

College of Pharmacy

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Department of Pharmaceutical Sciences

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J. Phillip Bowen, *Professor*

Martin D'Souza, *Professor, Dick R. Gourley Chair of Pharmaceutics, Director of Graduate Program, Director of the Clinical Laboratory, and Co-Director of the Center for Drug Delivery Research*

G. Ray Green, Kathryn M. Momary, and Mohammad Nasir Uddin, *Associate Professors*

Renee Hayslett Rowe and Ravi Palaniappan, *Associate Professors and Co-Directors of the Vivarium*

Clinton Canal and S. M. Raquibul Hasan, *Assistant Professors*

John Holbrook, Vincent Lopez, Hewitt W. Matthews, Diane F. Matesic, Stanley Pollock, *Professors Emeriti*, and J. Grady Strom, *Associate Professor Emeritus*

History

The College of Pharmacy had its beginnings in 1903 as an independent college in Atlanta, the Southern College of Pharmacy. The original charter was granted to Dr. R.C. Hood, Dr. Edward Eberhart, and Dr. Hansell Crenshaw, all outstanding leaders in the fields of medicine and pharmacy.

In 1938, the College was transferred from private ownership to a board of trustees and was operated on this basis until July of 1959, when a merger with Mercer University was completed. Renamed the Southern School of Pharmacy, it operated from downtown Atlanta until 1991 when it relocated to the University's Cecil B. Day campus, 15 miles northeast of downtown Atlanta.

In September of 1981, the Southern School of Pharmacy became the first pharmacy school in the Southeast and the fifth in the nation to offer the Doctor of Pharmacy (Pharm.D.) as its sole professional degree. In 1988 the School initiated its Ph.D. program in Pharmaceutical Sciences, the first Ph.D. program within the University. A combined Pharm.D./Ph.D. program was launched in 1993.

On July 1, 2006, the School changed its name to the College of Pharmacy and Health Sciences. This name change provided the infrastructure to add health science programs including the Physician Assistant Program, Master of Medical Science (2008), Doctor of Physical Therapy (2010), and Orthopaedic Manual Physical Therapy Residency (2010).

In July 2013, the College of Pharmacy and Health Sciences was renamed the College of Pharmacy, and the health science programs formed the new College of Health Professions. Throughout its long history, the College of Pharmacy has developed a tradition of excellence and a reputation for producing outstanding leaders in the profession of pharmacy.

Mission Statement

Mercer University College of Pharmacy advances health through innovations in teaching, research, patient-centered care, and service.

Vision

Empowering ourselves and others to cultivate passion to enrich health and improve lives.

Core Values

The College of Pharmacy bases its educational program and position in the healthcare community upon certain core values. The core values of the College are excellence, integrity, caring, innovation, learning, professionalism, and commitment.

Academic Honesty

Mutual trust is a basic component of any community. Mercer University expects students, as members of the academic community, to take seriously their position in that community. Students are expected to ensure the continuance of trust among themselves and between them and the faculty by accepting responsibility for their own work. The University considers breaches of this trust and responsibility to be serious offenses. Academic offenses that constitute violations of the College of Pharmacy Honor Code include plagiarism, cheating, lying, academic theft, academic negligence, or other acts of dishonesty in areas of academics and co-curricular activities.

Plagiarism is the copying of words, phrases, ideas, or facts, belonging to another individual, without proper acknowledgment. Failure to reference any such material used is both ethically and legally improper.

Cheating includes, but is not limited to, a deliberate submission of coursework, for a grade or credit, that is not one's own and that violates the professor's instructions for the work; the use of testing materials from past testing periods as a study guide, unless

authorized by a professor; possession of written materials, not expressly authorized by the professor during an examination or test, that contain matter relevant to the course in which the examination is being taken; discussion of examination contents with any other student while taking an examination or test; and divulging or receiving any information on the content or form of any examination that either student has not yet taken. A student who gives illegal aid shall be considered as responsible as the student who receives it.

Lying is defined as making a statement that one knows is false or is intended to deceive.

Academic theft is the removal of academic materials, depriving or preventing others from having equal learning opportunities.

Academic negligence is unacceptable conduct of a student during an academic situation, including but not limited to examinations, outside assignments, papers, homework, and lab reports. It may include the student's failure to adhere to the faculty member's specific instructions.

College of Pharmacy students are subject to the conditions and requirements of the Honor Code. The Honor Code is published in the Student Handbook, which is distributed to all students at the beginning of the fall term, and made available electronically on the College's website (<http://pharmacy.mercer.edu/student-resources/handbook-and-catalog/>).

Attitude and Conduct

The University expects students to conduct themselves in a manner that reflects their maturity and their awareness that matriculation at the University is a privilege accorded only to those who share the ideals of an academic community. Any conduct determined to have an adverse effect on the University community may result in disciplinary action, including dismissal. The Code of Conduct is enforced both on University premises and at University-sponsored events held off campus. Generally, institutional discipline shall be limited to conduct that adversely affects the institutional community's pursuit of its educational objectives.

The following are examples of such conduct:

1. Obstruction, coercion, intimidation, or abuse of any person on University premises or at University sponsored or supervised functions.
2. Theft from or damage to University facilities, or damage to or theft of property from a member of the University community.
3. Intentional disruption or physical obstruction of teaching, research, and other institutional activities.
4. Possession or consumption of alcoholic beverages on University property and at University events.
5. Possession of firearms or weapons on University premises, except where authorized by established University policy or necessary to the pursuit of educational objectives.
6. Possession or use of drugs prohibited under federal and/or state statutes.

Any student found guilty of the above offenses, or of any other serious defect of conduct or character, may be subject to expulsion, suspension, or such lesser disciplinary measures as may be deemed appropriate by the proper authorities of the University. The President of the University has the responsibility and power to act as final authority and arbiter in matters of student discipline and conduct, as set forth in the charter and bylaws of the University. The Student Handbook, which details the Code of Professional Conduct for College of Pharmacy (COP) students, is available on the COP website (<http://pharmacy.mercer.edu/student-resources/handbook-and-catalog/>).

College of Pharmacy Calendar 2020-2021

Fall 2020

Orientation	Aug. 10-14
White Coat Ceremony	Aug. 14 (2-4pm)
Classes Start	Aug. 17
COS Fall Picnic	Aug. 18
Drop/Add	Aug. 17-24
Labor Day	Sept. 7-All classes will be held according to the published schedule
Residency Showcase	Oct. 9
Honors Luncheon	Oct. 15
Registration for Spring Begins	Nov. 4
Healthcare Career / Interview Days	Nov. 5-6
Classes and Exams End*	Nov. 25
Progression Assessment	Nov. 23-25 (P1)
Thanksgiving Break	Nov. 26-27
Contingency Days*	Nov. 30-Dec. 11

*In the event additional class dates are needed due to unforeseen circumstances, contingency days may be utilized for course delivery in an online format.

Spring 2021

January Class Orientation	Jan. 4-8
January Class White Coat Ceremony	Jan. 8
Experiential Classes Start	Jan 4 (P2, P3, P4)
Didactic Classes Start	Jan. 7 (P1-Traditional Class) Jan. 11 (P1-January Class) Jan. 19 (P2, P3)
Drop/Add	Jan. 11-19 (P1); Jan. 11-29 (P2 & P3)
Martin Luther King Jr. Day Holiday	Jan. 18
Spring Break	March 1-5
Van Greene Lecture	TBA
Registration for Summer/Fall Begins	March 31
Good Friday	April 2
COS Spring Picnic	April 23
Classes and Exams End	April 30 (P1-January Class) May 7 (P1-Traditional Class) May 10 (P3); May 11 (P2)
Progression Assessment	April 26-30 (P1-January Class) May 3-7 (P1-Traditional Class) May 10 (P3); May 11 (P2)
Pinning Ceremony	May 10
Hooding Ceremony	May 14
Commencement	May 16

Summer 2021

P1-January Class

Classes begin	May 10
Drop/Add	May 10-17
Memorial Day Holiday	May 31
Independence Day Holiday	July 5
Classes and Exams End	Aug. 13
Progression Assessment	Aug. 9-13

Session I (P3 remediation)

Classes Begin	May 17
Drop/Add	May 17-25
Memorial Day Holiday	May 31
Classes End	June 18
Grades Due from Faculty	Aug. 18

Session II (Remediation for P1-Traditional and P2)

Classes Begin	May 17
Drop/Add	May 17-25
Memorial Day Holiday	May 31
Independence Day Holiday	July 5
Classes End	Aug. 13
Grades Due from Faculty	Aug. 18

Community IPPE Scheduling Options

Two-week Community IPPE	Fall intercession (Dec. 8-31, 2020) Spring intercession (Jan. 4-15, 2021)
Three-week Community IPPE	Summer (May 17-Aug. 13, 2021)

Institutional IPPE Scheduling Options

Two-week Institutional IPPE	Fall intercession (Dec. 8-31, 2020) Spring intercession (Jan. 4-15, 2021) Summer (May 17-Aug. 13, 2021)
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Fourth Professional Year

APPE 1	May 18-June 19, 2020
APPE 2	June 22-July 24, 2020
APPE 3	Aug. 3-Sept. 4, 2020
APPE 4	Sept. 7-Oct. 9, 2020
APPE 5	Oct. 12-Nov. 13, 2020
APPE 6	Nov. 16-Dec. 18, 2020
APPE 7	Jan. 4-Feb. 5, 2021
Feb. 6-14, 2021: Students are off to accommodate residency and job interviews	
APPE 8	Feb. 15-March 19, 2021
APPE 9	March 22-April 23, 2021
Last week of PHA 650C	April 26-30, 2021

Holidays and Special Events

Memorial Day (2020)	May 25, 2020 (affects P4 APPE 1)
Independence Day (2020)	July 3, 2020 (affects P4 APPE 2)
White Coat Ceremony	Aug. 14, 2020
COS Fall Picnic	Aug. 18, 2020
Labor Day	Sept. 7, 2020-all classes will be held according to the published schedule
Residency Showcase	Oct. 2, 2020
Honors Luncheon	Oct. 15, 2020
Healthcare Career/Interview Days	Nov. 5-6, 2020
Thanksgiving Break	Nov. 26-27, 2020
Martin Luther King, Jr. Day	Jan. 18, 2021
Spring Break	March 1-5, 2021
Van Greene Lecture	TBD
Good Friday	April 2, 2021
COS Spring Picnic	April 23, 2021
Pinning Ceremony	May 10, 2021
Hooding Ceremony	May 14, 2021
Commencement	May 16, 2021
Memorial Day (2021)	May 31, 2021 (affects summer school)
Independence Day Holiday (2021)	July 5, 2021 (affects summer school)

Degree Programs

The College of Pharmacy offers the following degree programs:

The **Doctor of Pharmacy** is offered on the Atlanta Campus.

The **Master of Science in Health Outcomes** is offered on the Atlanta Campus.

The **Doctor of Philosophy** is offered on the Atlanta campus.

Doctor of Pharmacy Degree Program

Program Description

Mercer's Doctor of Pharmacy Program is designed to provide the scholastic expertise and clinical acumen necessary to deliver effective patient-centered care in multidisciplinary settings to a culturally diverse population. The four-year program includes both didactic and experiential learning with a focus on patient-centered outcomes.

The program's hybrid-block schedule combines concentrated foundational and pharmacotherapy courses with semester-long, practice-oriented and elective courses. First professional year students learn patient assessment, clinical, and counseling skills in the Pharmacy Simulation and Clinical Skills Laboratory, and further hone those skills in experiential activities throughout their second, third, and fourth professional years. Students complete introductory and advanced pharmacy practice experiences at leading medical and teaching hospitals and in a variety of pharmacy practice settings in Georgia and across the country. Unique to Mercer's Pharm.D. Program are four exceptional opportunities in the fourth professional year: Advanced Clinical Track, Global Medical Missions, Indian Health Service, and International Pharmacy.

Accreditation

The Doctor of Pharmacy Program is accredited by The Accreditation Council for Pharmacy Education, 190 S. LaSalle Street, Suite 2850, Chicago, IL 60603-3410; telephone (312) 664-3575; website www.acpe-accredit.org.

Profile of the MERCER Doctor of Pharmacy Graduate

The MERCER graduate will have both the breadth and depth of knowledge and skill to ensure successful entry into any of the wide variety of careers available to the Doctor of Pharmacy graduate. The graduate will:

- Demonstrate in-depth knowledge in biomedical, pharmaceutical, social, behavioral, administrative, and clinical sciences.
- Evaluate biomedical literature to make evidence based clinical decisions and recommendations.
- Solve problems and think critically.
- Pursue life-long professional development.

The MERCER graduate will practice patient-centered pharmacy to optimize the use of medications to improve health, prevent disease, and improve quality of life. The graduate will:

- Seek the authority and autonomy to manage medication therapy and embrace the responsibility to ensure optimal therapeutic outcomes and patient safety as an integrated member of the healthcare team.
- Provide patient-centered and population-based care in multidisciplinary settings to culturally diverse populations.
- Foster the rational use of medication and promote health improvement, wellness, and disease prevention.
- Counsel patients while addressing health literacy.

- Manage human, financial, material, and informational resources.
- Adhere to laws and guidelines regulating the practice of pharmacy.
- Abide by professional and ethical standards of conduct.
- Advocate on behalf of patients and communities to achieve desired health outcomes and improve quality of life.

The MERCER graduate will be an essential member of the patient's health care team. The graduate will:

- Communicate and collaborate with patients, caregivers, healthcare professionals, and qualified support personnel.
- Educate the public and healthcare professionals.
- Serve as the primary resource for unbiased information and advice regarding the safe, appropriate, and cost-effective use of medications.
- Serve as a valued patient care provider whom health care systems and payers recognize as having responsibility for assuring the desired outcomes of medication use.

The MERCER graduate will demonstrate the value of the profession to the achievement of health care goals in the community, nationally, and globally. The graduate will:

- Contribute to the elimination of healthcare disparities to benefit individual patients and society and to the achievement of medication-related public health goals.
- Address proactively changes in the healthcare delivery system.
- Participate in professional organizations and advocate for the advancement of the profession of pharmacy and its contributions to society.
- Ensure cost-effectiveness of medication therapy is optimized.

Admissions Process and Requirements

The College of Pharmacy uses a "rolling" admissions policy for the Doctor of Pharmacy (Pharm.D.) Program. Qualified applicants are interviewed and accepted to the program on a continual basis until the class has been filled. Students are encouraged to apply as early as possible and have an option of applying for Early Decision. Classes commence in August and January of each year.

The application process and minimum expectations for applicants to be considered for admission into the Doctor of Pharmacy degree program include the following:

- Applicants must submit their application through PharmCAS, a centralized application service (<http://www.pharmcas.org>). A complete PharmCAS application includes a minimum of two letters of reference, official transcripts from all colleges/universities attended, and the appropriate application fee(s).
- Prior to enrollment in the Pharm.D. Program, each applicant must complete 66 semester hours (or 99 quarter hours) of college credit along with the following pre-pharmacy course requirements:

- General Chemistry (two courses with labs)
- Organic Chemistry (two courses with labs)
- Biochemistry (one course, lab optional)
- General Biology (two courses with labs)
- Anatomy and Physiology (two courses, labs optional)
- Microbiology (one course lab optional)
- Calculus (one course)
- Statistics (one course)
- English Composition (two courses)

Speech (one course)
Economics (one course)
Humanities Electives* (two courses)
Social/Behavioral Science electives* (two courses)

Important notes about the pre-pharmacy course requirements:

- Only grades of C or better are acceptable for pre-pharmacy courses.
- At least one course from the humanities or the social/behavioral science electives must focus on cultural diversity and develop the student's awareness of the beliefs, values, and behaviors of cultures other than their own. Examples of courses that fulfill this prerequisite are: sociology, cultural anthropology, cultural geography, world literature, world religions, gender studies, cultural studies in specific languages other than the student's native language.
- All science prerequisites must be fulfilled by courses intended for science majors.
- General Biology courses can be fulfilled with courses in genetics, cellular biology, molecular biology, developmental biology, or zoology.
- English Composition requirements can be fulfilled with courses designated as Writing Intensive.
- The speech requirement should be fulfilled with a public speaking course.
- Humanities electives may be chosen from one or more of these areas: art, foreign language, history, literature, music, philosophy, religion, or theatre.
- Social / Behavioral Science electives may be chosen from one or more of the following areas: anthropology, business, economics, geography, health, history, management, political science, psychology, or sociology.
- All pre-pharmacy course requirements must be satisfied prior to enrollment in the Pharm.D. Program.
- Applicants are encouraged to take the following courses to further prepare them for the Doctor of Pharmacy Program:

Behavioral Psychology
Ethics
Genetics
Immunology
Medical Microbiology
Medical Terminology
Business Courses (e.g., Accounting, Finance, Human Resources)

Admission requirements and standards are designed to ensure scholastic success in the professional Doctor of Pharmacy curriculum. Selecting a candidate for the future practice of pharmacy involves many important factors, including academic background, letters of reference, pharmacy/work experience, and extracurricular experiences. The Pharmacy College Admissions Test (PCAT) is not required; however, applicants who want to provide further support of their academic preparedness can opt to submit their PCAT scores as part of their PharmCAS application.

Grades for all undergraduate coursework attempted are included in the calculation of the cumulative undergraduate GPA. This is the primary GPA used in the admissions process. The competitive GPA needed to qualify for a required personal interview is determined by the overall strength of the applicant pool each admissions cycle.

Prospective pharmacy students are not required but are encouraged to obtain work or volunteer experience in a pharmacy. An example of appropriate experience is as a pharmacy technician.

Applicants judged to be qualified after evaluation of their complete application are invited to the College of Pharmacy for a personal interview.

Throughout the duration of the interview process, applicants are accepted to the Doctor of Pharmacy program on a continual basis until the class has been filled; an alternate list is then established. Due to the number of applicants and limited number of positions available, acceptance is selective.

