credit: BIO 510
This course will incorporate the dissection of cadavers and viewing of anatomical models in understanding the nervous, endocrine, cardiovascular, respiratory, digestive, and urinary systems of the human body. Additional emphasis is placed on the needs of professional health care personnel.

514. Immune Response to Infectious Disease (3) F
Reciprocal Credit: BIO 514
This course reviews the organisms associated with infections in human with application directed towards those most commonly encountered in the United States. This will be integrated with a study of the immune system, how the body responds to various types of infections, and relevant clinical treatment methods.

700. Introduction to Pharmacy (2)
Introduction to the practice of pharmacy for first year students including an introduction to the profession and its evolving opportunities, what a pharmacist is, their role in the various settings of the health care system including drug distribution, drug utilization and the use of technology and supportive personnel.

702. Ambulatory Care (2) (BPE)
An elective course designed to strengthen the student’s understanding of diseases or illnesses common in an adult ambulatory care practice. The course utilizes group discussion of primary literature and the development of clinical practice guidelines. Student presentations and other active learning activities will extend knowledge beyond that provided in previous coursework.

703. Introduction to Population Pharmacokinetics (2) (BPE)
This course provides students an introduction to the theory and methods of population pharmacokinetic and pharmacodynamics analysis with nonlinear mixed-effects models. The course includes hand-on modeling experiences and discussion of advanced topics such as Bayesian estimation, covariate analysis, and the role of computer simulation. Students will evaluate population pharmacokinetic literature and FDA guidance documents on related issues.

705. Pharmaceutical Calculations (2)
This course introduces the prescription, prescription notation and abbreviations, basic pharmaceutical calculations, statistics, and the mathematics of chemical kinetics and pharmacokinetics.

706. Advanced Cardiovascular Pharmacotherapy (2) (BPE)
An elective providing the student with a more thorough study of cardiology and cardiovascular topics in application of the therapies and techniques covered.

707. Pain Management (2) (BPE)
An elective course providing an introduction to pain management, including classifications, pain assessments, pharmacological and non-pharmacological treatment options of a variety of nociceptive and neuropathic pain syndromes (cancer pain, sickle cell disease, diabetic neuropathy, chronic pain syndromes, etc).
708. Self-Care/Counseling (2) (BPE)
An elective course covering common medical conditions eligible for patient self-treatment. Emphasizes appropriate selection of the lifestyle modifications and over-the-counter medications and devices that are most appropriate based on disease and patient factors. Also provides an opportunity for students to practice and demonstrate patient counseling techniques.

709. Drugs of Abuse (2)
A course examining current knowledge about drugs and substances of abuse or misuse. Emphasis will be given to societal issues and the role a pharmacist can play as a provider of drug facts and information.

710. Medical Terminology (1)
This course provides an introduction to the origin and definition of medical terms used in various healthcare settings. In addition, it provides an introduction into body structures, diseases, and treatments arranged in an organ system manner.

711. Heath Care and Missions (2) (NBPE)
This elective course provides students an opportunity learn about another culture and participate in a short-term health care mission trip. Students will learn to coordinate drug distribution, make pharmacotherapy recommendations within a limited formulary, and provide patient education in a setting with many communication barriers. Students, guided by faculty, will learn to provide patient care in this unique environment.

712. Oncology (2) (BPE)
Elective course to provide students advanced exposure to oncology building on topics in PHRM 761. Students are introduced to different malignant disease states and their common chemotherapeutics regimes, the principles of concern prevent and screening, pharmaceutical care to manage short and long-term side effects from cancer and treatments, and appropriate management and handling of cytotoxic medications.

713. Critical Care (2) (BPE)
Elective course designed to strengthen student's knowledge of common critical care topics with emphasis on applications of primary research in various disease states. The course will utilize group discussion of literature including reviews, guidelines, and primary research articles on selected topics in the area of critical care therapeutics. Students will give presentations to extend their knowledge beyond that provided in previous coursework.

