DOCTOR OF PHARMACY
SCHOOL OF PHARMACY

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 School of Pharmacy’s office (731.661.5958) or to ACPE (312.664.4652).

Mission Statement

The mission of the Union University School of Pharmacy is to develop compassionate, comprehensively trained practitioners who are equipped to meet the immediate and future demands of pharmaceutical science and patient care in an ever changing health care environment.

The vision of the Union University School of Pharmacy is to:

- Promote an excellence-driven academic culture that instills knowledge and advances understanding of biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences.
- Provide 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.
- Develop pharmacy students as practitioners who are people-focused in providing optimum interdisciplinary care based on evidence and best-practice standards.
- Support an academic environment that fosters the future-directed growth of students and faculty as it relates to education, practice, research, and scholarship initiatives.

Program Outcomes

- Provide compassionate patient-centered care to patients from various socio-economic and cultural backgrounds
- Solve patient-care problems and develop appropriate pharmacotherapy plans via evidence-based decisions
- Successfully manage a patient-centered practice, including the management of personnel
- Provide pharmaceutical care, including the development of disease state management programs
- Provide appropriate health and wellness services to the patients for which they provide care
- Communicate appropriately with patients, their family members and other health professionals
- Function as members of interdisciplinary patient care teams
- Effectively evaluate professional literature and use these findings to improve patient care
- Utilize informatics as appropriate throughout their practices
- Practice in a legal and ethical manner

Graduate Program Admission Requirements

The pre-professional educational design for candidates applying to the School of Pharmacy is based on college-level course work in the areas of basic chemistry, biological and physical sciences, mathematics, information technology, and general education courses in the humanities and behavioral/social sciences. Pre-pharmacy course work must be distributed as follows:

Course Semesters

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology or Zoology</td>
<td>2</td>
</tr>
<tr>
<td>General Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>Organic Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>Human Anatomy and Physiology</td>
<td>2</td>
</tr>
<tr>
<td>Physics I</td>
<td>1</td>
</tr>
<tr>
<td>Microbiology</td>
<td>1</td>
</tr>
<tr>
<td>Calculus</td>
<td>1</td>
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<tr>
<td>Statistics</td>
<td>1</td>
</tr>
<tr>
<td>Written Composition</td>
<td>2</td>
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<tr>
<td>Communications/Speech</td>
<td>1</td>
</tr>
<tr>
<td>Humanities Electives</td>
<td>2</td>
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<tr>
<td>Social Sciences Electives</td>
<td>2</td>
</tr>
<tr>
<td>General Electives</td>
<td>1</td>
</tr>
</tbody>
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Admission to the Union University School of Pharmacy is by committee action, based on the overall record and aptitude of the applicant. A minimum grade point average of 2.75 on a 4.0 scale is required for pre-pharmacy course work with a grade of “C” or higher for each required pre-pharmacy course. The cumulative grade point average, pre-pharmacy and elective course work, must be a minimum of 2.5. All candidates are required to take the Pharmacy College Admission Test (PCAT). Three references along with a writing sample must also be submitted. During the on-site interview, the candidate will be asked to provide a writing sample. Interviews are conducted by invitation only. While there is a priority deadline of March 1 of the year in which admission is desired, applicants are encouraged to apply early, as space is limited, and applications will be reviewed on a rolling basis. The School of Pharmacy admits only one class per year in the Fall Semester.

It is strongly recommended that candidates for the program gain work experience in a pharmacy practice setting prior to application.

Transfer of Courses

In keeping with the policies and procedures of ACPE accreditation, The School of Pharmacy will accept only transfer credit from an ACPE-accredited professional degree program. All applications for transfer will be considered on a case-by-case basis.
Progression of Students

A period of academic probation includes the semester immediately following successful completion or successful remediation of the deficient course. The student will be notified by the Academic Standing and Progression Review (ASPR) subcommittee when the academic probationary period ends. Each semester that the student meets conditions for probation will count as a separate probationary period. Academic probation will be imposed upon a student when the student’s academic performance meets any of the following conditions:

1. The cumulative grade point average earned at the conclusion of any semester, including the first semester, is less than 2.33.
2. The grade point average earned for any one semester is less than 2.00.
3. A student receives a grade of “F” in any required course. Additionally, students with outstanding deficiencies in the professional curriculum (incomplete or “F”) may not attend courses in the next semester without affirmative action by the Academic Standing and Progression Review subcommittee.