Applicants selected for admission into the College's Doctor of Pharmacy Program are required to make a non-refundable tuition deposit to confirm their position in the entering class. Upon enrollment in the Doctor of Pharmacy Program, the deposit will be applied toward the student's first semester's tuition and the University's matriculation fee.

Submission of final official transcripts from all colleges/universities attended is required prior to enrollment. Accepted students must also comply with requirements regarding health insurance and immunizations, background checks and drug screenings, and they must attest that they meet all Technical Standards as established by the Doctor of Pharmacy Program prior to their enrollment in the program. Failure to submit any items required for enrollment by the deadline will result in the offer of admission being rescinded.

Special Consideration Programs for Mercer Undergraduate Students

The College of Pharmacy partners with the University's College of Liberal Arts and Sciences and College of Health Professions and College of Professional Advancement to offer Special Consideration programs designed for Mercer undergraduate students who have expressed an interest in pursuing a career in pharmacy. Students enrolled as undergraduate students at Mercer are guaranteed an interview for the Doctor of Pharmacy (Pharm.D.) degree program at the College of Pharmacy (COP) if they meet requirements outlined in the Special Consideration Program documents available from the Academic Advising Services office in Macon and the Pre-Pharmacy advisors in the College of Professional Advancement.

International Students

An applicant who is not a citizen or permanent resident of the United States must follow the same application procedure as applicants who are citizens or permanent residents.

The College of Pharmacy does not evaluate transcripts from outside the United States. If coursework has been earned in a foreign country, international or domestic students with credentials from institutions outside the United States are required to have those credentials evaluated by a professional evaluation service (World Education Services, www.wes.org, is the preferred service). This evaluation must include an analysis of courses, grades and grade point average, and U.S. degree equivalency if a degree was received.

Until this procedure has been accomplished, an application for admission cannot be considered. An official copy of the evaluation report must be sent to PharmCAS to be included in the application.

Financial resources of the College of Pharmacy are limited, and therefore financial assistance for international students on an F-1 Visa is limited. Federally funded financial aid is restricted for students who are citizens or permanent residents of the United States. It is important that the student have pre-determined financial support sufficient to meet educational and living expenses.

Transfer Students

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

An individual who wishes to transfer into the four-year Doctor of Pharmacy degree program from an Accreditation Council for Pharmacy Education (ACPE) accredited college or school of pharmacy must send to the Director of Admissions a letter to request consideration as a transfer student before submitting an application. If availability exists and the request is granted, the transfer applicant must submit a complete PharmCAS application including transcripts from all colleges attended and at least two letters of reference. In addition, the Director of Admissions must receive a letter from the Dean's Office at the other College of Pharmacy granting approval of the transfer to Mercer and stating that the student is in good academic and professional standing and eligible to continue or return.

Transfer students must satisfy Mercer's pre-pharmacy course requirements and meet current admission standards in order to be considered.

If deemed qualified upon receipt of completed application materials, the applicant will be invited to the College of Pharmacy for an interview. After the interview, the Admissions Committee will make a decision regarding the student's admissions status. The number of transfer students accepted will depend upon space availability. All correspondence will be handled by the Director of Admissions.

Due to differences in curricula of various pharmacy schools, some or all credit may not transfer at the same professional level. Students may not be eligible for professional year advancement at Mercer equivalent to that of their current institution. Up to eighteen credit hours of equivalent professional courses may be transferred from an ACPE accredited institution.

Advanced Standing

A transfer applicant who desires advanced professional standing must comply with the appropriate policy and procedure outlined above. Ordinarily credits from an ACPE-accredited college or school of pharmacy, for which grades of C or better have been earned in equivalent courses, shall be accepted. All course requirements in the current four-year Doctor of Pharmacy curriculum must be satisfied prior to graduation. A minimum of eight semesters must be completed and 131 credits must be earned in residence at the College of Pharmacy.

In determining advanced standing, the Executive Associate Dean will consult with the appropriate Department Chairperson(s) to determine course equivalence. Based upon this evaluation, the Executive Associate Dean will make a decision regarding transfer credit for advanced standing. All correspondence will be handled by the Executive Associate Dean.

Tuition, Required Fees, and Other Estimated Expenses

First, Second, Third Year Tuition (per didactic semester*)	\$ 19,077.50
Fourth Year Tuition (per five-week Advanced Pharmacy Practice Experience*)	\$ 4,769.40
Facilities and Technology Fee (per semester**)	\$ 150.00
PHA 650/620/621/622 Course Materials Fee	\$ 689.00
PHA 363 (Jan. entry students)/PHA 364 (Aug. entry students) Course Material Fee	\$ 29.00

Total Pharm.D. program estimated tuition and fee cost for students entering in 2020-2021	\$154,067.20***
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* Each student completes 6 didactic semesters and 8 APPEs.

** Fee is \$150.00 for students enrolled in 9 credit hours or more and \$17.00/credit hour for less than 9 credit hours.

*** Tuition and fees are subject to change each year after the Board of Trustees meeting in April. The total cost is an estimate and does not include other expenses, i.e., books, laptop, housing, transportation, etc. We recommend students budget an additional \$5,000 to cover expenses associated with the fourth year advanced pharmacy practice experiences.

Background Checks and Drug Screenings

Assessment of criminal background checks and drug screening is considered important to help protect the public, regardless of the requirements of specific community or clinical sites. However, a clear background check or drug screen does not guarantee safety or predict an individual's future behavior.

Accepted Students

All matriculating students undergo a criminal background check and drug screening after being offered admission to the Doctor of Pharmacy (Pharm.D.) Program. Students accepted into the program are responsible for promptly reporting any future charges or the outcome of pending charges to the Assistant Dean for Student Affairs. If accepted into the program, our determination related to findings on the initial or subsequent criminal background check or drug screening does not guarantee that State Boards of Pharmacy will view the findings similarly. Students accepted into the program have the right to review their criminal background check and drug screening reports for accuracy by contacting the institution/company/agency conducting the search.

In addition to completing the criminal background check and drug screening per the policy requirements, newly accepted students with an adverse criminal background check or drug screen must also report this activity in writing and include the appropriate information (e.g., court documents, arrest records, etc.) to the Assistant Dean for Student Affairs with an original signature and date. The Assistant Dean for Student Affairs may request additional information from the student or request an additional criminal background check and/or drug screen. Students who fail to provide this information within the time frame will be subject to their offer of acceptance being withdrawn. Adverse information may lead to withdrawal of the offer of admission to the program. Appeals to decisions made regarding results of a criminal background check and/or drug screen may be made in writing to the Executive Associate Dean.

Enrolled Students

Pharmacy practice sites may require additional components of a criminal background check, additional drug screen, a certain company or laboratory to be used, and/or the tests being performed within certain time frames prior to beginning introductory or advanced pharmacy practice experiences. The expenses associated with any criminal background check or drug screening during matriculation into or during the Pharm.D. Program are entirely the responsibility of the student.

Information as to whether a facility offering introductory or advanced pharmacy practice experiences requires evidence of a negative drug screen and/or criminal background check can be obtained from the Director of Experiential Education. Be aware that requirements for specific introductory or advanced pharmacy practice sites may change at any moment prior to the student beginning at the site. It is the student's responsibility to meet those requirements.

If allowed or required by the introductory or advanced pharmacy practice site, the student will provide the results of their criminal background check or drug screening directly to the appropriate representative. In the event that the site does not have a process to review results of a criminal background check or drug screening or will not accept them directly from the student, the Director of Experiential Education will provide information to the appropriate representative on charges resulting in a *nolo contendere*, *nolo prosequere*,

or conviction which are reported on a criminal background check and/or positive results of a drug screening test. The site's representative is solely responsible to determine whether the results meet facility requirements. Mercer University, its faculty or representatives, is not responsible or liable for nor will they intervene with the decision made by a site to not accept a student based on the contents of the criminal background check or drug screening.

Students with adverse findings on a criminal background check or drug screening, as determined by an introductory or advanced pharmacy practice site, will be excluded from participation at that facility. In circumstances such as this, the program may require that students undergo a subsequent criminal background check or drug screening. If the Director of Experiential Education, in consultation with the Assistant Dean for Student Affairs, agrees with the facility's decision, the student will be excluded from continuing in the introductory or advanced pharmacy practice experience and subsequently will be removed from the program. Should the Director of Experiential Education, in consultation with the Assistant Dean for Student Affairs, disagree with the facility's decision, the Director will make one attempt to place the student in an alternate facility. If that attempt is unsuccessful due to the adverse findings on the criminal background check or drug screening, the student is excluded from continuing in the introductory or advanced pharmacy practice experience and subsequently will be removed from the program.

Students arrested or charged for criminal activity at any time during their enrollment in the Doctor of Pharmacy Program must notify, in writing, the Assistant Dean for Student Affairs within 72 hours of the arrest or issue of a citation. The Assistant Dean for Student Affairs will assume responsibility for the notification of additional College of Pharmacy offices as necessary. Students who fail to provide this information within the stated time frame will be subject to suspension/dismissal from the program.

Incorrect Records

Occasionally, a criminal background check may contain incorrect information. If a student finds that his/her record is incomplete, incorrect, contains errors and omissions, or misidentifies a student for someone else, the student should contact the criminal background check vendor with appropriate documentation to correct the errant information. The student should also notify the Assistant Dean for Student Affairs and the Director of Experiential Education, who will make a request to the vendor to verify this information and supply a copy to the student and MUCOP. Depending on the circumstances, the student may or may not be suspended/dismissed from the program pending the outcome of the request.

Students who have a break in enrollment of at least one semester (e.g., leave of absence) will be required to repeat a criminal background check and drug screen prior to reentering the program.

Confidentiality and Recordkeeping

Results of background checks and drug screenings are confidential and will be kept in a secure file separate from other academic records. This information contained in the criminal background check and drug screening section of the student's file may only be reviewed by university officials, the designated background check or drug screening provider, and affiliated clinical facilities in accordance with the Family Educational Rights and Privacy Act (FERPA).

Immunizations and Health Requirements

All Pharmacy students are required to provide evidence of the required immunizations from their health care provider and proof of insurance. These requirements must be met in order for students to participate in introductory and advanced pharmacy practice experiences (IPPEs/APPEs). Incomplete or inaccurate immunization documentation can

result in student registration and/or IPPE/APPE assignments being delayed or blocked. The current list of immunization requirements for entering students can be obtained from the College's Office of Student Affairs. All current Pharmacy students are required to provide documentation annually of influenza vaccination and tuberculosis screening.

Health Insurance Requirement

All students are required to maintain health insurance coverage. In order to enforce this policy, all students are automatically enrolled and charged for health insurance each semester. This health insurance will be provided by the University's sponsored student insurance plan. Students are provided the opportunity to waive the student insurance coverage and have this charge removed from their Mercer bill each semester if satisfactory evidence is submitted proving that primary health insurance coverage exists. Information on how to complete the insurance waiver process and deadlines for the process is available on the Mercer website: <http://bursar.mercer.edu/studentinsurance/>. Students who do not submit proof of primary health insurance through the waiver process are automatically signed up for coverage under the student insurance plan.

Academic Policies and Procedures

Attendance

Each course coordinator is charged with the responsibility of establishing an absentee policy for his/her course, subject to the approval of the Curriculum Committee. This policy must be a part of the course syllabus distributed to students. In those cases, in which the professor does not wish to establish an absentee policy, absenteeism cannot be considered in determining the grade for the course.

Make-Up Examination Policy

It is the responsibility of each course coordinator to describe in the syllabus the policy for making up examinations.

Advising / Professional Development Network

The Doctor of Pharmacy Professional Development Network (PDN) provides information and support for successful matriculation and professional development of students. Faculty members and alumni are utilized as resource personnel.

Each entering Pharmacy student is assigned to faculty members of the Professional Development Network (PDN). The advisors work with the student from matriculation to graduation, using Moodle and face-to-face meetings. Students are ultimately responsible for the academic and professional choices they make; however, faculty members provide mentoring and are a resource for students regarding academic and professional issues.

Standards of Performance

Each candidate for a Doctor of Pharmacy degree must secure credit, in the approved courses of the curriculum, totaling 155 semester hours. In securing this credit, each candidate must have a grade point average (GPA) of at least 2.0. Should a course be repeated, all grades received in that course are used in the computation of the grade point average. Should a course be repeated for which a passing grade has been previously received, and the repeated grade is F, the course requirement for the curriculum has been satisfied, subject to the Probation/Dismissal policy.

- Repetition of failed courses is outlined in the Summer Remediation and Probation/Dismissal policies.
- Students readmitted by the Academic Performance and Standards Committee may be required to repeat courses for which a passing grade was previously earned.

- Certain didactic electives and advanced pharmacy practice experience courses may be taken multiple times for credit as outlined under course descriptions.

Academic Progression

Doctor of Pharmacy academic progression is defined as:

A minimum cumulative grade point average of 2.0; successful completion of all first professional year courses and professional engagement program requirements; and passing the P1 comprehensive progression assessment are required for entry into the second professional year.

A minimum cumulative grade point average of 2.0; successful completion of all required first and second professional year courses and professional engagement program requirements; successful completion of a minimum of four semester hours of elective coursework; and passing the P2 comprehensive progression assessment are required for entry into the third professional year.

A minimum cumulative grade point average of 2.0; successful completion of all required first, second, and third professional year courses and professional engagement program requirements; successful completion of at least eight semester hours of elective coursework; and passing the P3 comprehensive progression assessment are required for entry into the fourth professional year.

Summer Remediation

Summer remediation is open to Doctor of Pharmacy students who have previously failed a required didactic course.

In the first professional year, August-entry students who fail a didactic required course in their first or second semester, an equivalent course outside the College's traditional Doctor of Pharmacy program may be considered for completion during the summer, subject to review and approval by the course coordinator, the coordinator's department chair, and the Executive Associate Dean.

In the event an equivalent course is not available, the course will be offered in the summer by the College of Pharmacy. The course must fulfill the same curriculum outcomes as during the regular academic year; however, the teaching plan, including methodology and daily schedule may vary as determined and documented by the course coordinator and the coordinator's department chair. A student may repeat only one course one time at another school or via summer remediation.

In the first professional year, January-entry students who fail a didactic required course in their first or second semester, will not have summer remediation as an option. The student will instead join the subsequent entering August Class to remediate the failed didactic required course and join that cohort.

Summer remediation is available for all second and third professional year students regardless of entry point into the Doctor of Pharmacy Program. For a student who fails a didactic required course during the fall or spring semesters, an equivalent course outside the College's traditional Doctor of Pharmacy Program may be considered for completion during the summer, subject to review and approval by the course coordinator, the coordinator's department chair, and the Executive Associate Dean.

In the event an equivalent course is not available, the course will be offered in the summer by the College of Pharmacy. The course must fulfill the same curriculum outcomes as during the regular academic year; however, the teaching plan, including methodology and daily schedule may vary as determined and documented by the course coordinator and the coordinator's department chair. A student may repeat only one course one time at another school or via summer remediation.

Probation/Dismissal

A Doctor of Pharmacy student who makes an F or U in a course will be placed on probation until the course is successfully remediated. Any student who makes a second F or U in a course will be placed on academic dismissal. Any Doctor of Pharmacy student who has been placed on academic dismissal may petition the Academic Performance and Standards Committee for readmission.

1. A student seeking the Academic Performance and Standards Committee's consideration for readmission must provide his/her petition and any supporting documentation by the following applicable deadline prior to the semester for which reenrollment is requested: July 1 for the fall semester and October 1 for the spring semester.
2. The Academic Performance and Standards Committee will investigate the circumstances of dismissal.
3. If the student is readmitted by the Academic Performance and Standards Committee, there will be placed upon the readmission certain conditions and requirements designed to aid the student in attaining good standing within the College. In consultation with the Executive Associate Dean and the Curriculum Committee, as appropriate, the Academic Performance and Standards Committee will formulate an individualized plan for satisfying content areas that require remediation. This individualized plan would be based on the students' prior academic performance and current curricular standards.
4. Breach of conditions or requirements will result in permanent dismissal of the student.
5. Any student who makes an F or U in a third course will be permanently dismissed.
6. The Academic Performance and Standards Committee will inform the faculty regarding its actions.

The decisions of the Academic Performance and Standards Committee may be appealed to the Executive Associate Dean.

Application for Graduation

Students who expect to qualify for graduation must file applications for graduation with the Registrar's Office in the semester prior to completing degree requirements.

Degree Requirements

1. Completion of the Doctor of Pharmacy curriculum (totaling 155 semester hours) with a passing grade in each course and with at least a 2.0 cumulative grade point average and successful completion of professional engagement program requirements.
2. Eight semesters must be completed and 133 credit hours must be earned in residence at the College of Pharmacy.
3. Recommendation by the faculty of the College of Pharmacy.
4. Payment of all financial obligations to the University.

Special Registration Regulations

Course Overload: A course overload is defined as registration for any additional hours of credit above the number of credit hours outlined for each semester. In order to register for course overloads, students must have grade point averages of 2.5 or better. In addition,

students must have the approval of (1) the Executive Associate Dean or (2) the faculty advisor designated for the student. Students participating in combined degree programs must have the approval of the program director. Students may not enroll in courses with conflicting meeting times.

Elective Courses with GPA Requirements: In order to register for Project Development 548 or Introduction to Research 549, a student must have a grade point average of 2.5 or better and the consent of the instructor. In order to register for Introduction to Teaching 509, a student must have a grade point average of 3.5 or better and the consent of the instructor.

Professional Credit for Graduate Coursework: Doctor of Pharmacy students may receive elective credit for graduate-level courses taken within the University outside of combined degree programs. The following criteria apply:

- Students should have a previous four year (or higher) degree or an equivalent number of credit hours.
- Students must have minimum grade point averages of 3.0.
- Course prerequisites must be met.
- Students must submit a letter to the appropriate graduate program director that states the student's interest and describes the benefits of the graduate course to their professional goals.
- Enrollment in the course must have the approval of the graduate program director.

Students will receive only professional-level credit for such courses.