714. Principles of Pharmaceutical Sciences (2)
An introduction to the chemical and physical properties of medicinal agents. It will provide a foundational understanding of key concepts in the pharmaceutical sciences in preparation for coursework in medicinal chemistry, pharmacology and pharmaceutics.

715. Advanced Pain Management (2) (BPE)
Elective course building on PHRM 707, an in-depth overview of pain management, including pain classifications, assessment, pharmacological and non-pharmacological treatment options of a variety of nociceptive and neuropathic pain syndromes.

716. Non-Prescription Drugs/Counseling (3)
Designed to acquaint students with indications, actions, possible adverse events and contraindications of non-prescription drugs with an emphasis on communication with patients and providers. Students will be evaluated on their ability to obtain medical histories and counseling skills.

717. Pharmacology Research (2) (NBPE)
An elective course designed to help students develop an understanding of the principles of toxicology through lectures, class discussion, and developing and giving oral presentations about current toxicological issues within the field of pharmacy.

718. Advanced Pharmacokinetics (2) (BPE)
Building on foundational principles, students will use analysis software to perform nonlinear regression of pharmacokinetic data. They will evaluate literature and become familiar with FDA guidance documents for clinical pharmacology and biopharmaceutics topics. Discussion will include advanced topics as optimal sampling design, pharmacokinetic clinical trial design, enterophepatic recirculation models and chronopharmacokinetics.

719. Drug Information and Informatics (3)
PHRM 723 covers the fundamental concepts of drug information practice, clinical trial design and analysis, and pharmacy informatics. It is designed to introduce key concepts and establish a basic knowledge and skillset. Future courses (e.g., PHRM 704, PHRM 772) will develop mastery of the interpretation of clinical data and application of the evidence in the delivery of individualized pharmaceutical care. This course also introduces a variety of topics related to the medication use system.

720. Diabetes Management (2) (BPE)
An elective course designed to provide students further exposure to diabetes topics including but not limited to: guidelines, drug selection algorithms, nutrition and insulin dosing, adjustment, and titration. Topics presented by lecture, discussion, and simulation.

721. Pharmacological Basis of Drug Action I (3)
Introduction course for first year students discussing drugs for cholinergic, adrenergic, cardiovascular, pulmonary and endocrine system. Drug class, mechanism of action, drug interaction and toxicities, pharmacodynamics and pharmacokinetics are discussed.
PHARMACY

727. Institute on Alcoholism and Drug Dependencies (2) (BPE)
This course serves as an introductory or refresher session and a networking opportunity to provide information, motivation and guidance for student pharmacists who currently participate in or wish to become involved in the planning, implementation, or strengthening of state-level and campus-level programs, to help and assist pharmacists or student pharmacists whose competence to perform their responsibilities has become impaired due to alcoholism or other drug dependencies by assisting them in finding treatment, ongoing recovery and reentry into the practice of pharmacy or their pharmacy education; and to better prepare attendees to provide appropriate assistance and support to clients affected by alcoholism and other drug dependencies. Students may only be enrolled in this course after acceptance into the Institute on Alcoholism and Drug Dependencies by the American Pharmacists Association and are only eligible to receive elective credit upon completion of the institute requirements and course requirements. Institute completion requirements include one week of on-site training in Salt Lake City at the University of Utah.

728. Chemical Basis of Drug Action I (3)
An introduction to the chemical and physical properties of medicinal agents through discussion of the relationships of structural properties of drugs to their pharmacological properties, absorption, distribution, metabolism, chemical activity, and mechanism of action.

729. Immunization Training and Certification (1)
The APhA certification course highlights the role of vaccines in the prevention of infectious diseases, the role of the pharmacist in promoting and providing vaccines to patients, and steps to implementing an immunization program into various pharmacy practice settings. Injection technique will be taught, practiced, and assessed.

730. Introduction to Community Practice (2)
This P-1 course is one of five designed to focus on the development of professional skills required for contemporary pharmacy practice. The primary emphasis will be on drug distribution in the community setting, communication skills and interprofessional patient care. During this 2-week (80 contact hours) rotation, students are exposed to the role and responsibilities of the pharmacist in community practice and the importance of the pharmacist in patient care.