A student will be subject to a dismissal recommendation when any one or more of the following conditions are met:

1. A period of probation is imposed for a second time and the cumulative grade point average is less than 2.33. These probationary periods do not have to be sequential semesters.
2. A period of probation is imposed for a third time, regardless of the cumulative grade point average.
3. A student who receives two or more grades of “F” in required courses, regardless of the cumulative grade point average.

Students may appeal in accordance with procedures detailed under “The Appeal Process” in the Campus Life Handbook.

Remediation

Didactic

For students who meet defined criteria, The ASPR subcommittee will consider allowing remediation and the opportunity to continue progression through the curriculum despite setbacks in didactic courses. The following courses cannot be remediated and therefore, must be repeated: IPPEs, APPEs, introductory and advanced didactic electives. Students will be charged for remediation or retake of any course during the didactic or experiential component of the curriculum.

Process for Remediation

The ASPR subcommittee will communicate with the Course Coordinator regarding the feasibility of remediation. Students should not discuss remediation with the Course Coordinator prior to the meeting with ASPR. The student will be notified of an academic deficiency and the need to come before the ASPR subcommittee by phone or email. This meeting will allow the student to explain and clarify the situation. The ASPR subcommittee will make a decision on the student’s case. Depending on the subcommittee decision, the action will be communicated to the student during the meeting or by certified mail and/or email.

Students have the right to appeal the decision made by ASPR as outlined in the Progressions policy in the School of Pharmacy Supplement to the Campus Life Handbook.

Qualifications for Remediation

Remediation will be considered if the student meets the following criteria:

1. The student has a final percentage average ≥59.5%. Students whose average is below 59.5% may not be required to repeat the course in its entirety.
2. The student’s semester grade point average is >2.00 and overall academic grade point is ≥2.33 on a 4 point scale.
3. The student must have no academic misconduct violations.
4. The student must not have remediated more than once previously.

In addition to the above noted criteria, students must also acknowledge and agree to the following:

1. The objectives and course content will be determined by the Course Coordinator and may include all original objectives and content or may be a section or specific module of the original course or an alternative course determined by the Course Coordinator. The delivery or format methods for the remedial course will be at the discretion of the course instructor(s) and/or Course Coordinator(s) and may include a variety of options.
2. Course evaluations and assessments are likely to be different from those used in the original course and are up to the discretion of the course instructor or coordinator. Options may include:
   • Single comprehensive examination in which the student must receive a course grade of ≥69.5%.
   • Other course instructor-designed assessments with a score of ≥69.5%.
3. Agree to keep all appointments with faculty and meet all deadlines with the understanding that failure to do so could result in failure of the course.
4. Agree to pay the appropriate tuition and fees, with no opportunity for a refund.
5. Failure in this remedial course will count as failure similar to any other course with respect to the student’s official transcript, calculation of the cumulative grade point average, and academic standing.
6. Both course grades will appear on the transcript and will be used in calculation of the student’s cumulative grade point average. Academic standards are in place and failure a second time in the course(s) may have serious consequences and may result in dismissal from the program.
7. Remediation is not a guaranteed right of the student and should be regarded as a privilege, which must be earned by a student through active participation in the educational program as demonstrated by regular class attendance, individual initiative, and utilization of available academic resources. Students should recognize that the need to remediate coursework may delay the timetable for their graduation from the Pharmacy program.

Financial Information

Tuition is $32,300 per year with a $1,800 general student fee ($900/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.

Application Fee ........................................ $50
Laptop .................................................... actual cost*
Cap & Gown Purchase ......................... approximately $80

Books will cost approximately $300 per semester for Years 1-3 and are available for purchase from LifeWay Christian Stores.

*See the Pharmacy Student Handbook for specifications and for possible commercial discounts to UU Pharmacy students.

All financial information is subject to change without notice.