Transfer/Transient Credit

Academic credit may be given for courses successfully completed with a grade of C or better at other pharmacy, medical, medically-related professional schools, and graduate schools, subject to the approval of the appropriate department chairperson and dean. In such cases, no grade will appear on the student's transcript, but the transfer of credit hours will be awarded. Transfer credits are not utilized in determining a student's grade point average.

Doctor of Pharmacy Curriculum

Outcomes

Domain 1 – Foundational Knowledge

1.1 Learner (Learner) – Develop, integrate, and apply knowledge from the foundational sciences (i.e., pharmaceutical, social / behavioral /administrative, and clinical sciences) to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and patient-centered care.

Domain 2 – Essentials for Practice and Care

2.1. Patient-Centered Care (Caregiver) – Provide patient- centered care as the medication expert (collect and interpret evidence, prioritize, formulate assessments and recommendations, implement, monitor and adjust plans, and document activities).

2.2. Medication Use Systems Management (Manager) - Manage patient healthcare needs using human, financial, technological (including pharmacy informatics), and physical resources to optimize the safety and efficacy of medication use systems.

2.3. Health and Wellness (Promoter) – Design prevention, intervention, and educational strategies for individuals and communities to manage chronic disease and improve health and wellness.

2.4. Population-Based Care (Provider) – Describe how population-based care, defined by disease state or targeted demographics, influences patient-centered care and the development of practice guidelines and evidence-based best practices.

Domain 3 - Approach to Practice and Care

3.1. Problem Solving (Problem Solver) – Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.

3.2. Educator (Educator) – Educate all audiences by determining the most effective and enduring ways to impart information and assess understanding.

3.3. Professional and Patient Advocacy (Advocate) – Assure that best interests of the profession and patients are represented.

3.4. Interprofessional Collaboration (Collaborator) – Actively participate and engage as a healthcare team member by demonstrating mutual respect, understanding, and values to meet patient care needs.

3.5. Cultural and Social Sensitivity (Includer) – Recognize cultural and social determinants of health to diminish disparities and inequities in access to quality care.

3.6. Communication (Communicator) – Effectively communicate verbally, nonverbally and in written form when interacting with an individual, group, or organization.

Domain 4 – Personal and Professional Development

4.1. Self-awareness (Self-aware) – Examine and reflect on personal knowledge, skills, abilities, beliefs, biases, motivation, and emotions that could enhance or limit personal and professional growth.

4.2. Leadership (Leader) – Demonstrate responsibility for creating and achieving shared goals, regardless of position.

4.3. Innovation, Entrepreneurship, and Quality Improvement (Innovator) – Engage in innovative activities by using creative thinking and quality improvement to accomplish better ways of achieving professional goals.

4.4. Legal, Ethical, and Professional Behaviors (Professional) – Exhibit behaviors and values that are consistent with the laws and rules that govern pharmacy and the trust given to the profession by patients, other healthcare providers, and society.

Student Portfolios

Throughout the professional curriculum, students create portfolios documenting expectations, achievement of outcomes related to both experiential and didactic education, and self-reflection.

Doctor of Pharmacy Program Curriculum

First Professional Year

(36 Credit Hours)

Semester 1		Semester 2	
333 Pharmacy Fundamentals	2	337 Biopharmaceutics and Pharmacokinetics	4
334 Foundations of Pharmacology and Immunology	5	338 Pharmaceutics and Medicinal Chemistry	5
335 Healthcare Delivery and Population Health	3	373 Introductory Law	2
336 Self-Care	3	362 Integrated Patient Care II	4
361 Integrated Patient Care I	4	364 Professional Development and Engagement II	1
363 Professional Development and Engagement I	1	375 Comprehensive Patient-Centered Care I	2
Total Hours	18	Total Hours	18

Satisfactory completion of all First Professional Year coursework, Comprehensive Progression Assessment, and Professional Engagement Program requirements is necessary for progression to the Second Professional Year.

Second Professional Year

(38 Credit Hours)

Summer			
487* Community Introductory Pharmacy Practice Experience	2		
Total Hours	0-2		
Fall		Spring	
466 Cardiovascular and Renal Pharmacotherapy	6	468 Infectious Diseases Pharmacotherapy	6
467 Endocrine Pharmacotherapy	5	469 Pulmonary and Integument Pharmacotherapy	4
491 Integrated Patient Care III	4	492 Integrated Patient Care IV	3
493 Professional Development and Engagement III	1	494 Professional Development and Engagement IV	1
487* Community Introductory Pharmacy Practice Experience	2	495 Comprehensive Patient-Centered Care II	2
Elective	2	Elective	2
Total Hours	18-20	Total hours	18

Satisfactory completion of all Second Professional Year coursework, Comprehensive Progression Assessment, and Professional Engagement Program requirements is necessary for progression to the Third Professional Year.

*Student enrolls in this course once, either summer semester or fall inter-term of the professional year

Third Professional Year

(38 Credit Hours)

Summer			
587* Institutional Introductory Pharmacy Practice Experience	2		
Total Hours	0-2		
Fall		Spring	
536 Nervous System Pharmacotherapy	5	538 Basic and Clinical Sciences Review	1
537 Gastrointestinal and Musculoskeletal Pharmacotherapy	5	539 Oncology, Toxicology, and Drug-Induced Disorders Pharmacotherapy	4
573 Advanced Law	2	540 Specialty Pharmacy Practice	2
591 Integrated Patient Care V	3	592 Integrated Patient Care VI	3
593 Professional Development and Engagement V	1	594 Professional Development and Engagement VI	1
587* Institutional Introductory Pharmacy Practice Experience	2	595 Comprehensive Patient-Centered Care III	3
Elective	2	Elective	2
.	.	Elective	2
Total hours	18-20	Total Hours	18

Satisfactory completion of all Third Professional Year coursework, Comprehensive Progression Assessment, and Professional Engagement Program requirements is necessary for progression to P4.

*Student enrolls in this course once, either summer semester or fall inter-term of the professional year.

**Fourth Professional Year
(43 Credit Hours)**

Advanced Pharmacy Practice Experiences

APPE 1 Community Pharmacy Practice	5
APPE 2 Institutional Pharmacy Practice	5
APPE 3 Acute Care Pharmacy Practice	5
APPE 4 Adult Medicine or Medicine Sub-Specialty Pharmacy Practice	5
APPE 5 Ambulatory Care Pharmacy Practice	5
APPE 6 Elective I	5
APPE 7 Elective II	5
APPE 8 Elective III	5
620 Pharmacy Review I	1
621 Pharmacy Review II	1
622 Pharmacy Review III	1
Total Hours	<hr/> 43

APPE's can occur in any order, 8 out of 9 blocks

Course Descriptions

Required Didactic Courses

PHA 333. Pharmacy Fundamentals (2 hours)

This course facilitates the transition from pre-pharmacy coursework to the professional program. It bridges foundational science and math concepts with pharmacy applications.

PHA 334. Foundations of Pharmacology and Immunology (5 hours)

This course provides a foundation for the principles of drug action and explores the physiological importance of the autonomic nervous system and immune system in drug responses.

PHA 335. Healthcare Delivery and Population Health (3 hours)

This course is designed to introduce students to the US healthcare delivery system, the roles that pharmacy and pharmacists play in healthcare, and explores the impact of research, government, and policy on health and healthcare.

PHA 336. Self-Care (3 hours)

The course will assist students in developing knowledge and problem solving skills needed to determine whether self-care treatment and monitoring are necessary or appropriate.

PHA 337. Biopharmaceutics and Pharmacokinetics (4 hours)

This course covers the conceptual and the mathematical aspects of drug absorption, distribution, metabolism, and excretion. These concepts provide the foundation for the safe and effective therapeutic management in patients.

PHA 338. Pharmaceutics and Medicinal Chemistry (5 hours)

This course covers the concepts that are fundamental to the study of pharmaceutical sciences. These fundamentals will allow the student pharmacist to integrate physical, chemical and biological concepts into various practice functions. The course provides knowledge of the pharmaceutical principles involved in formulation, design, compounding and evaluation of various dosage forms.

PHA 361. Integrated Patient Care I (4 hours)

This is the first course in a series of six courses. This course is a combination of lectures, activities, assignments, and skills development intended to introduce the student pharmacist to the role of the pharmacist in caring for patients in a community setting. Course content is integrated with courses in the P1 first semester curriculum. Assessment

of fundamental knowledge and skills important to pharmacy practice and patient care will occur.

PHA 362. Integrated Patient Care II (4 hours)

This is the second course in a series of six courses. This course is a combination of lectures, activities, assignments, and skills development intended to introduce the student pharmacist to the role of the pharmacist in caring for patients in a community setting. Course content is integrated with courses in the P1 second semester curriculum and will build upon the P1 first semester curriculum. Assessment of fundamental knowledge and skills important to pharmacy practice and patient care will occur.

PHA 363. Professional Development and Engagement I (1 hour)

This course is the first of a six course series that fosters professionalism, an understanding of the pharmacy profession, as well as team and career development.

PHA 364. Professional Development and Engagement II (1 hour)

This course is the second of a six course series that fosters professionalism, an understanding of the pharmacy profession, as well as team and career development.

PHA 373. Introductory Law (2 hours)

This course introduces student pharmacists to the legal basis of pharmacy practice in traditional pharmacy settings. The course will emphasize the pharmacist's responsibility to care for patients and to respect patients as autonomous individuals.

PHA 375. Comprehensive Patient-Centered Care I (2 hours)

This course is the first of a three course series. This course is a student-centered learning course modeled after the Pharmacists' Patient Care Process (PPCP) that integrates clinical knowledge, skills, and competencies relevant to pharmacy practice.

PHA 401. Pharmaceutics Laboratory (1 hour)

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

PHA 450. Nervous System Disorders I (5 hours)

This course is designed to provide an in depth understanding of the nervous system and its therapeutics to the pharmacy student. The anatomy and physiology of the central nervous system and peripheral nervous system (including the autonomic nervous system) will be discussed. Drugs that affect the central nervous system, the autonomic nervous system and the neuromuscular junction will also be discussed. In addition, the pathophysiology of various disease states involving the nervous system and the pharmacology, medicinal chemistry and therapeutic use of drugs used to treat these disease states will be discussed. Course content will emphasize: anatomy and physiology; pathophysiology; mechanisms of drug action; drug mechanisms related to the occurrence of adverse effects; recognition and management of medication-related problems; and decision-making processes including utilization of laboratory tests to monitor drug efficacy and toxicity. Case studies will be used to assist students in developing and monitoring medication therapy management (MTM) plans for patients with various disease states.

PHA 451. Nervous System Disorders II (4 hours)

This course is designed to provide an in depth understanding of the nervous system and its therapeutics to the pharmacy student. The pathophysiology of various disease states involving the nervous system and the pharmacology, medicinal chemistry and therapeutic use of drugs used to treat these disease states will be discussed. Course content will

emphasize: pathophysiology; mechanisms of drug action; drug mechanisms related to the occurrence of adverse effects; recognition and management of medication-related problems; patient assessment; and decision-making processes including utilization of laboratory tests to monitor drug efficacy and toxicity. Case studies will be used to assist students in developing and monitoring medication therapy management (MTM) plans for patients with various disease states.

PHA 456. Integument and Special Senses (3 hours)

This course is designed to integrate the anatomy, physiology, pathophysiology, and patient assessment aspects of dermatological and eye/ear/oral disorders with the relevant medicinal chemistry, pharmacology, and pharmacotherapy of the prescription and non-prescription medications used to treat and prevent these disorders.

PHA 461. Cardiovascular/Renal Disorders I (5 hours)

This course is designed to expand knowledge of the anatomy, physiology, pathophysiology and treatment of cardiovascular/renal disorders. This course will include the following topics/conditions: introduction to heart anatomy/physiology, dyslipidemia, hypertension, anemia, coagulation, introduction to kidney anatomy/physiology, chronic kidney disease, end stage renal disease and acute kidney injury. Topics will be presented in an integrated manner and will include relevant physiology, pathophysiology, pharmacology, medicinal chemistry, pharmacotherapy, pharmacokinetics, social and behavioral aspects of medical management and OTC products of specified disease states. The student pharmacist will be required to integrate knowledge across these areas and apply the knowledge to patient cases in both written and oral form. Counseling points for each class of medications will be included. The clinical and problem-solving skills obtained through completion of this course will prepare the student to properly identify, assess, and resolve complex, medication-related problems and other patient issues relating to cardiovascular disorders as well as counsel patients.

PHA 462. Cardiovascular/Renal Disorders II (5 hours)

This course is designed to expand knowledge of the anatomy, physiology, pathophysiology and treatment of cardiovascular/renal disorders. This course will include the following topics/conditions: venous thromboembolism, peripheral artery disease, ischemic heart disease, acute coronary syndrome, acid/base disorders, fluid and electrolytes, chronic heart failure, acute heart failure, arrhythmias and stroke. Topics will be presented in an integrated manner and will include relevant physiology, pathophysiology, pharmacology, medicinal chemistry, pharmacotherapy, pharmacokinetics, social and behavioral aspects of medical management and OTC products of specified disease states. The student pharmacist will be required to integrate knowledge across these areas and apply the knowledge to patient cases in both written and oral form. Counseling points for each class of medications will be included. The clinical and problem-solving skills obtained through completion of this course will prepare the student to properly identify, assess, and resolve complex, medication-related problems and other patient issues relating to cardiovascular disorders as well as counsel patients.

PHA 465. Pulmonary Disorders (3 hours)

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

the course will prepare the student pharmacist to properly identify, assess, and resolve complex, medication-related problems and other patient issues relating to pulmonary disorders.

PHA 466. Cardiovascular and Renal Pharmacotherapy (6 hours)

This course explores the relationship between anatomy, physiology, pathophysiology, pharmacology, medicinal chemistry, and therapeutics of cardiovascular and renal disorders.

PHA 467. Endocrine Pharmacotherapy (5 hours)

This course explores the relationship between epidemiology, physiology, pathophysiology, medical chemistry, pharmacology, and therapeutics of endocrine disorders.

PHA 468. Infectious Diseases Pharmacotherapy (6 hours)

This course explores the relationship between epidemiology, physiology, pathophysiology, and therapeutics of various infectious diseases and the medical chemistry, pharmacology, and clinical uses of common anti-infectives.

PHA 469. Pulmonary and Integument Pharmacotherapy (4 hours)

This course is designed to integrate the anatomy, physiology, pathophysiology, and patient assessment aspects of pulmonary, dermatological and eye/ear/oral disorders with the relevant medicinal chemistry, pharmacology, and pharmacotherapy of the prescription and nonprescription medications used to treat and prevent these disorders.

PHA 473. Practice of Pharmacy III (2 hours)

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

PHA 474. Practice of Pharmacy IV (2 hours)

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

PHA 491. Integrated Patient Care III (4 hours)

This is the third course in a series of six courses. Through the integration of clinical knowledge gained with practical skills development, students are prepared to effectively function as a pharmacy extern within an institutional practice.

PHA 492. Integrated Patient Care IV (3 hours)

This is the fourth course in a series of six courses. Through the integration of clinical knowledge gained with practical skills development, students are prepared to effectively function as a pharmacy extern within an institutional practice.

PHA 493. Professional Development and Engagement III (1 hour)

This course is the third of a six course series that fosters professionalism, an understanding of the pharmacy profession, as well as team and career development.

PHA 494. Professional Development and Engagement IV (1 hour)

This course is the fourth of a six course series that fosters professionalism, an understanding of the pharmacy profession, as well as team and career development.

PHA 495. Comprehensive Patient-Centered Care II (2 hours)

This course is the second of a three course series. This course is a student-centered learning course modeled after the Pharmacists' Patient Care Process (PPCP) that integrates clinical knowledge, skills, and competencies relevant to pharmacy practice.

PHA 533. Musculoskeletal Disorders and Pain (5 hours)

This is an integrated course describing the anatomy and physiology of bones, skeletal muscles and joints, and pathways for pain and inflammation throughout the body. The pathophysiology of diseases affecting the musculoskeletal system to cause pain, inflammation, and musculoskeletal deterioration will be discussed. The medicinal chemistry, pharmacology, pharmacotherapy, and therapeutics of medications used to treat disorders of this system and to appropriately treat pain and inflammation will be thoroughly described. Therapy to alter the course of diseases and appropriately manage pain and inflammation will be emphasized.

PHA 534. Endocrine Disorders (5 hours)

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

PHA 535. Gastrointestinal Disorders (3 hours)

This course is designed to familiarize the student with the anatomy and physiology of the gastrointestinal tract and accessory organs, the pathophysiology of the major diseases affecting these organs, the pharmacology of drugs used to treat these diseases and the therapeutics associated with the pharmaceutical care of patients with these diseases.

PHA 536. Nervous System Pharmacotherapy (5 hours)

This course explores the relationship between epidemiology, physiology, pathophysiology, medical chemistry, pharmacology, and therapeutics of Neurologic and Psychiatric disorders.

PHA 537. Gastrointestinal and Musculoskeletal Pharmacotherapy (5 hours)

This course explores the relationship between the epidemiology, physiology, pathophysiology, clinical presentation, medical chemistry, pharmacology, and therapeutics of musculoskeletal and gastrointestinal disorders.

PHA 538. Basic and Clinical Sciences Review (1 hour)

This course serves as a demonstration of the retention of key concepts related to basic sciences, pharmaceutical sciences, social and administrative sciences, and clinical sciences.

PHA 539. Oncology, Toxicology, and Drug-Induced Disorders (4 hours)
Pharmacotherapy

This course explores the relationship between epidemiology, physiology, pathophysiology, medical chemistry, pharmacology, and therapeutics of hematology/oncology disorders, toxicology, and drug induced disorders.

PHA 540. Specialty Pharmacy Practice (2 hours)

This course will discuss aspects of specialty pharmacy, including the management of specialty disease states, delivery of services related to this disease states, and the role of the pharmacist in specialty practice areas.