731. Introduction to Institutional Practice (2)
This P-1 course is one of five designed to focus on the development of professional skills required for contemporary pharmacy practice. The primary emphasis will be on drug distribution in the institutional setting, communication skills and interprofessional patient care. During this 2-week (80 contact hours) rotation, students are exposed to the role and responsibilities of the pharmacist in institutional practice and the importance of the pharmacist in patient care.

732. Introduction to Medicinal Chemistry Research (2) (NBPE)
In this introductory experience, students will work with faculty to develop skills in computer-aided design of novel drug structures for specific therapeutic targets and in the laboratory to synthesize various structures for pharmacological testing and evaluation.

733. Pharmaceutics I (3)
An introduction to the scientific principles and regulatory issues of pharmaceutical dosage form and delivery system design, compounding, and use. An emphasis will be placed on solid dosage forms including powders, tablets, and capsules, as well as the biopharmaceutical principles of bioavailability and bioequivalence. This course includes laboratory experiences in compounding pharmaceutical dosage forms.

734. Pharmaceutics II (3)
A continuation of 733 to further the understanding of the scientific principles and regulatory issues of pharmaceutical dosage form and delivery system design, with an emphasis on liquid and semi-solid dosage forms. This course will emphasize oral, topical, transdermal, and parenteral routes of administration. The student will develop competency in compounding, proper aseptic technique, and preparation of sterile products with hands-on training in the laboratory.

735. The Union Pharmacist (2)
This course will serve to introduce students to concepts in moral reasoning that relate to key issues in pharmacy practice. Special considerations will be given to Christian perspectives and the course will emphasize attentiveness to differing moral perspectives through reflection and dialogue. Additionally, this course will focus on leadership and professionalism and their impact on personal and professional growth and patient care.

736. Drug Action II (4)
Integrated course of chemical and pharmacological basis of drug action for second year students discussing drugs for infectious diseases, endocrine, gastrointestinal, and inflammatory disorders. Drug class, mechanism of action, drug interaction and toxicities, pharmacodynamics and pharmacokinetics are discussed.

738. Drug Action III (4)
This integrated course will provide the student with an in-depth knowledge of the Chemical and Pharmacological basis of drug action for agents marketed to treat neurological disorders, psychiatric states, pain management and cancers. The Medicinal Chemistry component will include a comprehensive discussion of: the relationship between physico-chemical properties of drug molecules and their pharmacokinetic profile (drug absorption, distribution, metabolism, and excretion - ADME), chemical features of therapeutic agents required to elicit a desired therapeutic response (SAR), chemical basis of the mechanism of action of drugs, fundamental pharmacophores of drugs used to treat diseases, structural basis for drugtarget interactions, and chemical pathways of drug metabolism, clinically significant drug interactions and side effects. The pharmacology component will focus on comprehensive discussion of drugs mechanism
of action, pharmacological basis of drug selection, disease treatment, pharmacodynamics of drug action, absorption, distribution, metabolism, and elimination, adverse effects and side effect profile of drugs, drug-target interactions, drug-drug, drug-food, drug-disease interactions. This approach will provide a clear understanding of the available therapeutic agents and lay the foundation for the study and practice of the principles of pharmacotherapy.

739. Clinical Laboratory Medicine (1)
Basic laboratory tests used to diagnose disease and monitor disease progression and drug therapy. Students will learn to screen and evaluate patients using relevant clinical data.

740. Pharmacotherapy I (3)
This course focuses on drug therapy management of diseases and conditions associated with specific organ systems and will enable students to apply knowledge of pathology, pathophysiology, diagnosis, clinical presentation, classification, goals of therapy, non-pharmacotherapy, pharmacotherapy, considerations for special populations, and patient counseling to optimize patient outcomes. This course addresses medical conditions related to respiratory, gastrointestinal, and endocrinology disorders.