Federal Stafford Loan

The Stafford loan application process will require that you:
1. Complete and forward the FAFSA (Free Application for Federal Student Aid) to the federal government with Union University's code of 003528.
2. Complete a Union Financial Aid Application and a Stafford Master Promissory Note and forward to the Union University Student Financial Planning Office.
3. For more information, contact the Student Financial Planning Office at 731-661-5015.

If Federal Stafford loan is not approved and available at the time of registration, the student must assume the cost by paying in full by check, cash, credit card, or FACTS.

Acceptance Deposits

The Doctor of Pharmacy requires a $1,000 tuition deposit. This deposit is non-refundable if the student elects not to enroll.

Graduation Requirements

• Completion of the coursework for the Doctor of Pharmacy with a minimum cumulative grade point average of 2.33.
• File an application for graduation with the Doctor of Pharmacy program office by February 20 for a May graduation.
• Pay in full the student’s account balance with the Business Office.
• Discharge all other obligations (fines, credentials, fees, etc.) at the University.

Course Requirements of the Doctor of Pharmacy—151 hours

I. Year One Courses: BIO/PHRM 505, and 510; CHE 507; PHRM 700, 705, 710, 716, 718, 723, 726, 728, 729, 730, 731, 739; 752, 755, 763.
II. Year Two Courses: BIO/PHRM 514; PHRM 704, 733, 734, 736, 738, 740, 741, 743, 744, 746, 750, 751, 764, 767, 773.
III. Year Three Fall Courses: PHRM 760, 761, 765, 766, 768, 770, 772.
IV. Year Four Spring Courses: PHRM 774 and 775
V. Electives: 10 hours from PHRM Electives or other graduate elective courses as approved by the School of Pharmacy Curriculum Committee.

Dual-Degree Program

Union University's School of Pharmacy and the McAfee School of Business Administration offer a dual degree program. 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 School of Pharmacy: PHRM700; PHRM743; PHRM744; PHRM765; PHRM772; PHRM Elective/Public Health. 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.

Center for Interprofessional Education/Population Health and Rural Medicine (IPE/PHaRM)

The purpose of the Center for Interprofessional Education/Population Health and Rural Medicine (IPE/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.
Course Descriptions: Biology (BIO)
505. Applied Anatomy & Physiology I (3)
Reciprocal Credit: PHRM 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
Reciprocal Credit: PHRM 507
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: PHRM 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.

Course Descriptions: Pharmacy (PHRM)
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
Reciprocal Credit: BIO 507
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.

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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)
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)
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 hands-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.

704. Applied Drug Information (1)
PHRM 704 provides hands-on drug information training and serves as a competency assessment of drug information skills learned in PHRM 723. In this course, the students' ability to manage drug information questions (i.e., their drug information skills) and their finished work will be guided and evaluated.

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)
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)
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)
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)
An elective 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)
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)
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 regimens, 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)
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. Pharmacology Research (2)
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.

715. Pharmacology Research (2)
An elective course providing an introduction to pain management, including pain classifications, assessment, pharmacological and non-pharmacological treatment options of a variety of nociceptive and neuropathic pain syndromes.

716. 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.

717. Advanced Pain Management (2)
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.

718. 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.

719. Pharmacology Research (2)
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.

720. Advanced Pharmacokinetics (2)
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.

721. 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.

722. Diabetes Management (2)
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.

723. 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.
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 (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)
A P-1 component of five IPPE courses designed to focus on the development of the professional skills required for contemporary pharmacy practice. Students will spend 2 weeks (80 hours) in a community practice setting and gain exposure 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)
Building on PHRM 730, this P-1 course is designed to focus on the development of professional skills required for institutional pharmacy practice. Students will spend 2 weeks (80 hours) in a hospital practice setting and gain exposure to the role and responsibilities of the pharmacist in hospital practice. Students will focus on the importance of the pharmacist in patient care.

732. Introduction to Medicinal Chemistry Research (2)
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.

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 drug-target 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.
742. Student Leadership Development (2)
This elective course provides an intentional focus on fostering the development of leadership (both positional and non-positional) in students and individual commitment to excellence through a series of active learning exercises.