PHA 554. Infectious Diseases I (4 hours)

This course is designed to provide the pharmacy student with solid background in the pharmacology and medicinal chemistry of chemotherapeutic agents used in the treatment of bacterial, parasitic, fungal, and viral-mediated infectious diseases. Additionally, the course will encompass individual microbes and the mechanisms of diseases they cause. Topics of emphasis in regards to microbial pathophysiology will be pharmacological effects of agents, mechanism of action, structure-activity relationships, mechanisms of resistance, and the pharmacological/chemical basis for drug considerations/untoward effects. Knowledge gained by the completion of this course will prepare the student for clinical and pharmacotherapeutic considerations and decision making with regards to drug efficacy, drug of choice, adverse drug reactions, and other medication-related problems which are discussed in Infectious Disease II (PHA 555).

PHA 555. Infectious Diseases II (3 hours)

An integrated course, will discuss the epidemiology, pathophysiology, patient assessment, social and behavioral aspects, and therapeutics of infectious diseases as it relates to the organisms that cause these diseases. Students will be expected to know the medicinal chemistry and pharmacology of chemotherapeutic agents from Infectious Diseases I (PHA 554) used to treat microbial and viral infections and apply this information to the clinical treatment of diseases. Emphasis will be placed on structure activity relationships, mechanisms of action, overall pharmacological effects and mechanisms of adverse effects produced by drugs used to treat infectious diseases. Interpretation of the clinical literature will be required in making decisions regarding drug efficacy, drug of choice, adverse drug reactions, and other medication-related problems. Knowledge gained by the completion of this module will prepare the student to properly identify, assess, and resolved complex, medication-related problems and other patient issues related to infectious diseases.

PHA 557. Hematology and Oncology Disorders (3 hours)

This course is designed to integrate the anatomy, physiology, pathophysiology, and patient assessment of hematologic disorders (anemia, thrombocytopenia, hematologic malignancies) and oncology disorders (solid malignancies) with the medicinal chemistry, pharmacology, pharmacotherapy, and relevant pharmaceuticals of prescription and non-prescription medications, and non-chemotherapeutic strategies used to manage and prevent the disorders. Relevant diagnostic procedures used in wellness care, diagnosis, and treatment follow-up will be presented along with aspects of supportive care for the oncology patient and management of oncologic emergencies.

PHA 573. Advanced Law (2 hours)

This course will introduce student pharmacists to the legal basis of pharmacy practice in non-traditional pharmacy settings. The course will emphasize the pharmacist's responsibility to care for patients and to respect patients as autonomous individuals.

PHA 575. Practice of Pharmacy V (2 hours)

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

PHA 576. Practice of Pharmacy VI (2 hours)

Patient Care Experience VI is a continuation of the courses consisting of activities designed to bring relevance to concepts presented in the classroom at the P3 level. The experience should continue the transition from didactic instruction to the application or practice phase of pharmacy to better prepare the student pharmacist as a provider of patient care.

PHA 590. Comprehensive Patient-Centered Care (3 hours)

This course emphasizes the implementation of the professional concepts of pharmaceutical care (PC) to prepare students to provide direct patient care. This includes the responsible provision of drug therapy to achieve definite outcomes that improve a patient's quality of life. This course will be presented using clinical patient cases and will integrate knowledge, skills, and competencies relevant to various aspects of pharmacy practice. Students will learn how to collect and interpret data to design, recommend, carry out, monitor, and adjust patient specific pharmacotherapy plans. Students will also learn how to work in collaboration with each other. This is a student-centered learning, performance-based course that is designed to assist the student in the improvement of several professional skills. These skills are: problem-solving skills, group dynamic skills, interviewing skills, presentation skills, writing skills, drug-information skills, and self-evaluation skills.

PHA 591. Integrated Patient Care V (3 hours)

This is the fifth course in a series of six courses. Through the integration of clinical knowledge gained with practical skills development, students are prepared to effectively function as a pharmacy extern within advanced practices (e.g. acute care, ambulatory care)

PHA 592. Integrated Patient Care VI (3 hours)

This is the final course in a series of six courses. Through the integration of clinical knowledge gained with practical skills development, students are prepared to effectively function as a pharmacy extern within specialty practices.

PHA 593. Professional Development and Engagement V (1 hour)

This course is the fifth of a six course series that fosters professionalism, an understanding of the pharmacy profession, as well as team and career development.

PHA 594. Professional Development and Engagement VI (1 hour)

This course is the sixth of a six course series that fosters professionalism, an understanding of the pharmacy profession, as well as team and career development.

PHA 595. Comprehensive Patient-Centered Care III (3 hours)

This is the last course of a three course series. This course is a student-centered learning course modeled after the Pharmacists' Patient Care Process (PPCP) that integrates clinical knowledge, skills, and competencies relevant to pharmacy practice.

Elective Didactic Courses

PHA 505. Community Pharmacy Ownership (2 hours)

A course designed to provide the student with the information necessary to become a community pharmacy owner either through the establishment of a new pharmacy or the purchase of an existing pharmacy practice. The knowledge necessary for efficient and profitable management in layout and design, location analysis, evaluation of third party plans, and promotion are emphasized as well as the financial aspects of the development and implementation of innovative clinical services in the community setting. The course includes case studies and group projects in addition to didactic classes.

PHA 509. Introduction to Teaching (2 hours)

Prerequisites: consent of instructor and a GPA of 3.5 or better is required.

A course designed to stimulate interest of pharmacy students in a career in teaching. Through facilitating small groups of students, discussing readings from the literature, and assisting faculty in a variety of teaching activities, the student is better able to evaluate the possibility of a career in teaching. (This course may be taken up to two times for credit.)

PHA 516. Advanced Community Practice (2 hours)

This course is intended to prepare the student for a successful career in community pharmacy practice. This course will focus on practical knowledge needed to be effective in community practice including patient management, workforce development, preceptor development, customer service, inventory control, and opportunities for growth. The course will utilize guest lectures, discussions, case studies, and student presentations. By course completion, the student will obtain knowledge needed to successfully manage and operate a community pharmacy.

PHA 519. Contemporary Pharmacy Topics (2 hours)

This didactic course is intended to develop the student's critical thinking and appreciation of timely pharmacy-related topics. Pharmacy residents lecture on contemporary topics related to the courses taught in the core curriculum. These topics will expand students' knowledge of pharmacy and increase awareness of the opportunities available for pharmacists. The topics will be introduced with a didactic lecture followed by a diverse array of active learning activities (patient cases, debates, literature evaluation, etc.). The topics discussed will be relevant to current pharmacy practice and will facilitate the growth of critical thinking and problem-solving skills necessary for our students. Enrollment in the Contemporary Pharmacy Topics Elective is restricted to 40 second and third year Doctor of Pharmacy Students.

PHA 520. Veterinary Pharmacy (2 hours)

Veterinary Pharmacy provides an overview of the pharmacotherapeutics of common diseases and conditions of companion and selected food-producing animals. Legal and regulatory issues associated with veterinary drug dispensing will also be addressed.

PHA 522. Drug Development and Regulatory Affairs (2 hours)

This course reviews basic concepts related to the discovery, pre-clinical, and clinical phases of prescription drug development and regulatory affairs from the perspective of the pharmaceutical industry.

PHA 524. Pharmaceutical Industry Medical Affairs (2 hours)

This course is designed to introduce students to the skills and competencies necessary for practice in pharmaceutical industry medical affairs. This will include basic understanding of clinical and economic literature evaluation, promotional review, medical writing, field based medical affairs, health economics and outcomes research, market access, and leadership.

PHA 527. Pharmaceutical Biotechnology (2 hours)

This course is intended to provide the student with a working knowledge of the preparation, stability and formulation of different protein and peptide drugs such as antisense agents, transgenic therapeutics and gene therapy. Current FDA approved biotechnology drugs such as human insulin, growth hormones and interferons will be discussed.

PHA 529. Contemporary Compounding (2 hours)

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

PHA 531. Medical Ethics for Health Care Professionals (2 hours)

Advancing medical knowledge and technology present individuals and society with unprecedented choices which often raise ethical dilemmas. This course prepares students in the health professions for dealing with ethical dilemmas through an analysis of classic and current cases, identification of ethical issues involved, application of ethical principles, development of a personal position, and consideration of counter-arguments.

PHA 532. Computer-Assisted Drug Design (2 hours)

This elective course is for Pharmaceutical Sciences graduate students and third-professional year Pharmacy students. This is a survey course designed to introduce students to the methods, applications, and limitations of computational chemistry in drug discovery.

PHA 541 Personal Finances (2 hours)

This course is designed to both introduce and develop a student's knowledge regarding multiple aspects of personal finance. Topics to be covered include: budget development, dealing with debt, purchasing decisions, net worth, and retirement planning.

PHA 548. Project Development (2 hours)

Prerequisites: consent of instructor and a GPA of 2.5 or better is required. This course is designed to acquaint the student with the techniques involved in the development of a project in either the basic or clinical sciences. A project will be assigned to the student and the student will be expected to perform literature reviews and other work deemed necessary by the faculty instructor to produce an acceptable final written report. (This course may be taken up to two times for credit.)

PHA 548A. Project Development (1 hour)

This section of Project Development is limited to students participating in Mercer on Mission.

PHA 549. Introduction to Research (2 hours)

Prerequisites: consent of instructor and a GPA of 2.5 or better is required. This course is designed to acquaint the student with current techniques utilized in basic and clinical research. A problem will be assigned by the instructor and the student will be expected to do the library and laboratory or clinical work required to prepare a report. (This course may be taken up to three times for credit.)

PHA 558. Critical Care Pharmacotherapy (2 hours)

The purpose of this course is to provide an introduction to critical care pharmacotherapy for students interested in the institutional setting in which acute care issues are more commonly encountered. The course will include a discussion of the role of the pharmacist,

evidence-based principles in pharmacotherapy, and controversial issues in critical care medicine.

PHA 560. Substance Abuse (2 hours)

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

PHA 562. Natural Medicines and Self Care (2 hours)

This course is designed to give the interested student additional knowledge and skills on health promotion in order to be a better educated pharmacist and consumer. The primary focus will be on the scientific basis of alternative medicine therapies in the prevention and treatment of acute and chronic illness. A secondary focus will be on the prevention and detection of heart disease, cancer, and mental illness, including the impact of lifestyle changes on disease management. The use of diagnostic tests, utilized to screen disease and monitor patient response to selected drug therapy, will also be discussed.

PHA 564. Geriatric Pharmacy (2 hours)

This course will allow opportunity for discovery of the importance of drug-related problems in the geriatric patient. Major topics include the psychosocial aspects of aging; the impact of physiologic changes on pharmacotherapy problems in the aging patient; issues and strategies for managing medication therapy in geriatric patients; and roles of the pharmacist in providing pharmaceutical care to geriatric patients at various levels of care.

PHA 565. Drug Misadventures (2 hours)

This course is designed to provide a deeper understanding of serious drug misadventures including: adverse drug reactions, medication errors, drug interactions, and drug allergies. Emphasis is on problem solving and the identification of preventative measures.

PHA 566. Women's Health (2 hours)

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

PHA 569. Diabetes Care (2 hours)

This course is designed to provide students with additional education in the care of patients with diabetes. The course's primary objective is to increase students' aptitude and confidence in providing medication therapy management to patients with diabetes while reinforcing the knowledge of drug therapy that was taught in the endocrine curriculum.

PHA 571. Pediatric Pharmacotherapy (2 hours)

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

PHA 572. Spanish for Pharmacists (2 hours)

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

PHA 579. Global Health for Pharmacists (2 hours)

This course is designed to increase the student's knowledge of and sensitivity to people of diverse cultural backgrounds and their needs for healthcare services. Social, political, cultural, religious, and economic factors will be evaluated in demonstrating how healthcare practitioners may contribute to the promotion of healthy living through the provision of healthcare services to underserved populations on a global level.

PHA 582. Managed Care Pharmacy (2 hours)

This elective course is intended to develop the student's critical thinking, basic principles and applications of managed care pharmacy practice. The topics will be introduced with didactic lectures, case studies, guest speakers, and active learning activities. This course will provide an overview of managed care pharmacy and an understanding of how managed care pharmacy impacts the healthcare system. By course completion, the student will obtain knowledge of managed care pharmacy that can be a valuable preparation for experiential education and career opportunities in a variety of practice settings, including a managed care organization, hospital administration and community pharmacy management.

PHA 583. Advanced Leadership (2 hours)

This elective course is designed to build upon the foundational concepts and skills in leadership and advocacy learned in the required curriculum. Students will develop an advanced understanding of the components that make leadership successful and their personal strengths as a leader through classroom, reflection, and experiential activities.

Pharmacy Practice Experiences**Required Introductory Pharmacy Practice Experiences (IPPEs)**

Students are required to complete the following introductory pharmacy practice experiences during the first, second, and third professional years. Professional development portfolios are a required component for successful completion of the Practice of Pharmacy and Introductory Pharmacy Practice Experience courses. College policy requires that all students have proper records of required intern licensure, immunizations and health screenings, and proof of current health insurance prior to any assignment to a patient care setting. Students are also subject to background checks and drug screenings as required by their assigned experiential sites' policies.

These courses incorporate required Introductory Pharmacy Practice Experiences (IPPEs) which are composed of Service-Learning and Introductory Pharmacy Practice Competencies: Clinical Skills and Simulation Laboratory (P1 and P2), Global Health & Wellness (P1), Community-based (P2), Institution-based (P3), Educational Medication Therapy Management (P3), and Interprofessional Education (P2 and P3). The goal of Service Learning is for students to develop a sense of personal responsibility for addressing the problems and needs of society through active participation in civic and community organizations that are health care related. This experience also fosters student understanding of how pharmacists can make positive impacts in the lives of their patients. This experience provides the student with the means to enhance awareness of themselves

and the social, civic, and ethical issues that surround their everyday lives. The goal of Interprofessional Education is to develop an understanding of how professional roles and responsibilities complement each other in patient-centered care, to reinforce interprofessional communication to ensure integrated patient care, and to work collaboratively as part of a patient-centered, interdisciplinary team.

PHA 483. Introductory Pharmacy Practice Experience III (1 hour)

This is one of eight required experiential courses of the Introductory Pharmacy Practice Experience (IPPE) series. Students will participate in pharmacy practice activities and will be expected to utilize the knowledge learned in the Practice of Pharmacy course sequence. Students will spend time in the Clinical Skills and Simulation Laboratory learning about the medication use system in institutional pharmacy practice and how the pharmacist can have an impact on various public health initiatives. Students will continue with their Service Learning IPPE. Students will demonstrate the following core practice skills: communication, patient counseling, patient assessment, pharmacy calculations, ethics, medication safety, informatics, critical thinking, cultural competency, wellness and health promotion, and health screening.

PHA 485. Introductory Community Pharmacy (1 hour)

This is one of eight required courses in the Introductory Pharmacy Practice Experience (IPPE) series. Students will participate in pharmacy practice activities and will be expected to utilize the knowledge learned in the Practice of Pharmacy course series and P1 IPPE. Students will be assigned to a community pharmacy setting for an 80-hour experience; this will expose the students to the broad-based daily duties often required of a community pharmacist. Students will gain experience in providing patient care, dispensing prescriptions, and understanding the administrative functions of a pharmacist in the community setting. Students will demonstrate the following core practice skills: communication, patient counseling, patient assessment, pharmacy calculations, ethics, medication safety, informatics, critical thinking, cultural competency, wellness and health promotion, and health screening.

Note: Upon completion of all P1 curricular and progression requirements, students may register and complete this course session during the summer between their P1 and P2 year, between fall and spring semester of the P2 year, or at the beginning of the spring semester during the P2 year.

PHA 486. Introductory Pharmacy Practice Experience IV (0 hour)

This is one of eight required experiential courses of the Introductory Pharmacy Practice Experience (IPPE) series. Students will participate in pharmacy practice activities and will be expected to utilize the knowledge learned in the Practice of Pharmacy course sequence and in previous IPPEs. Students will spend time during the year continuing with their Service Learning IPPE. Students will work collaboratively with students from other health disciplines during Interprofessional Education activities. Students will demonstrate the following core practice skills: communication, patient counseling, patient assessment, pharmacy calculations, ethics, medication safety, informatics, critical thinking, cultural competency, wellness and health promotion, and health screening.

PHA 487. Community Introductory Pharmacy Practice Experience (2 hours)

This course will provide a structured practical professional experience in community-based pharmacy practice. Students are assigned a 120-hour practice experience after the completion of their first-professional year. Through utilization of competency-based objectives, students gain a greater appreciation for the profession of pharmacy and develop professional attitudes, judgment and technical skills needed to function in the community setting. Students observe/discuss the role of the community-based pharmacist

and actively participate in daily operations that focus on the distributive and clinical aspects of practice.

PHA 517. Introductory Institutional Pharmacy (1 hour)

This is one of eight required courses in the Introductory Pharmacy Practice Experience (IPPE) series. Students will participate in pharmacy practice activities and will be expected to utilize the knowledge learned in the Practice of Pharmacy course sequence and previous IPPEs. Students will be assigned to an institutional pharmacy setting for an 80-hour experience; this will expose the students to the broad-based daily duties often required of an institutional pharmacist. Students will gain experience in understanding the medication use process and understanding the administrative functions of a pharmacist in the institutional setting. Students will demonstrate the following core practice skills: communication, patient counseling, patient assessment, pharmacy calculations, ethics, medication safety, informatics, critical thinking, and cultural competency.

Note: Upon completion of all P2 curricular and progression requirements, students may register and complete this course session during the summer between their P2 and P3 year, between fall and spring semester of the P3 year, or at the beginning of the spring semester during the P3 year.