741. Pharmacotherapy II (3)
This course focuses on drug therapy management of diseases and conditions associated with specific organ systems and will enable students to apply knowledge of pathology, pathophysiology, diagnosis, clinical presentation, classification, goals of therapy, non-pharmacotherapy, pharmacotherapy, considerations for special populations, and patient counseling to optimize patient outcomes. This course addresses medical conditions related to cardiology.

744. Pharmacy Jurisprudence (2)
An overview of state and federal pharmacy practice laws that govern technician, pharmacy intern, and pharmacist practice and control the manufacturing, distribution, prescribing, and dispensing of drug products.

745. Medication Therapy Management (2) (BPE)
This course offers pharmacy students the opportunity to complete the coursework provided by the American Pharmacist Association for the Delivering Medication Therapy Management Services certification. In addition to completing this coursework, students will have the opportunity to perform practice MTM cases and to review problems commonly identified in medication therapy reviews. Following the elective course, students who choose to perform the necessary MTM cases will be awarded the APhA Delivering Medication Therapy Management Services certification.

746. Introduction to Community Practice II (2)
This P-2 course is one of five designed to focus on the development of professional skills required for contemporary pharmacy practice. The primary emphasis will be on drug distribution in the community setting, communication skills and interprofessional patient care. During this 2-week (80 contact hours) rotation, students will have the opportunity to build upon didactic courses and previous experiential rotations to further their knowledge and abilities to practice as pharmacists in the community setting.

748. Introduction to Institutional Pharmacy Practice II (2)
The 4th of 4 courses designed to focus on the development of professional skills required for contemporary pharmacy practice requiring 2 weeks/80 contact hours in an institutional or specialty practice setting exposing the student to the role and responsibilities of the community pharmacist and the importance of the pharmacist in patient care.

750. Pharmacotherapy III (3)
This course focuses on drug therapy management of diseases and conditions associated with specific organ systems and will enable students to apply knowledge of pathology, pathophysiology, diagnosis, clinical presentation, classification, goals of therapy, non-pharmacotherapy, pharmacotherapy, considerations for special populations, and patient counseling to optimize patient outcomes. This course addresses medical conditions related to infectious diseases. pathology, pathophysiology, diagnosis, clinical presentation, classification, goals of therapy, non-pharmacotherapy, pharmacotherapy, considerations for special populations, and patient counseling to optimize patient outcomes.

751. Pharmacotherapy IV (3)
This course focuses on drug therapy management of diseases and conditions associated with specific organ systems and will enable students to apply knowledge of pathology, pathophysiology, diagnosis, clinical presentation, classification, goals of therapy, non-pharmacotherapy, pharmacotherapy, considerations for special populations, and patient counseling to optimize patient outcomes. This course addresses medical conditions related to neurology, psychiatry and pain management.

752. Christian Faith and Pharmacy (2)
This course will give students a basic understanding of the Christian Faith as seen through the Old and New Testaments and its impact on the field of pharmacy.

753. Social and Behavioral Research Design I (2) (NBPE)
754. Social and Behavioral Research Design II (2)(NBPE)
A two-course elective sequence designed to provide students an opportunity to develop, conduct, analyze and defend a research project to students & faculty with basic concepts and techniques in social science research methodology, design and analysis and critical evaluation of quantitative and qualitative studies.
755. Principles of Drug Action (3)
This course is designed to provide students with a strong foundation in the function of biomolecules in disease and drug action. Students will gain an understanding of the structural and physical properties of proteins, nucleic acids, lipids, and carbohydrates, as well as pharmaceutical agents that bind to or influence these macromolecules in an effort to understand the functional role each plays in the management of disease states.

756. Pharmacy Management (2) (BPE)
This elective course covers a broad range of community pharmacy management topics, including scheduling, inventory, employment law, claims adjudication, and personnel issues. Special attention is also given to effective communication and conflict negotiation skills. In-class discussions, outside readings, special projects, and expert guest lecturers give students a well-rounded exposure to the roles and responsibilities of the community pharmacy manager.

757. Special Problems in Pharmacy (2) (NBPE)
The purpose of this elective course is to introduce students to the methods by which pharmacists investigate and propose solutions to pharmacy related problems. With the assistance and approval of the instructor, students will identify a pharmacy related problem(s). Student will have the opportunity to gather information including completing a literature search and present their findings in an oral or written format.