743. Moral Reasoning in Healthcare (2)
PHRM 743 will serve as an introduction to moral reasoning regarding key issues in pharmacy practice and emphasize attentiveness to differing moral perspectives and thoughtful reflection and conversation about them. Special consideration will be given to Christian perspectives on moral issues in pharmacy practice.

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) Su
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 Pharmacy Practice II (2)
A P-2 IPEE course designed to focus on the development of professional skills required for contemporary pharmacy practice. This course provides 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.

747. Social and Behavioral Research Design I (2)
A two-course elective sequence designed to provide students with 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.

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.

749. 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.

750. 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.

751. Christian Faith and Pharmacy (2) F
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.

752. Social and Behavioral Research Design II (2)
A two-course elective sequence designed to provide students with 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.

753. Social and Behavioral Research Design I (2)
A two-course elective sequence designed to provide students with 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.

754. Social and Behavioral Research Design II (2)
A two-course elective sequence designed to provide students with 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) F
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) F
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) S
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.
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.

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.

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.

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.

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.

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 and know 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.

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.

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.

This course introduces the concepts of pharmaceutical care prior to advanced pharmacy practice experiences by placing students in the clinical environment. Students will have the opportunity to have direct patient contact, and will present patient cases during small group recitations. Students will also provide therapeutic recommendations during simulated patient cases 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)
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 / Landmark Trials (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 School 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) S
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) S
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, pharmacodynamics, medicinal chemistry, pharmacology, and pharmacy administration.

776. Internal Medicine Pharmacotherapy (2) F
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) S
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) S
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.

780. Study Abroad Programs (1-4)
All courses and application to the program must be defined prior to travel.
781. Advanced Self-Care (2) S
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) Su
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) S
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 School 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)

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
710B. Advanced Independent Community Practice
710D. Community Practice for Medically Underserved
710E. Community Institutional Outpatient Pharmacy

720. Ambulatory Care (4)
This Advanced Pharmacy Practice Experience (APPE) is a required course. The course is designed to offer the student advanced experience in an ambulatory care pharmacy practice setting. Students are expected to apply knowledge and skills learned during the experience and previously in the curriculum in order to communicate effectively with patients and health care providers; conduct physical assessments as required; develop evidence-based treatment plans; respond to drug information questions; manage a patient-centered practice; and conduct themselves in a professional manner.

720A. Ambulatory Primary Care
720B. Ambulatory Anticoagulation Management
720C. Ambulatory Pediatric Care
730. Acute Care Pharmacy Practice (4)
Two Advanced Pharmacy Practice Experience (APPE) from this section are required. Additional courses in this section may be taken as elective courses. These courses are designed to offer the student advanced experience in acute care 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 acute care setting; appropriately documents interventions in the medical record; respond to drug information questions; and conduct themselves in a professional manner.

730A. Internal Medicine
730B. Infectious Disease
730C. Cardiology
730D. Women's Health
730E. Neonatology/Pediatrics
730F. Oncology
730G. Critical Care
730H. Nutrition
730J. Psychiatry
730K. Geriatrics
730L. AIDS Care
730M. Emergency Medicine
730N. Surgery
730P. Transplant
730R. Institutional MTM
730S. Neurology
730U. Geriatric Team Practice
730V. Hospice/Palliative Care

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
750B. Long Term Care
750C. Managed Care
750D. Sterile Products
750E. Pharmaceutical Industry/Medical Affairs
750F. Drug Information
750G. Medication Safety
750H. Pharmacy Compounding
750I. Nuclear Pharmacy Practice
750J. Pharmacy Compounding
750K. Nuclear Pharmacy Practice
750L. Specialty Pharmacy Practice
750M. Pharmacy Informatics

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

760. Drug Information (4 each)
This Advanced Pharmacy Practice Experience (APPE) is an elective course designed to offer the student advanced experience in the provision of drug information. Students will be expected to apply knowledge and skills learned during the experience and previously in the curriculum in order to completely define the specific drug information question, use appropriate resources to efficiently and accurately research drug information questions, respond to drug information questions in a professional manner, communicate effectively with patients and health care providers, and conduct themselves in a professional manner.

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