PHA 518. Introductory Pharmacy Practice Experience VI (0 hour)

This is one of eight required experiential courses of the Introductory Pharmacy Practice Experience (IPPE) series. Students will participate in pharmacy practice activities and will be expected to utilize the knowledge learned in the Practice of Pharmacy course sequence in applying the Pharmacists' Patient Care Process (PPCP). The Educational Medication Therapy Management Experience (Ed-MTM) will provide students with patient-centered care activities in a community-based setting with older adults. Students will spend additional time during the year continuing with their Service Learning IPPE. Students will work collaboratively with students from other health disciplines during Interprofessional Education activities. Students will demonstrate the following core practice skills: communication, patient counseling, patient assessment, pharmacy calculations, ethics, medication safety, informatics, critical thinking, cultural competency, wellness and health promotion, and health screening.

PHA 585. Introductory Pharmacy Practice Experience V (1 hour)

This is one of eight required experiential courses of the Introductory Pharmacy Practice Experience (IPPE) series. Students will participate in pharmacy practice activities and will be expected to utilize the knowledge learned in the Practice of Pharmacy course sequence. The Educational Medication Therapy Management Experience will provide students with patient-centered care activities in a community-based setting with older adults. Students will spend additional time during the year continuing with their Service Learning IPPE. Students will demonstrate the following core practice skills: communication, patient counseling, patient assessment, pharmacy calculations, ethics, medication safety, informatics, critical thinking, cultural competency, wellness and health promotion, and health screening.

PHA 587. Institutional Introductory Pharmacy Practice Experience (2 hours)

This course will provide a structured practical professional experience in institutional-based pharmacy practice. Students are assigned a 120-hour practice experience after the completion of their second-professional year. Through utilization of competency-based objectives, students gain a greater appreciation for the profession of pharmacy and develop professional attitudes, judgment and technical skills needed to function in the institutional setting. Students observe/ discuss the role of the health-system pharmacist

and actively participate in daily operations that focus on the distributive and clinical aspects of practice.

Advanced Pharmacy Practice Experiences (APPEs)

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

Five (5) advanced pharmacy practice experiences (APPEs) are required in the areas of Community Pharmacy, Institutional Pharmacy, Adult Medicine or Medicine Sub-Specialty, Ambulatory Care, and Acute Care. Three (3) practice experiences are electives. Each APPE is five (5) weeks in length. Pharmacy Review I-III (PHA 620-622) are taken concurrently with APPEs.

Students are surveyed during the third professional year to determine elective preferences and eligibility for assignment. Students may repeat a course one time to fulfill an elective requirement. Assignments are made through an online program that randomly assigns students based on site availability.

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

College policy requires that all students have proper records of required immunizations and health screenings and proof of current health insurance prior to any assignment to a patient care setting. Students are also subject to background checks and drug screenings as required by their assigned experiential sites' policies.

The majority of Mercer's advanced pharmacy practice experiences are completed within the following areas: metropolitan Atlanta, Chattanooga, Columbus, Macon, and Savannah. Mercer Pharmacy students, however, may be required to complete part of their advanced pharmacy practice experiences at other locations based on site availability. A complete list of sites is available in the Experiential Education Office. Site availability is subject to change.

Pharmacy students can also consider participating in one of the following unique advanced pharmacy practice experience programs: Advanced Clinical Track (ACT), Global Medical Missions, Indian Health Service (IHS), or International Pharmacy. A list of the current sites utilized for these programs is available in the Experiential Education Office.

Advanced Clinical Track (ACT) Program

The goal of the Advanced Clinical Track (ACT) Program is to provide a challenging combination of advanced pharmacy practice experiences (APPEs) that will aid in preparing students who plan on completing postgraduate residency training. Students who participate in the program will have the opportunity to have a more intensive APPE schedule, one-on-one faculty mentoring, and research experience that will focus on advancing fourth year students as future clinicians and clinical researchers. Current practice sites for the ACT Program are available on the COP website.

Indian Health Service Program

Pharmacy students may elect to complete a five-week ambulatory medicine practice experience with the Indian Health Service (IHS). Students will be involved in patient counseling; calculation of individualized drug doses for clinic and hospital patients; management of stabilized chronic disease patients by drug therapy protocols; and work as members of the healthcare team with IHS pharmacists, physicians, and nurses. Current practice sites are available on the COP website.

International Pharmacy Program

This program is designed to provide an elective five-week pharmacy practice experience in one of the approved foreign pharmacy sites. Pharmacy students will study the health care system of the host country to determine the differences in pharmacy practice, governmental influences, and education, as compared to the United States. These objectives also allow a student to gain personal experience and growth from living and practicing in another country, as well as insight into the health care issues and problems abroad. Assignment to an international pharmacy practice experience is competitive. Current practice sites are available on the COP website.

Global Medical Missions

This pharmacy practice experience is designed to introduce the student to the practice of pharmacy within a medical missions-related setting. Through this experience, the student will participate in pharmacy-related activities as a means for global outreach, service, and personal growth. Current practice sites are available on the COP website.

APPE Courses/Rotations

PHA 620. Pharmacy Review I (1 hour)

This course is designed to provide a guided and structured comprehensive review for the fourth-year student pharmacist. This course utilizes textbooks, other online pharmacy law materials, and assessments. Course format uses a self-study component. This course addresses areas of federal pharmacy law.

PHA 621. Pharmacy Review II (1 hour)

This course is designed to provide a guided and structured comprehensive review for the fourth-year student pharmacist. This course utilizes a textbook, online video library, individual and cumulative chapter assessments, and cumulative exams. Course format uses a self-study component. This course addresses areas of pharmacotherapy, calculations, systems management, and various health concepts.

PHA 622. Pharmacy Review III (1 hour)

This course is designed to provide a guided and structured comprehensive review for the fourth-year student pharmacist. This course utilizes a textbook, online video library, individual and cumulative chapter assessments, and cumulative exams. Course format uses a self-study component and live, in-person seminars. This course addresses areas of pharmacotherapy, calculations, systems management, and population and public health concepts.

PHA 650. Pharmacotherapy Case Conference (0-1 hour)

This course is designed to incorporate the concepts and information from the pharmacotherapy disease state modules, General Principles of Pharmacotherapy, and Practice of Pharmacy courses in a case study-based format. Students will evaluate medical therapy management in patients with a variety of disease states that the student most likely encountered during their advanced pharmacy practice experiences (APPEs). Depending on the topic, a variety of teaching methods will be employed, including didactic

lectures, asynchronous lectures, small group activities, and self-directed review. (This course may be taken up to three times for credit.)

PHA 602. Anticoagulation (5 hours)

This experience is designed to give the student the opportunity to provide patient care services related to the use of various anticoagulation therapies in the inpatient setting. During this experience, the student will develop a pharmacotherapeutic care plan for patients receiving anticoagulant therapies, develop the skills necessary to provide monitoring and counseling for patients receiving anticoagulation therapies, and learn to participate in a multidisciplinary healthcare team.

PHA 612. Transplant Pharmacy (5 hours)

This experience is designed to give the student the opportunity to provide patient care services related to the use of various immunosuppressive therapies in the inpatient setting. During this experience, the student will develop a pharmacotherapeutic care plan for patients receiving immunosuppressive therapies, develop the skills necessary to provide monitoring and counseling for patients receiving immunosuppressive therapies, and learn to participate in a multidisciplinary healthcare team.

PHA 619. Transitions of Care (5 hours)

This experience is designed to expose the student to the importance of the pharmacists' role in the transition of care of a patient in both the inpatient and outpatient setting. This practice experience is designed to give the student an understanding of the importance of medication reconciliation, direct patient care, and ambulatory follow-up across all settings. Through this experience, the student will develop skills necessary to participate in and provide leadership for the medication reconciliation process, enhance written and verbal communication skills, and learn to participate within a multidisciplinary healthcare team.

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

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

PHA 670. Medicine (5 hours)

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

PHA 671. Cardiology (5 hours)

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

PHA 672. Critical Care (5 hours)

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

PHA 674. Hematology/Oncology (5 hours)

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

PHA 675. Infectious Diseases (5 hours)

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

PHA 676. Neonatology (5 hours)

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

PHA 677. Pediatrics (5 hours)

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

PHA 678. Psychiatry (5 hours)

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

PHA 679. Surgery (5 hours)

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

PHA 680. Ambulatory Care (5 hours)

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

PHA 681. Advanced Community (5 hours)

This experience is designed to expose the student to a variety of patient-oriented services in community pharmacy practice and engage the student in service activities that will meet a community need, foster long-term civic and professional responsibility, and develop a sense of caring for others. These services may include: (1) patient counseling on appropriate drug use, home diagnostic test kits, and durable medical equipment; (2) monitoring drug therapy for safety and efficacy; (3) providing drug information to health care professionals and preceptors; (4) participating in health screenings and immunization clinics; and (5) providing education to the community through health fairs. This experience is also designed to give the student further experience in documenting pharmaceutical care interventions in community pharmacy practice.

PHA 684. General Clinical (5 hours)

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

PHA 687. Home Health Care (5 hours)

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

PHA 691. Nutritional Support (5 hours)

This practice experience is designed to provide the student with the opportunity to gain knowledge, skills, and practical experience in basic nutritional principles, nutritional

assessment, and management of the patient requiring enteral and/or total parenteral nutrition.

PHA 692. Pharmacokinetics (5 hours)

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

PHA 698. Emergency Medicine (5 hours)

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

PHA 699. Advanced Institutional (5 hours)

This experience is designed to expose the student to broad-based daily duties often required of an institutional-based pharmacist including but not limited to dispensatory functions of a pharmacist in the hospital setting, medication reconciliation, and participation within a multidisciplinary healthcare team.

Elective APPE Courses/Rotations

PHA 603. Compounding (5 hours)

This practice experience is designed to give the student a general understanding of the rationale for and the various techniques used in the extemporaneous compounding of pharmaceutical products.

PHA 605. Pharmacy Informatics and Technology (5 hours)

This practice experience is designed to introduce the student to the use of healthcare information technology as a means to improve medication use, enhance patient safety, and advance patient care. Through this experience, students will gain insight into the important role pharmacists play in integrating medication use with various levels of technology.

PHA 606. Regulatory Pharmacy (5 hours)

This practice experience will give the student a general understanding of the duties and responsibilities of a regulatory agency within the profession of pharmacy.

PHA 610. Global Medical Missions (5 hours)

This practice experience will introduce the student to the practice of pharmacy within a medical missions-related setting. Through this experience, the student will participate in pharmacy-related activities as a means for global outreach, service, and personal growth.

PHA 649. Managed Care Pharmacy (5 hours)

This experience is designed to provide the student with the general knowledge and a high level of exposure to a variety of activities conducted by managed care organizations (MCOs). MCOs manage healthcare services in a manner that is designed to effectively meet the needs of its members while incorporating clinical and economic factors.

PHA 651. Leadership in Pharmacy Management (5 hours)

This experience exposes the students to the duties and responsibilities associated with upper-management executives within a pharmacy corporation or business entity. This

experience is designed for students interested in pursuing a pharmacy career in upper-management and enhancing their leadership skills. The student will interact with executives in both clinical and business aspects of a company or healthcare system. This experience is specifically designed to give the student experience in practice issues, employee management, human resource services, recruiting, staffing and employee development needs, policy and advocacy, public relations, and in understanding the importance of professionalism and operational standards. Preference given to students enrolled in the Pharm.D./MBA program.

PHA 652. Medication Safety (5 hours)

This practice experience is designed to expose the student to the duties and responsibilities associated with the recognition, prevention and reporting of medication errors. This APPE is designed to provide students with both direct and indirect patient care. Students will work to provide improved medication safety throughout the health care facility.

PHA 653. Obstetrics/Gynecology (5 hours)

This practice experience is designed to expose students to the duties and responsibilities of a pharmacist practicing on a high risk perinatal and labor/delivery service.

PHA 660. Medication Therapy Management (5 hours)

This course will be an experience-based rotation to help the student become an active participant in the management and provision of a managed care Medication Therapy Management (MTM) program. Emphasis will be placed on learning basic MTM principles while the student learns how to provide these services to patients.

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

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

PHA 668. Pharmacy Association Management (5 hours)

This experience is designed to broaden the student's knowledge and understanding of Pharmacy Association Management. It is structured to provide experiences in national and state practice issues, education, member services, student development, policy and advocacy, and public relations. This experience can be completed at one of several sites.

PHA 682. Academic Administration (5 hours)

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

PHA 683. Drug Information (5 hours)

This practice experience will expose the student to various drug information activities such as: researching drug information questions, developing patient education materials and preparing pharmacy newsletters. Students may utilize Internet resources, abstracting services, professional journals, online bulletin boards, subscription disk, online information

retrieval services, and textbooks during this experience to enhance their verbal and written communication skills.

PHA 685. Geriatrics—Long Term Care (5 hours)

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

PHA 686. Health Outcomes Management (5 hours)

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

PHA 689. International Pharmacy (5 hours)

This practice experience is designed to broaden the student's knowledge about health care, pharmacy practice, and education specifically in another health care system. The students will spend five weeks in one of the approved sites for the international program. This practice experience will vary according to the specialty (hospital, community, industry, or government). Assignment is competitive.

PHA 690. Nuclear Pharmacy (5 hours)

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

PHA 693. Poison Control (5 hours)

This practice experience will allow the student to gain practical experience in the regional Poison Control Center (PCC) at Grady Memorial Hospital. The student will respond to questions on intentional and accidental poisonings of drugs, exposures to chemicals, and snake/insect bites from all over the Southeastern United States. The student will recommend antidotes, treatments, and referrals under the supervision of the PCC staff. The clinical experience also consists of weekly work units which concentrate on a particular area of interest related to toxicology and/or poisoning.

PHA 696. Research (5 hours)

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

PHA 697. Substance Abuse (5 hours)

This experience is designed to expose the student to aspects of drug and alcohol abuse and the treatment most often used in a clinical setting. This experience will enable the

student to learn more about the diagnosis, complications, and the management of addictive disease with drug therapy in today's health care environment.

Bachelor of Science in Pharmaceutical Sciences

For admitted, matriculating Mercer Doctor of Pharmacy students who do not already possess a baccalaureate degree, the College of Pharmacy will award the Bachelor of Science in Pharmaceutical Sciences degree provided they meet the following criteria:

- Completion of required prerequisite coursework (66 credit hours), including the Mercer University General Education requirements.
- Completion of all first and second professional year requirements (74 credit hours) of the Doctor of Pharmacy (Pharm.D.) Program.

The degree will be conferred following successful completion of the second professional year of the Pharm.D. program to all student pharmacists applying for graduation. At this point, the students will have earned a minimum of 140 credit hours (consisting of a minimum of 66 prerequisite hours and 74 hours of professional degree coursework).

General Education and Additional Pharmacy Prerequisites

Entering Doctor of Pharmacy students must have 66 semester hours of prerequisite coursework from a nationally-accredited college or university in the United States prior to matriculation. Mercer University's general education requirements are met by 32 hours of those prerequisite courses.

General Education Requirements

Communication

English Composition I	3 hrs.
English Composition II	3 hrs.
Public Speaking	3 hrs.

Religion^a

Humanities/Fine Arts

Humanities/Fine Arts Elective I ^b	3 hrs.
Humanities/Fine Arts Elective II ^b	3 hrs.

Behavioral/Social Science

Economics (Microeconomics or Macroeconomics)	3 hrs.
Behavioral/Social Science Elective I ^b	3 hrs.

Quantitative Reasoning

Calculus	3 hrs.
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Scientific Reasoning

General Chemistry I with lab	4 hrs.
General Chemistry II with lab	4 hrs.

General Education Subtotal **32 hrs.**

Additional Pharmacy Prerequisites

Statistics or Biostatistics	3 hrs.
General Biology I with lab	4 hrs.
General Biology II with lab	4 hrs.
Biochemistry	3 hrs.
Anatomy and Physiology I	3 hrs.
Anatomy and Physiology II	3 hrs.

Microbiology	3 hrs.
Organic Chemistry I with lab	4 hrs.
Organic Chemistry II with lab	4 hrs.
Behavioral/Social Science Elective II ^{bc}	3 hrs.
Additional Pharmacy Prerequisites Subtotal	34 hrs.
Total Prerequisite Coursework	66 hrs.

^a In this degree-completion program, students are exempt per the following Mercer University policy: Students transferring in with a bachelor's degree or 30 or more general education credits may be exempt from the undergraduate general education religion requirement by individual schools/colleges.

^b At least one elective course must focus on cultural diversity. Examples of courses that fulfill this prerequisite are: sociology, cultural anthropology, cultural geography, world literature, world religious, gender studies, or cultural studies in specific languages other than the student's native language.

^c Management courses can also fulfill this prerequisite.

Notes about prerequisites:

- Only grades of C or better are acceptable towards prerequisites.
- General Biology prerequisites can be fulfilled with courses in genetics, cellular biology, molecular biology, developmental biology or zoology.
- All science prerequisites must be fulfilled by courses intended for science majors.
- Humanities/Fine Arts electives may be chosen from one or more of these areas: art, history, literature, music, philosophy, religion or theatre. A foreign language course qualifies only if it focuses on the study of the foreign culture and/or its literature and is above the introductory level. Only one of these electives may be met by a foreign language course.
- Behavioral/Social Science electives may be chosen from one or more of the following areas: anthropology, economics, geography, political science, psychology and sociology.
- Individual course credits and prerequisite total hours are stated as a minimum. Students may exceed the credit hour requirements.
- No more than 64 of the 66 prerequisite hours can be from a two-year institution.

Program Outcomes

1. Demonstrate knowledge in the basic and pharmaceutical sciences.
2. Locate and critically evaluate qualitative and quantitative information to solve problems.
3. Communicate effectively both orally and in writing.
4. Demonstrate ethical and socially responsible conduct.

The B.S. in Pharmaceutical Sciences will not make a graduate eligible to practice pharmacy or to take pharmacy licensure examinations, which require successful completion of the Pharm.D. program.

Focus Areas Leading to Certificates of Achievement

The College of Pharmacy offers several focus areas that enhance the generalist Doctor of Pharmacy degree. Students pursuing these focus areas receive a certificate of achievement upon completion of didactic and experiential course work. These certificates of achievement may allow for practice in specialized areas.