759. Population Health (2) (BPE)
This elective course is designed to introduce pharmacy students to the concepts and issues of population health as they relate to the practice of pharmacy. Students learn how population health concepts and issues are important in daily pharmacy practice, with an emphasis on applying the fundamental issues of population health, health promotion, disease prevention, and epidemiology within pharmacy practice through a case study approach. Population health topics as they relate to the pharmacy discipline are emphasized and include but are not limited to: providing population-based care, providing patient-centered care, promoting the availability of effective health and disease prevention services and health policy, research design, biostatistics, economics/pharmacoeconomics, epidemiology/pharmacoepidemiology, and professional communication.

760. Pharmacotherapy V (3)
This course focuses on drug therapy management of diseases and conditions associated with specific organ systems and will enable students to apply knowledge of pathology, pathophysiology, diagnosis, clinical presentation, classification, goals of therapy, non-pharmacotherapy, pharmacotherapy, considerations for special populations, and patient counseling to optimize patient outcomes. This course covers critical care/nutrition topics.

761. Pharmacotherapy VI (3)
This course focuses on drug therapy management of diseases and conditions associated with specific organ systems and will enable students to apply knowledge of pathology, pathophysiology, diagnosis, clinical presentation, classification, goals of therapy, non-pharmacotherapy, pharmacotherapy, considerations for special populations, and patient counseling to optimize patient outcomes. This course addresses medical conditions related to oncology, men’s and women’s health, toxicology, and rheumatic diseases.

762. Infectious Disease (2) (BPE)
This elective course is designed to strengthen the student’s knowledge of infectious disease topics with emphasis on application of primary research and current guidelines in various disease states. The course will utilize group discussion of primary literature including reviews, guidelines and primary research articles on selected topics in the area of infectious disease therapeutics. Students will also give presentations on other related topics that will extend their knowledge beyond that provided in previous coursework.

763. Top 100 Drugs and Patient Counseling (2)
The purpose of this course is to provide first semester doctor of pharmacy students with an overview of some of the most commonly prescribed drugs in the US during the past year and basic skills required to effectively communicate drug information to patients.

764. Pharmaceutics I Lab – Compounding (1)
This lab course is designed for PY2 students to apply some of the basic principles and concepts they learned from physical pharmacy (Pharmaceutics 1) as a means of performing pharmaceutical compounding. This course will emphasize an understanding of the formulation and physiological factors involved in the delivery and absorption of drugs through a variety of routes of administration and dosage forms. The formulation, stability, and packaging of various dosage forms will be studied. Students will learn and experience preparing some traditional solid dosage forms like tablets, capsules, powders, lozenges, and suppositories. It will also emphasize the preparation of some liquid dosage forms including solutions and suspensions. Semi-solids such as creams, pastes, ointments and emulsions will also be emphasized and prepared in the lab. Additionally the student will also utilize and apply their pharmaceutical calculation skills, which they began acquiring or developing from the previous year. For example in a compounding pharmacy, the pharmacists must know and frequently perform the necessary mathematical calculations to determine the amount of active pharmaceutical ingredients (API) and excipients needed to prepare and produce a particular dosage form and product strength. Furthermore the pharmacist must also understand how to perform the calculations necessary for evaluating and determining drug encapsulation efficiency, product weight uniformity, and drug release rate from the prepared product. Accuracy (and or proficiency) of interpretation of a prescription and subsequent processing of the product label will be covered as well.
765. Pharmacoeconomics and Health Systems Management (2)
Concepts and theories of pharmacoeconomics and human resource management in all pharmacy practice settings: planning, implementation, and analysis processes as related to personnel along with fiscal management at the systems, pharmacy and patient level.

766. Patient Assessment and Interviewing (2)
Hands-on opportunity for students to apply concepts of physical assessment and interviewing in a clinical laboratory environment. Students will be able to assess response to drug therapy by combining physical assessment with patient interviewing and will also develop their skills in communicating with patients.

767. Applied Therapeutics with IPE I (1)
768. Applied Therapeutics with IPE II (1)
These P-2 and P-3 courses are two of five designed to focus on the development of professional skills required for contemporary pharmacy practice. Students are placed in the clinical environment to introduce the concepts of pharmaceutical care prior to advanced pharmacy practice experiences. Students will have Opportunities to have direct patient contact and participate in interprofessional patient care; with these interactions and patient review, students will then present patient cases and therapeutic plans during small group recitations. Simulated patient cases will also be utilized where students can evaluate patients and provide therapeutic recommendations in the simulation lab.

770. Pharmacokinetic Principles and Application (4)
This course introduces pharmacokinetic principles and therapeutic drug monitoring. Students will gain an understanding of the absorption, distribution, metabolism and elimination of drugs, focusing on quantitative aspects of these processes. Pharmacodynamic and clinical implications will be explored, including how to formulate appropriate dosing regimens based on patient specific physiological and environmental factors. Pharmacokinetic variability caused by differences in intrinsic and extrinsic factors will be discussed. Didactic course work will be further emphasized via clinical cases in a laboratory setting.

771. Critical Review of Drugs (2) (BPE)
This inter-disciplinary science-based 2-credit hour elective will involve a critical analysis of drugs of interest. This active learning exercise will provide the PharmD candidate with an opportunity to review, integrate and apply basic concepts, principles and their knowledge of Medicinal Chemistry, Pharmacology and Pharmacotherapeutics to perform a thorough analysis of drug related scientific literature and experimental data. Key areas of review will include Brand and Generic drug names, Chemistry (Pharmacophores, SAR and Physicochemical properties), Pathophysiology, Mechanism(s) of action, FDA approved indications, Metabolic Outcomes, Drug Interactions, Adverse effects and Boxed warnings. The course is primarily discussion based with student led presentations on drugs assigned to them.

772. Literature Evaluation (2)
PHRM 772 builds on the principles introduced in PHRM 723. During the Course, faculty and students will discuss selected clinical trials, relevant principles of study design, and primary medical literature evaluation. The emphasis will be on training students in the interpretation and critical analysis of biomedical literature for the purpose of developing evidence-based care recommendations for a given patient or patient population.

773. Pharmaceutics II Lab – Sterile Products (1)
This lab course is designed for PY2 students to apply some of the basic principles and concepts they learned from Pharmaceutics I and Pharmaceutics II and other clinical pharmacy courses as a Union University College of Pharmacy means of performing pharmaceutical compounding. This course will emphasize all sterile dosage forms including parenteral, otic, inhalational and ocular dosage forms. This course will provide hands-on training as students will work in a sterile environment with a laminar flow hood. Students will demonstrate aseptic technique and necessary safety precautions when compounding piggyback medications, large volume fluids, parenteral nutrition, and sterile irrigation solutions. Students will prepare various drug products and apply appropriate labels. Students will be introduced to USP Chapter <797> and OSHA standards for safety. Moreover the student will also utilize and apply their pharmaceutical calculation skills, which they began acquiring or developing from the previous year. There will be a comprehensive review of all pharmaceutical and clinical calculations. Students will demonstrate how to perform various calculations necessary on the rate and volume of drug administration.

774. Clinical Foundations (2)
This course is designed provide an update and systematic review of key disease states and related drugs. Students will be required to demonstrate competency in their knowledge of the Top 300 drugs and application of these drugs to the clinical management of commonly encountered diseases.

775. Pharmacy Foundations (2)
This course is designed provide an update and review of key foundational concepts in the pharmaceutical sciences. This includes, but is not limited to, pharmaceutical calculations, pharmacokinetics, pharmaceutics, medicinal chemistry, pharmacology, and pharmacy administration.