Pharmacy-based Immunization Delivery is a focus area required of all students and is achieved through successful completion of the American Pharmacists Association (APhA)

interactive educational program. This program is a component of Integrated Patient Care I (PHA 361), a required course in the Doctor of Pharmacy curriculum. Students receive a certificate of achievement awarded by APhA.

Medication Therapy Management is a focus area in which requirements include completion of the American Pharmacists Association (APhA) training program, a component of Integrated Patient Care V (PHA 591). Students receive a certificate of achievement awarded by APhA.

Academic Pharmacy requirements include successful completion of the Introduction to Teaching (PHA 509) elective and the APPE titled Academic Administration (PHA 682) in the fourth professional year.

Community Pharmacy Ownership requirements include successful completion of the Community Pharmacy Ownership (PHA 505) elective and the APPE titled Advanced Community (PHA 681) in the fourth professional year. Students receive experiential training in the distributive aspects of community pharmacy as well as involvement in the application of pharmaceutical care in the community practice setting.

Contemporary Compounding requirements include successful completion of the Contemporary Compounding (PHA 529) elective and the APPE titled Compounding (PHA 603) or an Advanced Community APPE (PHA 681) with an emphasis on compounding in the fourth professional year.

Diabetes Care requirements include successful completion of the following three items: The Diabetes Care (PHA 569) elective, an ambulatory care APPE or an advanced community APPE at a selected site with special emphasis in diabetes care, and a diabetes care practicum taken at the end of the fourth professional year.

Geriatric Pharmacy Practice requirements include successful completion of the Geriatric Pharmacy (PHA 564) elective and either a geriatrics-long term care APPE (PHA 685) or geriatrics-continuous care APPE (PHA 618) in the fourth professional year.

Leadership in Pharmacy requirements include successful completion of the Leadership in Pharmacy (PHA 578) elective and the APPE titled Leadership in Pharmacy Management (PHA 651) in the fourth professional year.

Managed Care Pharmacy requirements include successful completion of the Managed Care Pharmacy (PHA 582) elective and the APPE titled Managed Care Pharmacy (PHA 649) in the fourth professional year.

Entrepreneurial-Focused Track

The goal of the Mercer University College of Pharmacy Entrepreneurial-Focused Track is to facilitate student learning focused on entrepreneurial innovation and design to develop leaders within the community and the profession of pharmacy.

Program Structure

In order to achieve distinction in the Entrepreneurial-Focused Track, students will be required to earn a passing grade in the following:

- 1) Required Courses (13 total hours):
 - a. PHA 516: Advanced Community Practice (2 hours)
 - b. PHA 681: Advanced Community (5 hours)
 - c. BA 625: Special Topics - Innovation Management (3 hours)
 - d. BA 684: Entrepreneurship, Intrapreneurship and Innovation (3 hours)
- 2) Elective Courses (7 total hours):
 - a. Choose at least 1 of the following (2 total hours):
 - i. PHA 505: Community Pharmacy Ownership (2 hours)
 - ii. PHA 529: Contemporary Compounding (2 hours)
 - iii. PHA 520: Veterinary Pharmacy (2 hours)

- iv. PHA 583: Advanced Leadership (2 hours)
- b. Choose at least 1 of the following (5 total hours):
 - i. PHA 603: Compounding (5 hours)
 - ii. PHA 605: Pharmacy Informatics and Technology (5 hours)
 - iii. PHA 649: Managed Care Pharmacy (5 hours)
 - iv. PHA 651: Leadership in Pharmacy Management (5 hours)
 - v. PHA 668: Pharmacy Association Management (5 hours)

*Listed pre-requisites for these courses have been deemed fulfilled by the School of Business.

Program Details

- 1) Recognition
 - a. Pharm.D. students who successfully complete the entrepreneurial-focused track will receive specific recognition on their transcript (but not their diploma).
 - b. The transcript will indicate that the student's major is Doctor of Pharmacy with a concentration in entrepreneurship.
- 2) Registration
 - a. Any listed pre-requisites (per the School of Business) for BA 625 and BA 684 will be lifted for interested Pharm.D. students to allow for ease of registration.
 - b. The College of Pharmacy will need to identify/appoint a faculty advisor to help interested students navigate proper registration of courses to ensure completion of the focused track.
 - c. Involved faculty from the College of Pharmacy and the School of Business will work together, alongside the Registrar, to both allow for and secure proper registration/enrollment of required courses.
- 3) Student Requirements
 - a. First year student pharmacists will be eligible to register for courses associated with this focused track during their spring semester (and subsequently thereafter).
 - b. Initially, a student pharmacist will need a minimum 2.75 GPA to register for courses associated with this focused track.
 - c. Students enrolled in this focused track must maintain a minimum 2.75 GPA to continue participation and to successfully complete the focused track to receive transcript recognition.
 - d. Academic advisement is provided by the Entrepreneurial-Focused Track Program Director in the College of Pharmacy.

Requirements for Internship and Licensure

All Doctor of Pharmacy students are required to obtain a Georgia internship license after enrollment in the Doctor of Pharmacy Program and prior to participating in any on-site pharmacy practice experience. Intern license information is available on the Georgia Board of Pharmacy website: <http://gbp.georgia.gov>. Proof of licensure must be submitted as part of course requirements.

Students who plan to practice as pharmacy interns in states other than Georgia should consult their state's board of pharmacy for information on pharmacy intern licensure in their state (<http://www.nabp.net/boards-of-pharmacy> includes links to each state's board of pharmacy). Students who will complete Introductory or Advanced Pharmacy Practice Experiences in another state that requires licensure of pharmacy interns must obtain their pharmacy intern license in that state prior to the beginning of the experience.

Boards of Pharmacy require that applicants seeking licensure as pharmacists complete requirements specific to their state laws/regulations. Students are encouraged to review information available on the Georgia Board of Pharmacy website and the board of any other state in which they might seek pharmacist licensure for current requirements.

Post-Graduate Training Programs

Pharmacy Residencies

Although not required for entry into pharmacy practice, a one-year residency affords the Doctor of Pharmacy (Pharm.D.) graduate an opportunity to develop expertise in clinical pharmacy practice and specialty areas. Some of the objectives of Mercer pharmacy practice residency programs are:

1. To provide challenging post-graduate opportunities for highly motivated Pharm.D. graduates to specialize in the delivery of pharmaceutical care services, to improve their teaching abilities, and to develop research skills.
2. To serve as a catalyst for a change to more patient-oriented services in health systems, nursing homes, and the community pharmacy environment.
3. To assist the College and Pharmacy Practice faculty in:
 - a. Meeting ACPE accreditation guidelines for experiential and didactic teaching.
 - b. Providing backup support for ongoing patient services offered by Mercer faculty.
 - c. Generating quality publishable practice-oriented research.

More information about Mercer's Pharmacy Practice residencies is available online at: <http://pharmacy.mercer.edu/programs/residencies/>.

Doctor of Pharmacy/Master of Business Administration Program

Program Description

For qualified Pharmacy students Mercer University provides an opportunity to pursue the Master of Business Administration (MBA) degree concurrently with a Doctor of Pharmacy (Pharm.D.) degree. The MBA degree is earned through the School of Business (SHSB).

The (MBA) degree is a professional degree for qualified students interested in the management of human, material, and/or financial resources in business, government, or non-profit institutions. The degree is designed to complement the Pharm.D. degree in a manner that will broaden the occupational and professional opportunities of the prospective graduate in community, industry, or institutional practice. The program has been carefully designed to permit concurrent pursuit of both the Pharm.D. and MBA curriculum.

Program Outcomes/Objectives

The outcomes of the Pharm.D. degree program also apply to the Pharm.D./MBA program. The objectives of the MBA program are published in the School of Business section of this catalog.

Admissions Requirements and Procedure

In order to apply for admission to the MBA Program, a Doctor of Pharmacy student must have earned a baccalaureate degree or 120 hours of college credit. Applicants must meet admission requirements for both the Pharm.D. and MBA programs. Applicants must submit current scores for the Graduate Management Admissions Test (GMAT) or GRE and follow the admissions procedures outlined on the School of Business website (<http://business.mercer.edu/programs/atlanta-mba/>). A GMAT/GRE waiver may be available.

For detailed information on the program, contact the Director of the Pharm.D./MBA Program in the College of Pharmacy.

Program Requirements

While completing the requirements for the Doctor of Pharmacy degree, students may take courses in the School of Business toward the MBA degree provided they maintain a 2.75 minimum pharmacy school grade point average. Please refer to the School of Business Graduate Program section for program requirements.

MBA core courses offered at the School of Business can be used to satisfy professional-level elective hours required for the Doctor of Pharmacy Program. This does not preclude students taking professional-level electives in the Doctor of Pharmacy Program, and students are encouraged to take advantage of elective courses offered by the College of Pharmacy that will further develop their knowledge and skills in specific areas within the field of pharmacy.

Academic Advisement

Academic advisement for students participating in the Pharm.D./MBA Program is provided by the Pharm.D./MBA Program Director and the Office of Academic Affairs in the School of Business.

Doctor of Pharmacy/Master of Public Health Program

Program Description

For qualified students at the College of Pharmacy, Mercer University provides an opportunity to pursue a Master of Public Health (MPH) degree concurrently with the Doctor of Pharmacy (Pharm.D.) degree. The MPH degree is earned through Mercer's College of Health Professions (CHP).

The MPH degree program is designed to transform students into competent, passionate professionals ready to tackle the complex and dynamic challenges of public health in neighborhoods and populations in the U.S. and world. The MPH degree is designed to complement the Pharm.D. degree in a manner that will broaden the occupational and professional opportunities of the prospective graduate in community, industry, or institutional practice. The program has been carefully designed to permit concurrent pursuit of both the Pharm.D. and the MPH curriculum.

Program Outcomes/Objectives

The outcomes of the Pharm.D. degree program also apply to the Pharm.D./MPH Program. The MPH Program has been passionately committed to the educational development of public health professionals who are challenged to confront complex health issues, such as improving access to healthcare, controlling infectious diseases, and reducing environmental hazards, violence, substance abuse, and injury.

Admissions Requirements

In order to apply for admission to the MPH Program, a Doctor of Pharmacy student must have completed a bachelor's degree or 120 hours of college credit. At 120 hours of college credit, the Doctor of Pharmacy student is considered to have the equivalent of a bachelor's degree in terms of a focused record of study.

Admission requirements for the MPH Program follow those outlined on the College of Health Professions MPH Program Admissions website (<https://chp.mercer.edu/admissions/admissions-requirements/>). MPH Program applicants must take the Graduate Record Examination (GRE). At the time of application, students submit GRE scores and a completed application through the Centralized Application Service for Public Health (SOPHAS Express; <https://sophasexpress.liaisoncas.com/>).

Academic Advisement and Progression

Faculty in the College of Pharmacy and College of Health Professions provide academic advisement for students pursuing the Pharm.D./MPH Program. Students admitted into the Pharm.D./MPH Program are required to meet with the Director of the Public Health Program, or designee, to discuss the program requirements prior to enrollment in their first MPH course.

Pharm.D./MPH Program students must maintain a cumulative GPA of 2.75 and maintain good academic standing in the Pharm.D. Program throughout their enrollment in the MPH Program. Students must maintain a grade point average of 3.0 or above in all public health courses.

While Doctor of Pharmacy students may opt to pursue the Pharm.D./MPH Program at any time during their Pharm.D. Program enrollment and can complete the MPH coursework at their own pace, they must maintain full-time status in the Pharm.D. Program and must complete the MPH Program within five (5) years of initial enrollment in the MPH Program.

Program Requirements

While completing the requirements for the Doctor of Pharmacy degree, students may take courses at the College of Health Professions toward the MPH degree. The prerequisite and core courses for the MPH degree are listed below.

MPH Required Courses (33 hours)

MPH 611	Principles of Epidemiology	(3 hours)
MPH 621	Basic Biostatistics and Health Measures	(3 hours)
MPH 631	Environmental Health	(3 hours)
MPH 641	Disease Prevention and Health Promotion	(3 hours)
MPH 652	Public Health Management	(3 hours)
MPH 675	Community Health Needs Assessment	(3 hours)
MPH 713	Health Systems and Policy	(3 hours)
MPH 721	Grant Proposal and Writing	(3 hours)
MPH 730	Introductory Program Evaluation	(3 hours)
MPH 739	Diverse Populations	(3 hours)
MPH 740	Health Equity	(3 hours)

MPH Program courses can be used to satisfy up to eight (8) professional-level didactic elective hours required for the Pharm.D. Program. This does not preclude students taking professional-level electives in the Pharm.D. Program, and students are encouraged to take advantage of elective courses offered by the College of Pharmacy that will further develop their knowledge and skills in specific areas within the field of pharmacy.

MPH Electives (6 hours)

One (1) three (3) credit hour course of the first professional year in the Pharm.D. Program fulfills a portion of the electives in the MPH Program: PHA 335 Health Care Delivery and Population Health. Student will need to complete the other elective hours through one of two options outlined below.

Option 1: Student must complete two of the following College of Pharmacy electives:

PHA 549 Introduction to Research

PHA 566 Women's Health

PHA 579 Global Health

Option 2: Student must complete one (1) three-credit hour elective offered by the College of Health Professions Department of Public Health. Please consult the Registrar's Office and the Master of Public Health Curriculum for a list of available electives.

MPH Internship (3 hours)

MPH 793	Applied Practice Experience	(3 hours)
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Both Pharm.D. and MPH programs require students to complete service learning hours as part of each program's curriculum. MPH students are required to complete 40 service learning hours intended to improve public health and expand upon their existing public health skills and knowledge. Pharm.D. students must complete 70 hours of service learning to improve patient care and expand upon their patient caring skills. It is feasible for these hours to be completed simultaneously. With approval of the Director of the Public Health Program, an advanced pharmacy practice experience (APPE) may be substituted for MPH 793 Applied Practice Experience if the APPE has a public health emphasis.

Doctor of Pharmacy/Master of Science in Health Informatics Program

Program Description

Health Informatics is an interdisciplinary field and is of interest to many healthcare related fields. The combined Pharm.D./M.S. in Health Informatics program provides an opportunity to eligible and qualified Pharmacy students to pursue a Master of Science in Health Informatics degree concurrently with a Doctor of Pharmacy degree. The M.S. in Health Informatics program is offered through College of Professional Advancement of Mercer University in an online format. Students must apply separately for both degree programs and meet admission requirements for both programs.

In the combined Pharm.D./M.S. in Health Informatics program, students will integrate knowledge and skills from both health science and technology domains which builds their capacity to address modern challenges in healthcare ecosystems. Graduates of this combined program have a large range of professional opportunities across the healthcare and IT sectors. The M.S. in Health Informatics courses are designed to enable students to pursue both degrees without compromising the academic demands of the two disciplines.

Program Outcomes/Objectives

The outcomes of the Pharm.D. degree program and the outcomes of the M.S. in Health Informatics program also apply to the combined Pharm.D./M.S. in Health Informatics program.

Admissions Requirements and Procedure

Students must meet the admission requirements for the Pharm.D. program in the College of Pharmacy and for the M.S. in Health Informatics program in College of Professional Advancement of Mercer University. Please refer to the College of Pharmacy for admission requirements for the Pharm.D. program. Admission requirements for the M.S. in Health Informatics portion of the combined program are as follows:

- Students must have completed a bachelor's degree or a minimum of 120 undergraduate credit hours from a nationally accredited college or university. (International or domestic students with credentials from outside the United States are required to have those credentials evaluated by a professional evaluation service per Pharm.D. admission requirements.)
- Students must have completed one year of healthcare or information technology (IT) work experience or equivalent prior to enrollment in the M.S. in Health Informatics program.
- Students must submit a recommendation letter from a supervisor or manager familiar with their work performance. The letter should narrate the student's experience, roles and responsibilities within the organization.
- Students must have earned a minimum cumulative undergraduate grade point average of 2.75 on all work attempted and should submit one official transcript (translated if they are not in English per University graduate education requirements and evaluated by a professional service per Pharm.D. admission requirements) from each college or university attended.
- Students must provide official scores on the Test of English as a Foreign Language (TOEFL/IELTS), or other evidence approved by College of Professional Advancement, if English is not the applicant's native language.

- Students must complete a formal interview with the Mathematics, Science and Informatics departmental faculty of College of Professional Advancement. These interviews will be conducted only after potential candidates have applied for admission to the M.S. in Health Informatics program and are judged qualified for an interview.

Program Requirements

While completing the requirements for the Doctor of Pharmacy degree, students may take courses in College of Professional Advancement toward the M.S. in Health Informatics degree provided they maintain a 2.75 minimum pharmacy school grade point average and a 3.0 health informatics grade point average. Please refer to the College of Professional Advancement M.S. in Health Informatics section for program requirements.

M.S. in Health Informatics courses offered at College of Professional Advancement can be used to satisfy professional-level elective hours required for the Doctor of Pharmacy Program. This does not preclude students taking professional-level electives in the Doctor of Pharmacy Program, and students are encouraged to take advantage of elective courses offered by the College of Pharmacy that will further develop their knowledge and skills in specific areas within the field of pharmacy.

Academic Advisement

Academic advisement for students participating in the Pharm.D./M.S. in Health Informatics Program is provided by the Pharm.D./M.S. in Health Informatics Program Director in the College of Pharmacy and the Coordinator of the M.S. in Health Informatics program in College of Professional Advancement.

Master of Science in Health Outcomes

Program Description

Mercer's Master of Science in Health Outcomes is designed to provide unique competencies that would allow the graduate to contribute to current challenges in health care delivery and policy. The program provides foundational instruction related to core aspects of health outcomes research including instruction related to biostatistics, epidemiology, research methods, health economics, and health care delivery. All students will complete the degree program with a capstone non-thesis or thesis project that pulls together curricular outcomes from the entire program. Students will have the opportunity to interact with experienced academic faculty as well as leaders in health outcomes from the pharmaceutical industry and health systems.