776. Internal Medicine Pharmacotherapy (2) (BPE)
This course is designed strengthen the student’s knowledge of general internal medicine topics with emphasis on application of primary research and current guidelines in various disease states. The course will utilize formal lectures as well as group discussion of primary literature including reviews, guidelines and primary research articles on selected topics in the area of internal medicine therapeutics. Students will also give presentations on other related topics that will extend their knowledge beyond that provided in previous coursework.
777. Pediatric Pharmacotherapy (2) (BPE)
This course will provide pharmacy students with a didactic learning experience that will develop a solid foundation in pediatric pharmacy. During this elective, students will develop and refine their clinical skills that will enhance future rotations, especially in the field of pediatrics. The student will become familiar with common pediatric disease states and therapies.

778. Drug-Induced Diseases (2) (BPE)
This is an elective course designed to help students understand the prevention, detection, and management of drug induced diseases in an organ system specific manner. The goal of this course is to prepare students to recognize some of the most common and serious drug induced conditions and have awareness of the possible causes. The course will provide the basis for the evaluation and monitoring of these adverse effects. This course will also explore the FDA approval process, principles of medication safety, and their impacts on healthcare. Evaluation of student’s performance will be achieved through presentations, quizzes, exams, and class participation.

779. External Domestic Study Programs (1-4)
All courses and application to the program must be defined prior to travel.

779PF. External Domestic Study Programs (Pass/Fail) As Needed
All courses and their applications must be defined and approved prior to registering.

780. Study Abroad Programs (1-4)
All courses and application to the program must be defined prior to travel.

780PF. Study Abroad Programs (Pass/Fail) As Needed
All courses and their applications must be defined and approved prior to travel.

781. Advanced Self-Care (2) (BPE)
This is an elective course designed to help prepare the student for practice in all areas of pharmacy with a focus on retail or ambulatory care settings. The goal of this course is to produce pharmacists who are able to assist patients with safe and effective self-care decisions and communicate recommendations appropriately. It will cover disease prevention and review common conditions that can be treated with non-prescription medications or herbal products with a focus on identifying whether a patient is eligible for self-care, selecting the most appropriate non-prescription treatment (pharmacological and/or non-pharmacological), and providing appropriate counseling.

782. Women’s Health (2) (BPE)
This is an elective course designed to provide the student learning opportunities covering women’s health topics. This course will emphasize practice in the ambulatory care setting; however, the student should be able to translate the knowledge gained into all pharmacy practice areas. The goal of this course is to prepare students to recognize gender differences over the lifespan of a woman in regards to health conditions and medication management. It will cover gender differences in regards to disease risk, prevention, and management and use of medication (complementary and alternative medicine, pregnancy and lactation, contraception, infertility, and menopause).

783. Medical Mission Team Leadership (2) (NBPE)
This is an elective course designed to help prepare the student for practice in all areas of pharmacy with a focus on retail or ambulatory care settings. The goal of this course is to produce pharmacists who are able to assist patients with safe and effective self-care decisions and communicate recommendations appropriately. It will cover disease prevention and review common conditions that can be treated with non-prescription medications or herbal products with a focus on identifying whether a patient is eligible for self-care, selecting the most appropriate non-prescription treatment (pharmacological and/or non-pharmacological), and providing appropriate counseling.

785. Special Studies in Pharmacy (1-6)
Group studies which do not appear in the College course offerings. Content will be determined by need.

795. Independent Study in Pharmacy (1-3)
Individual research and study under the guidance of a pharmacy faculty member.

Advanced Pharmacy Practice Experience (APPE)
Each Advanced Pharmacy Practice Experience (APPE) is designed to offer the student advanced experience in unique and progressive pharmacy practice settings. Students are exposed to the role and responsibilities of the pharmacist in practice and the importance of the pharmacist in direct or indirect patient care. Students will be expected to hone practice skills, professional judgement, behaviors, attitudes and values, confidence, and a sense of personal and professional responsibility to practice both independently and collaboratively in an Interprofessional, team-based care environment. Courses are taught by full-time faculty members or by practicing pharmacists appointed by the University as Clinical Preceptors. APPEs take place at approved institutions and pharmacies. Most sites are located in West Tennessee; however the College has approved over 400 clinical preceptors working at 300 sites in 30+ states across the nation.
Each course will be completed during a calendar month; rotations usually begin on the first and end on the last weekday of the month. The typical work week consists of 40 hours Monday-Friday; however evening and weekend hours are permitted. Students are expected to work a minimum of 160 contact hours during the rotation; exact schedules will be set by the Clinical Preceptor.

Doctor of Pharmacy students are required to complete ten APPE courses. APPE courses cannot begin until the student has completed all required didactic courses and introductory pharmacy practice experiences.

Students must complete six required APPE courses, which include the following:

- APPE 700. Advanced Institutional Practice
- APPE 710A. Advanced Chain Community Practice
- APPE 710B. Advanced Independent Community Practice
- APPE 720. Ambulatory Care (any section)
- APPE 730A. Internal Medicine
- APPE 730. (any section)

Students must complete four elective APPE courses, which include the following:

- APPE 710. (Any section, limited to one course in addition to the required courses stated above)
- APPE 730. (Any section, not limited in number of courses)
- APPE 740, 750, or 770. (Any section, limited to two courses)

700. Advanced Institutional Practice (4)

A required course designed to offer the student advanced experience in an institutional pharmacy practice setting. Students will be expected to apply knowledge and skills learned during the experience and previously in the curriculum in order to accurately and efficiently fill prescription orders; comply with state and federal laws as well as regulations from accrediting agencies; collect patient specific information for the development of an evidence-based treatment plan; respond to drug information questions; communicate effectively, orally and in writing, with patients, caregivers, and other health professionals; and conduct themselves in a professional manner.

710. Advanced Community Practice (4 each)

Two APPEs in this section are required courses, 710A and 710B. One additional course can be taken as an elective course. Each course is designed to offer the student advanced experience in various community pharmacy practice settings. Students are expected to apply knowledge and skills learned during the experience and previously in the curriculum in order to accurately and efficiently fill prescription orders; collect patient specific information for medication therapy management (MTM); appropriately document MTM and related activities; respond to drug information questions; communicate effectively, orally and in writing, with patients, caregivers, and other health professionals; manage a pharmacy practice; and conduct themselves in a professional manner. Course are repeatable for credit.

710A. Advanced Chain Community Practice
740. Practice Management (4 each)
These Advanced Pharmacy Practice Experiences (APPEs) are elective courses designed to offer the student advanced experience in the management of pharmacy practice in various settings. Students are expected to apply knowledge and skills learned during the experience and previously in the curriculum in order to manage inventory; contracts; reimbursement; data; risk; and human resources, including scheduling, salaries, and performance evaluations.
   740A. Institutional Practice Management
   740B. Community Practice Management
   740D. Management Clinical Practice
   740E. Pharmacy Association Management

750. Specialty Pharmacy Practice (4 each)
These Advanced Pharmacy Practice Experiences (APPEs) are elective courses designed to offer the student advanced experience in various specialty pharmacy practice settings. Students are expected to apply knowledge and skills learned during the experience and previously in the curriculum in order to accurately and efficiently communicate with patients, caregivers, and health care professionals; collect and analyze patient information for the development of an evidence-based treatment plans in the various practice settings; respond to drug information questions; and conduct themselves in a professional manner.
   750A. Home Infusion
   750C. Managed Care
   750D. Sterile Products
   750E. Pharmaceutical Industry/Medical Affairs
   750F. Drug Information
   750G. Medication Safety
   750J. Pharmacy Compounding
   750K. Nuclear Pharmacy Practice
   750M. Specialty Pharmacy Practice
   750N. Pharmacy Informatics
   750P. Medical Missions
   750R. Veterinary Pharmacy Practice
   750S. Pharmacy Telemedicine

770. Pharmacy Research (4 each)
These Advanced Pharmacy Practice Experiences (APPEs) are elective courses designed to offer the student experience in conducting scientific research in a particular discipline. Students interested in completing any of these courses should consult with the course coordinator prior to registration.
   770A. Drug Design and Synthesis
   770B. Pharmacology Research
   770C. Pharmaceutics Research
   770D. Pharmacy Administration
   770E. Pedagogy