Student Learning Outcomes

At the completion of the program, the MERCER graduate will:

- Develop testable research hypotheses
- Develop and evaluate analytical plans for testing the statistical significance of research findings
- Demonstrate the ability to conduct a research project from inception to completion
- Clearly articulate the methods, findings, and implications of research projects via oral and written communication
- Possess a knowledge base and skill set that leads to employment and success in chosen career
- Evaluate published literature, policy documents, and scientific research

Admission Process and Requirements

The College of Pharmacy uses a "rolling" admissions policy for the Master of Science in Health Outcomes. Potential applicants are required to complete a bachelor's degree program or higher, completing courses with a C grade or better. Potential applicants are also asked to submit their curriculum vitae or resume, a statement of purpose, and a general application. Potential applicants should have a demonstrated interest in pharmacy and health care services through degree programs (e.g., undergraduate major or graduate degree) or work experience. While not required, potential applicants may submit a standardized test score that is no more than 5 years old (e.g. GRE, PCAT, MCAT, LSAT). For an applicant from a country where the primary language is other than English; a minimum official TOEFL score must be submitted for review. Submission of final official transcripts from all colleges/universities attended is required prior to enrollment. Failure to submit any items required for enrollment by the deadline will result in the offer of admission being rescinded.

Transfer Credit

Upon approval by the Program's Director, up to 6 semester hours of graduate-level credit may be transferred from other approved institutions. The student must supply a transcript and the necessary descriptive materials from each course to the program's Director. The program's Director will determine the equivalent course and the number of credit hours accepted. Courses cannot be transferred for credit if: a) they have been taken more than four years before admission to the M.S. program; or b) a grade below C (or the equivalent) was earned.

Tuition, Required Fees, and Other Estimated Expenses

Tuition	\$750.00 per semester hour
Facilities and Technology Fee (per semester)	\$150.00

Health Insurance Requirement

All students are required to maintain health insurance coverage. In order to enforce this policy, all students are automatically enrolled and charged for health insurance each semester. This health insurance will be provided by the University's sponsored student insurance plan. Students are provided the opportunity to waive the student insurance coverage and have this charge removed from their Mercer bill each semester if satisfactory evidence is submitted proving that primary health insurance coverage exists. Information on how to complete the insurance waiver process and deadlines for the process is available on the Mercer website: <http://bursar.mercer.edu/studentinsurance/>. Students who do not submit proof of primary health insurance through the waiver process are automatically signed up for coverage under the student insurance plan.

Application for Graduation

Students who expect to qualify for graduation must file applications for graduation with Registrar's Office in the semester prior to completing degree requirements.

Degree Requirements

1. Completion of the Master of Science in Health Outcomes curriculum (totaling 30 credit hours) with a passing grade in each course and with at least a 3.0 cumulative grade point average
2. Recommendation by the faculty of the College of Pharmacy
3. Payment of all financial obligations to the University

Academic Advisement

Academic advisement for student participating in the Master of Science in Health Outcomes program is provided by the Director of the Master of Science in Health Outcomes program.

Curriculum

Courses will be offered fully online, in either an asynchronous or partly synchronous/asynchronous model. The courses will be offered as scheduled during the Fall, Spring, or Summer semesters.

Core Required Courses

Students are required to take all of the courses in order to earn the Master of Science in Health Outcomes degree.

PHA 703 Biostatistics	2 semester hours
PHA 704 Epidemiology	2 semester hours
PHA 705 Introduction to statistical software programming	2 semester hours
PHA 707 Qualitative methods	3 semester hours
PHA 708 United States healthcare delivery, policy, and management	3 semester hours
PHA 709 Survey of health services research methods	3 semester hours
PHA 710 Quantitative methods	3 semester hours
PHA 712 Health economics	2 semester hours
PHA 722 Seminar	1 semester hour

Track Requirements

All students must complete at least one of the following tracks:

Pharmacoeconomic track

PHA 713 Pharmacoeconomic modelling	3 semester hours
PHA 714 Advanced statistical methods	3 semester hours

Health outcomes track

PHA 719 Patient reported outcomes	3 semester hours
PHA 720 Comparative effectiveness research	3 semester hours

Capstone or Thesis requirements

Depending on the goals of the student, each student must enroll in at least one of the following courses towards the completion of their degree. Students may enroll in each course up to two times.

PHA 797 Capstone	3 semester hours
PHA 798 Thesis	3 semester hours

Course Descriptions

PHA 703. Biostatistics 2 hours

This course will introduce the student to basic concepts in statistical analysis for health care applications. The student will develop a foundation in approaches to descriptive and inferential statistics along with reviewing common study designs. Specific statistical approaches include t-test, Chi-square test, ANOVA, etc. This course is the first course in a two course sequence followed by PHA 705 Introduction to Statistical Software Programming.

PHA 704. Epidemiology 2 hours

This course will introduce the basic concepts and principles of epidemiology. The practical application of epidemiological concepts will be learned by understanding disease distribution patterns over time, place, and populations as well as how to determine factors of change for disease patterns.

PHA 705. Introduction to Statistical Software Programming 2 hours

This course will introduce statistical programming in SAS or SPSS. Students will perform data management, data cleaning, and learn how to perform and interpret basic statistical analyses (e.g. descriptive statistics, inferential statistics). This course is the second course in a two course series (after PHA 703 Biostatistics).

PHA 707. Qualitative Methods 3 hours

This course will introduce qualitative theory, methods, and analysis as it applies to public health and health outcomes. Students will learn what qualitative methods is, how it is utilized as a research methodology, and its impact on health outcomes.

PHA 708. United States Health Care Delivery, Policy and Management 3 hours

This course will introduce students to the US health delivery system. Students will learn about the health policies that have shaped the delivery system. Students will also learn about the different delivery models. Students will also learn how current policies and the political environment shaped health-care delivery models. Finally, students will be introduced to management topics in the application of healthcare delivery.

PHA 709. Survey of Health Service Research Methods **3 hours**

This course will introduce students to the application of scientific, ethical, and methodological principles to the investigation of research questions regarding health and health care delivery.

PHA 710. Quantitative Methods **3 hours**

Prerequisites: PHA 703 Biostatistics.

The course is designed to comprehensively introduce primary research methods used in clinical and health services research. It introduces various research designs including experimental and non-experimental that focus on quantitative research.

PHA 712. Health Economics **2 hours**

Prerequisites: PHA 708 United States Health Care Delivery, Policy, and Management or approval of course coordinator.

This course will explore the economic principles that underlie the healthcare markets and systems. Students will be exposed to economic principles such as price elasticities of demand and supply, externalities, the concept of cost, and apply these to special markets such as the pharmaceutical and the health insurance industry.

PHA 713. Pharmacoeconomic Modelling **3 hours**

Prerequisites: PHA 712 Health Economics or approval of course coordinator.

The pharmacoeconomic modeling will be an applied course based on pharmacoeconomic principles. Students will learn how to build pharmacoeconomic models in Microsoft Excel.

PHA 714. Advanced Statistical Methods **3 hours**

Prerequisites: PHA 710 Quantitative Methods or approval of course coordinator.

This course is designed to immerse students in statistical methods commonly used in health outcomes research. Students will learn how to identify and apply appropriate statistical design, tests, and models. Students will also learn how to interpret the data in context to health outcomes research.

PHA 719. Patient Reported Outcomes **3 hours**

Prerequisites: PHA 707 Qualitative Methods or approval of course coordinator.

This course is designed to introduce the theory, measurement, and applications of patient-reported health outcomes, specifically health-related quality of life and consumer assessments of health care.

PHA 720. Comparative Effectiveness Research **3 hours**

Prerequisites: PHA 708 United States Health Care Delivery, Policy, and Management or approval of course coordinator.

This course is designed to familiarize students with comparative effectiveness research as utilized by the pharmaceutical industry, policy-makers, and researchers. An introduction of key terminology and effectiveness analysis procedures related to pharmaceutical products and health delivery systems.

PHA 722. Seminar **1 hour**

Prerequisites: six hours of track requirements.

This introductory course provides students with the opportunity to learn about and discuss current challenges in health care delivery and research. Students will hear from leaders in the field and work collaboratively to analyze topics from the clinical, economic, social, and policy perspective.

PHA 797. Capstone **3 hours**

Prerequisites: six hours of track requirements.

This course will allow students to apply concepts learned during the Master's program to a current real world problem in the health care system. Students will apply concepts in a capstone project which will be under the supervision of a faculty member.

PHA 798. Thesis

3 hours

Prerequisites: six hours of track requirements.

This course will allow students to apply concepts learned during the Master's program to a current real world problem in the health care system. Students will apply concepts by writing a research thesis under the supervision of a faculty member.

Doctor of Pharmacy/Master of Science in Health Outcomes

Program Description

For qualified Pharmacy student Mercer University provides the opportunity to pursue the Master of Science in Health Outcomes degree concurrently with a Doctor of Pharmacy (Pharm.D.) degree.

The Master of Science in Health Outcomes (M.S.) is designed to provide unique competencies that would allow the graduate to contribute to current challenges in health care delivery and policy. The program provides foundational instruction related to core aspects of health outcomes research including instruction related to biostatistics, epidemiology, research methods, health economics, and health care delivery. All students will complete the degree program with a capstone non-thesis or thesis project that pulls together curricular outcomes from the entire program. Students will have the opportunity to interact with experienced academic faculty as well as leaders in health outcomes from the pharmaceutical industry and health systems.

Program Outcomes/Objectives

The outcomes of the Pharm.D. degree program and the outcomes of the M.S. in Health Outcomes program also apply to the combined Pharm.D./M.S. in Health Outcomes program.

Admissions Requirement and Procedure

Students must meet the admission requirements for the Pharm.D. program in the College of Pharmacy and for the M.S. in Health Outcomes. Please refer to the College of Pharmacy for admission requirements for the Pharm.D. program. Admission requirements for the M.S. in Health outcomes portion of the combined program are as follows:

- Potential applicants are required to complete a bachelor's degree program or higher, completing courses with a C grade or better.
- Potential applicants are also asked to submit their curriculum vitae or resume, a statement of purpose, and a general application.
- While not required, potential applicants may submit a standardized test score that is no more than 5 years old (e.g. GRE, PCAT, MCAT, LSAT).
- For applicants whose native country is not the United States, they are required to submit TOEFL scores.

Program Requirements

While completing the requirements for the Doctor of Pharmacy degree, student may take courses towards the M.S. in Health Outcomes degree provided they maintain a 2.75 minimum pharmacy school grade point average and a 3.0 health outcomes grades point average.

M.S. in Health Outcomes can be used to satisfy professional-level elective hours required for the Doctor of Pharmacy program. This does preclude students taking professional-level electives in the Doctor of Pharmacy program, and students are

encouraged to take advantage of elective courses offered by the College of Pharmacy that will further develop their knowledge and skills in specific areas within the field of pharmacy.

Academic Advisement

Academic advisement for students participating in the Pharm.D./M.S. in Health Outcomes program is provided by the Pharm.D./M.S. in Health Outcomes program Director. Additionally, the student will have a graduate advisor within the M.S. in Health Outcomes program for their thesis/capstone project.

Doctor of Philosophy Degree Program

Program Description

The Doctor of Philosophy Degree Program in Pharmaceutical Sciences uses an interdisciplinary approach to prepare students for careers in teaching and research in academic institutions, and for employment in industry, government and other agencies and institutions involved in health science-oriented research and development. The program of study may be individualized according to the academic background and area of research interest of the student, and includes: required and elective course work, participation in departmental activities such as seminars and teaching assignments, and in-depth research involving a topic of interest to the student and major professor.

Program Objectives

The objectives of the program are that students will be able to:

- demonstrate a comprehensive knowledge of the core areas of the pharmaceutical sciences: pharmacokinetics, statistics, pharmacology, medicinal chemistry, structure activity relationship, dosage forms, delivery systems, formulation, pharmacodynamics, analytical methods/instrumentation, scientific literacy, bioethics, biotechnology, and drug metabolism.
- demonstrate knowledge of research methodology in their selected field of the pharmaceutical sciences.
- demonstrate knowledge of the literature in their selected field of the pharmaceutical sciences.
- formulate appropriate solutions to research and development problems.
- appropriately gather and analyze data using current informatics.
- communicate effectively in both written and oral forms.
- demonstrate self-improvement and continuing professional development.
- demonstrate the ability to collaborate with peers and faculty to meet an objective.
- adhere to professional and ethical responsibilities.
- demonstrate teaching skills.

Admissions Process and Requirements

Application for admission must be made on forms that may be obtained from the Department of Pharmaceutical Sciences or the department web page. An application cannot be given final consideration until all required components have been received. A complete application consists of the following:

- A nonrefundable \$25 application fee, the application form, and additional information requested on the application form.
- Official transcripts. An official transcript is one that has been issued by an institution and received by the department in an envelope sealed by the issuing institution. The transcript will contain the official school seal or stamp and the signature of the registrar. You are required to submit one separate official transcript from each college or university you have previously attended or are currently attending. Faxed documents are not accepted as official.
- Official report of GRE scores. Please use institution code 5623 and department code 0613.
- Official report of TOEFL scores, if required. Please use institution code 5623 and department code 0613.
- International students with degrees that have not been earned at a nationally accredited United States institution are required to provide a report by a professional evaluation service for foreign course evaluations. The evaluation should name and describe all diplomas, certificates, degrees, periods of education or training and give U.S. equivalencies for each. Mercer University accepts evaluations from the following three services:
 - World Education Services [www.wes.org]
 - Josef Silney & Associates, Inc. [www.jsilny.com/html/foreign.htm]
 - American Association of Collegiate Registrars and Admissions Officers [www.aacrao.org]
- Recommendations on the supplied forms from three persons who are able to judge the applicant's accomplishments and academic ability. Recommendation forms should be sent directly to the Director of Graduate Programs.
- Minimum expectations for consideration for admission into the Ph.D. program include the following:
 - a Bachelor of Science in Pharmacy, Chemistry, Biology or an equivalent degree in a related area, or a Pharm.D. degree;
 - a minimum GPA of 3.0 based on a 4.0 scale;
 - a minimum Graduate Record Examination (GRE) score of at least 40 percentile in the verbal section and at least 60 percentile in the quantitative section;
 - for an applicant from a country where the primary language is other than English, a minimum official TOEFL score of 100 IBT (internet based TOEFL).

For more information, contact the Director of Graduate Programs or the Program Specialist, or email: pharmsciphd@mercer.edu, telephone (678) 547-6730.

Special Student Classification

Certain individuals may apply as special students in the Ph.D. program. This classification allows students to enroll upon submission of an application and official transcripts and approval of the Director of Graduate Programs.

Applicants must have completed a minimum of a bachelor's degree from an accredited college and must possess appropriate credentials for admission to the graduate program

with the exclusion of the GRE. Special student classification does not assure admission to the graduate program, and these students must reapply for admission to the graduate program and satisfy all admission requirements to be considered. A special student may apply a maximum of nine (9) credit hours as transfer credit toward the Ph.D. degree if the program of study can be completed within the stated time in residence. Special students must submit applications no later than thirty days before the beginning of the semester in which special student classification is sought.

Transfer Credit

Upon approval by the Director of Graduate Programs, up to 15 semester hours of graduate-level credit may be transferred from other approved institutions. The student must supply a transcript and the necessary descriptive materials from each course to the Director of Graduate Programs. The Director of Graduate Programs will determine the equivalent course and the number of credit hours accepted. Courses cannot be transferred for credit if: a) they have been taken more than six years before admission into the Ph.D. Program; or b) a grade below B (or the equivalent) was earned.

Financial Support

Financial support for graduate students in the department is available through teaching assistantships and tuition waivers. Stipends will be provided on a competitive basis for participation in laboratories and other College activities. Additional financial aid may be available through grants and/or contracts as well as guaranteed student loans.

Health Policies

The Mercer University Student Health Form is required and must be signed by a physician or other health care provider, and stamped with the provider's name and address. Students are encouraged to keep a photocopy of this completed form for their personal records.

All students born after 1956 must provide a statement of immunization against Measles, Mumps, and Rubella (MMR), giving the month, day, and year of immunization. A statement of "up to date" is not sufficient. Two doses of Measles (Rubeola) vaccine, two doses of Mumps vaccine, and one dose of Rubella are required. Students must have been at least 12 months old when the first Measles dose was received. Previous diagnosis of disease is proof of immunity against Measles and Mumps (a physician's statement is required), but not proof of Rubella.

If a student is unable to provide dates of immunization to Measles, Mumps, and Rubella, he or she may document immunity by blood test, at the student's expense. If this testing shows no immunity to Measles, Mumps, or Rubella, the student may register following documentation of the first dose of MMR, with the second to follow in thirty (30) days, if required.

Tuberculosis (TB) screening (within the past year) is required of all new students. Students at risk for TB will be required to have a PPD skin test (Mantoux). The Tine tuberculosis test is not acceptable. Students should be tested regardless of prior BCG vaccination. Any student with a positive skin test will be required to provide a report of a normal chest x-ray (done after the positive PPD) to be eligible to register. A physician should evaluate individuals with a positive tuberculosis skin test.

Do not assume that childhood immunizations are adequate; requirements have changed during the past several years. Medical facilities in the U.S. and in other countries are required to keep records of vaccinations. Additional sources of immunization information include doctors' offices, health departments, and schools. Students should make copies of the completed health form for their own files, and then mail the original forms. Do not rely on health care providers, family members, or other colleges to mail the forms.

Exemptions from compliance with the immunization policy include:

- Religious exemption, written on letterhead stationery, signed by a religious official and notarized.
- Medical exemption, written on office stationery, and signed by a health care provider. The letter should state the reason for the exemption, and whether the exemption is permanent or temporary.

Immunizations for the following diseases are recommended, but not mandatory: chickenpox (varicella), hepatitis A, hepatitis B, polio, and tetanus. The most recent tetanus booster should have been within the past 10 years. Immunization against meningococcal meningitis is recommended for college students.

Some academic programs have additional immunization requirements. Students are advised to check with their college or school program for any additional requirements.

Health Insurance Requirements

University policy mandates that all enrolled students (except those in distance learning and in the regional academic centers) must maintain health insurance coverage. Students are automatically charged by the University for health insurance every time they register for classes. This charge can be removed by completing the online waiver form before the end of the waiver period. To complete the waiver process, go to <https://bursar.mercer.edu/studentinsurance/>. Students must complete the waiver before the stated deadline. Failure to complete this form before the deadline will result in insurance being purchased for you and charged to your account.

Academic Policies and Procedures

Attendance

Attendance at the College of Pharmacy is a privilege and not a right. Each course coordinator is charged with the responsibility of establishing an absentee policy for his/her course, subject to the approval of the department chairperson. This policy must be a part of the course syllabus distributed to students. In those cases, in which the professor does not wish to establish an absentee policy, absenteeism cannot be considered in determining the grade for the course.

Leave of Absence

Any students wishing to take up to one week off from laboratory work, course work or other school duties must get prior approval from their major professor and the Director of Graduate Programs. In the absence of a permanent major professor, the Director of Graduate Programs should be consulted. When special circumstances arise, a student may make a request to the Director of Graduate Programs for an official leave of absence from the program. The student must submit the request in writing and state the reason for the request. A leave of absence may be granted for a maximum of one calendar year. Students on leave must complete course work for which an "I" grade was awarded in a prior term and are expected to comply with the one-year time limit for removing Incomplete grades. Students on stipends may be removed from the payroll for the duration of their absence unless the Financial Aid Office is notified otherwise by the Director of Graduate Programs.

Examinations

Students must report for scheduled examinations. Permission for make-up examination due to illness or other emergency may be obtained from the Director of Graduate Programs and the course coordinator.

Make-Up Examinations

It is the responsibility of each course coordinator to describe in the syllabus, or departmental policy and procedures manual, the course policy for making up examinations that are cancelled due to inclement weather or some emergency.

Dissertation Committee

This committee shall consist of five voting members. At least one must be from outside of the department. In addition to the major professor, at least one of the Mercer graduate faculty members must be from within the student's discipline. Because of special knowledge and distinction in the area of the student's work, additional individuals from outside the University may be appointed to the Dissertation Committee with nonvoting status. To appoint an individual outside of the University to a Dissertation Committee, the major professor will submit a request with justification to the program director for approval.

The major responsibilities of the Dissertation Committee are: to suggest and review courses in the program of study; to monitor the progress of the student through semi-annual meetings in December and June, or more frequently if required; to solicit questions, develop the scope and format, and grade the preliminary examination; to approve the preliminary research protocol; to provide advice during the conduct of the research; and to critically evaluate and approve the dissertation and final oral defense.

Standards of Performance

Each candidate for the Doctor of Philosophy degree must secure credit for a minimum of 60 semester hours including 25 hours of approved graduate-level coursework and 35 hours of dissertation research. In securing this credit each candidate must have a cumulative grade point average (GPA) of at least 3.0. Any student whose semester and/or cumulative GPA drops below 3.0 or who does not provide regular, documented evidence of progress in their research program is making unsatisfactory academic progress. Evidence of progress in research is a score above 3 on at least 5 of the 8 research progress criteria on the annual Graduate Student Assessment Form. In these cases, the student's progress will be monitored.

Student Probation and/or Dismissal

A cumulative grade point of at least 3.0 is required for graduation from the Ph.D. program. Semester and cumulative grade point averages are indications of a student's academic performance. A student whose grade point average for a single semester drops below 3.0 or whose cumulative grade point average falls below 3.0 or who does not provide regular, documented evidence of progress in their research program is making unsatisfactory academic progress.

1. Academic Warning—An academic warning is issued the first time that a student's single semester and/or cumulative GPA falls below 3.0 or the first time a student receives a grade of less than B or S in any graduate level course.
2. Academic Exclusion—Students may be permanently excluded from the program for:
 - a. failing to maintain a cumulative GPA of 3.0 following a previous academic warning.
 - b. receiving a grade lower than B in more than two graduate-level courses.
 - c. two unsatisfactory performances on the Ph.D. preliminary examination.

Application for Graduation

Students who expect to qualify for graduation must file applications for graduation with the Registrar's Office in the semester prior to completing degree requirements.

Degree Requirements

1. Completion of a minimum of 60 semester hours in the Doctor of Philosophy curriculum, including 25 hours of approved graduate-level coursework and 35 hours of dissertation research, with a 3.0 cumulative grade point average.
2. Successful completion of preliminary research protocol, preliminary examination, and successful completion of an original research project as evidenced by submission of the written dissertation and successful oral defense.
3. Two years in residence at Mercer University. Graduates must be in residence at the time of completion of the dissertation.
4. Payment of all financial obligations to the University.

Course Requirements

The Doctor of Philosophy Degree is awarded to students of exceptional scholarly achievement who demonstrate the ability to conduct original research. A minimum of 60 semester hours including 35 hours of dissertation research is required for graduation. Requirements for the degree are not determined solely in terms of a fixed number of courses, credits, and years of residence. Graduate programs are highly individualized and are tailored to the characteristics and interests of the individual student. The program of study will be determined by the major professor in consultation with the Dissertation Committee.

Courses in addition to those in the core will be selected to develop strengths in the student's areas of interest and research. These courses may be chosen from those offered by the College of Pharmacy faculty or may be completed at another university through cross registration via the Atlanta Regional Consortium for Higher Education. Any course deemed appropriate by the Dissertation Committee may be included on the Program of Study. Non-pharmacy courses are most commonly selected from disciplines such as chemistry, engineering, mathematics, physiology, statistics, or related areas. In some instances, the Dissertation Committee may determine that certain undergraduate pharmacy courses are essential components of the program of study. No graduate credit will be given for such courses.

The core curriculum for the Ph.D. degree, as well as elective courses taught within the department, is listed below:

Core Curriculum

*PHA 842 Foundations in Pharmaceutical Sciences	5 semester hours
PHA 843 Foundations in Research	3 semester hours
PHA 844 Scientific Writing	3 semester hours
PHA 845 Statistical Methods	3 semester hours
*PHA 808 Pharmacokinetics	3 semester hours
PHA 897 Graduate Seminar	3 semester hours
PHA 899 Doctoral Research	35 semester hours
*(waived for Combined Degree, Pharm.D./Ph.D. students)	

Departmental Elective Courses

PHA 846 Current Topics in Pharmaceutical Sciences	3 semester hours
PHA 847 Molecular and Behavioral Neuropharmacology	3 semester hours
PHA 814 Analytical Methods and Instrumentation	3 semester hours
PHA 804 Methods in Cell and Molecular Biology	3 semester hours
PHA 821 Pharmacogenomics	3 semester hours
PHA 823 Clinical Trial Design	3 semester hours

PHA 825 Drug Metabolism	2 semester hours
PHA 832 Computer-Assisted Drug Design	3 semester hours
PHA 833 Advanced Pharmacokinetics	3 semester hours
PHA 835 Advanced Physical Pharmacy	3 semester hours
PHA 837 Advanced Biopharmaceutics	3 semester hours
PHA 840 Industrial Pharmacy and Advanced Drug Delivery Systems	4 semester hours
PHA 841 Advanced Pharmacology	3 semester hours
PHA 849 Special Topics in Pharmaceutical Sciences	3 semester hours
PHA 850 Immunology	3 semester hours
PHA 807 Pharmaceutical Biotechnology	3 semester hours

Seminar Requirements

Throughout the course of study, the student is expected to read the current literature and attend and actively participate in the seminar programs offered by the department and the College of Pharmacy. The student will register for seminar during the summer semester of each year.

Pharmacy Teaching Certificate Program (PTCP)

Each student in the Ph.D. program is required to complete the PTCP. Graduate students who are in their third year and beyond in the program are required to enroll and participate in this teaching certificate program conducted by the College of Pharmacy. The goal of the program is to help students improve on their teaching related skills should they decide to pursue a career in academics. These skills include writing, presentation, curriculum development, and teaching.

Residence Requirements

Graduate students must complete all degree requirements within six years of the initial date of matriculation. Two years must be completed in residence at Mercer University. A student must be in residence at the time of completion of the dissertation.

Preliminary Examination

The purpose of the preliminary examination is to determine whether the student has been adequately prepared through course work and other activities to undertake an original research project. The breadth and depth of knowledge in the student's chosen discipline will also be examined. This examination will be timed and closed-book, and it will be related to the student's selected discipline and course work. The examination will be administered after completion of all course work and other requirements listed on the Program of Study form. Approval for the student to undertake this examination must be granted by the program director at the recommendation of the major professor.

The examination will be composed of questions solicited by the Dissertation Committee.

Preliminary Research Protocol

A protocol describing the student's dissertation project must be submitted to the Dissertation Committee written in the format of an NIH grant proposal. The student will defend the proposal orally before the Dissertation Committee. Approval of the protocol by the Dissertation Committee is required before the student can proceed formally with research activities. Students must defend the Preliminary Research Proposal within 2 semesters of passing the Preliminary Examination.

Admission to Candidacy

A student must apply for admission to candidacy following the successful completion of both the preliminary examination and the preliminary research protocol. The student

must receive admission to candidacy at least 2 semesters prior to the date of expected graduation.

Progress Reports

Progress reports will be prepared by each student in conjunction with the major professor and submitted to the Director of Graduate Programs by June 30 of each year.

Manuscript Requirements

All candidates for the Ph.D. degree must demonstrate competence in scientific writing by preparing and submitting at least one manuscript for publication. The manuscript must be submitted for publication before the candidate's final oral defense can be scheduled. At least one original research manuscript must be accepted for publication, as first author, before the candidate's final dissertation defense can be scheduled.

Dissertation and Final Oral Defense

An essential component of the Ph.D. degree program is the student's successful completion of an original research project under the supervision of the major professor and in consultation with the Dissertation Committee. The work is expected to lead to one or more publications in refereed scientific journals.

The student must prepare a written dissertation based on his/her research work. The format of the dissertation must comply with the regulations contained in the Guide to the Preparation of Theses and Dissertations. After the dissertation has been approved by the Dissertation Committee, a final oral defense is scheduled during which the candidate's understanding of the completed research project and knowledge of the major discipline are evaluated.

Course Descriptions

PHA 804. Methods in Cell and Molecular Biology (3 hours)

A course designed to introduce students to a variety of biochemical, immunochemical and molecular biology theories and techniques used in the laboratory.

PHA 807. Pharmaceutical Biotechnology (3 hours)

Pharmaceutical Biotechnology is intended to provide the student with a working knowledge of the preparation, stability, and formulation of different protein and peptide drugs such as antisense agents, transgenic therapeutics, and gene therapy. Current FDA approved biotechnology drugs such as human insulin; growth hormones and interferons will be discussed. (Offered Spring semesters)

PHA 808. Pharmacokinetics (3 hours)

This course is designed to provide the student with the advanced knowledge and skills necessary for employing pharmacokinetic principles in the selection and evaluation of drug therapy. Emphasis will be placed upon a complete understanding of the basic and clinically applicable pharmacokinetic formulas and the assumptions that are involved with their use. Aspects specifically related to multiple dosing and accumulation, drug protein binding, and non-linear pharmacokinetics will be addressed.

PHA 814. Analytical Methods and Instrumentation (3 hours)

This course is designed to provide the graduate student a background in modern analytical chemistry and instrumental methods of analysis. Application will be on the use in the pharmaceutical sciences.

PHA 821. Pharmacogenomics (3 hours)

This course will provide a detailed overview of the application of genomic sciences to pharmacy practice. The tools, methodologies, and goals of genomic medicine will be

discussed with an emphasis placed on complete understanding of drug effects based on polymorphisms in the human genome.

PHA 823. Clinical Trial Design (3 hours)

A course designed to introduce students to the methodology of randomized clinical trials. Common study designs, their implementation, and data analysis issues will be discussed.

PHA 825. Drug Metabolism (2 hours)

A course to study the concepts, chemistry, enzymology, and techniques in drug metabolism for the design and development of safe and effective therapeutic agents.

PHA 832. Computer-Assisted Drug Design (3 hours)

Computer-Assisted Drug Design is an elective for the Pharmaceutical Sciences graduate students and third-professional year pharmacy students. This is a survey course designed to introduce students to the methods, applications, and limitations of computational chemistry in drug discovery.

PHA 833. Advanced Pharmacokinetics (3 hours)

This course is designed to provide the student with the advanced knowledge and skills necessary for problem solving techniques related to the relationship between plasma concentration and effect, and clearance concepts as it relates to drug therapy. Emphasis will be placed upon a complete understanding of advanced, clinically applicable pharmacokinetic formulas and the assumptions that are involved with their use. This course will also utilize computer simulation programs to fit pharmacokinetic parameters using different models.

PHA 835. Advanced Physical Pharmacy (3 hours)

A course designed for the study of advanced physical concepts and methods as they apply to pharmaceutical systems and problems. Emphasis will be on chemical kinetics, solubility and dissolution, complexation, and interfacial phenomena.

PHA 837. Advanced Biopharmaceutics (3 hours)

A course to provide advanced study of the relationship between physicochemical properties of a drug in a dosage form and the pharmacologic, toxicologic or clinical response observed. Emphasis will be on design and evaluation of bioavailability studies.

PHA 840. Industrial Pharmacy and Advanced Drug Delivery Systems (4 hours)

This course is designed to study methods used to formulate, manufacture and test various dosage forms and delivery systems. There also is discussion of regulations and the role of the FDA and other regulatory agencies whose actions impact the pharmaceutical industry.

PHA 841. Advanced Pharmacology (3 hours)

A didactic and experiential course that examines concepts in the discipline of pharmacology. This course will provide a comprehensive overview of the field of pharmacology, developing an understanding of pharmacology from molecular processes through drug effects in whole, living organisms to clinical drug development. The sections for the course have been modeled on the divisions of the American Society for Pharmacology and Experimental Therapeutics, a 4800-member scientific society whose members conduct basic and clinical pharmacological research for academia, government, large pharmaceutical companies, small biotech companies, and non-profit organizations. The course sections include Neuropharmacology, Molecular Pharmacology, Behavioral Pharmacology, Cardiovascular Pharmacology, Toxicology, Drug Discovery and Development, and Integrative Systems, Translational, and Clinical Pharmacology.

PHA 842. Foundation in Pharmaceutical Sciences (5 hours)

A didactic course that examines various dosage forms and drug delivery systems, as well as the principles of drug action from a pharmacology and medicinal chemistry perspective. This course is designed to teach the fundamental concepts and applications of pharmaceuticals, pharmacology, and medicinal chemistry. Emphasis will be placed on understanding the drug design and development process.

PHA 843. Foundations in Research (3 hours)

This course explores to assist in the general knowledge of the research compliance at Mercer, bioethics in research, basic safety procedures in the laboratory for graduate students and employees. A course designed for graduate students and employees to assist in the general knowledge of research compliance at Mercer, bioethics in research, basic safety procedures in the laboratory.

PHA 844. Scientific Writing (3 hours)

This course will focus on the basics of scientific writing and organization. Considerations related to writing a scientific publication, formatting, writing styles, grantsmanship and the development of hypotheses will be covered.

PHA 845. Statistical Methods (3 hours)

This course is designed to teach graduate students in pharmaceutical science statistical methods of data analysis. Theoretical fundamentals of statistical methods will be discussed. Major topics covered will include descriptive statistical methods, probability, discrete and continuous distributions, hypothesis testing, regression methods and nonparametric analysis.

PHA 846. Current Topics in Pharmaceutical Sciences (3 hours)

This course explores recent advances in the pharmaceutical sciences that are published as primary research reports in first-tier scientific journals.

PHA 847. Molecular and Behavioral Neuropharmacology (3 hours)

This course provides students with foundational knowledge in the fields of molecular neuropharmacology and behavioral neuropharmacology in the context of basic and applied science research.

PHA 849. Special Topics in Pharmaceutical Sciences (3 hours)

A course to provide an in-depth coverage of a variety of current topics in the pharmaceutical sciences. (Offered each semester, as needed)

PHA 850 Immunology (3 hours)

This course provides a comprehensive foundation on the structure and function of the human immune system. Topics include innate immunity, adaptive immunity, functions of B and T lymphocytes, immunodeficiency, hypersensitivity, autoimmune disease, transplantation immunity, cancer immunity, vaccination and immunological methods. Proficiency in teaching and oral presentation is developed through student led tutorials on immunological methods. (Offered Fall semesters of even years)

PHA 897. Graduate Seminar (1 hour)

Weekly to bi-weekly presentations and discussions of research and other miscellaneous topics. Students are expected to present a minimum of one seminar annually while in residence. A minimum of 3 seminars by each doctoral student are required before graduation. The course is taught on a satisfactory/unsatisfactory grade basis.

PHA 899. Doctoral Research (1 - 9 Hours)

Research for doctoral students. This course is taught on a satisfactory/unsatisfactory grade basis. (Offered each semester)

Doctor of Pharmacy/Doctor of Philosophy Program

Program Description

The Doctor of Pharmacy (Pharm.D.)/Doctor of Philosophy (Ph.D.) Degree Program enables highly qualified students to obtain both degrees in a shortened period. This Pharm.D./Ph.D. Degree program is designed primarily for students who are strongly motivated toward an academic/research career in the pharmaceutical sciences. Students may pursue a clinical specialization in experimental pharmacotherapeutics or medicinal chemistry, pharmaceuticals, pharmacology, or toxicology. The program is flexible enough to accommodate individuals of varied educational backgrounds. The actual time required for completion of the program is variable and depends primarily on the individual's progress in their dissertation research.

Admissions Process and Requirements

In order to enroll in the Pharm.D./Ph.D. program, a student must separately apply for and gain admission to both the Pharm.D. and the Ph.D. programs. It is recommended that application to the Ph.D. program be made at the same time of application to the Pharm.D. program. A Pharm.D. student may join the Pharm.D./Ph.D. program by gaining admission to the Ph.D. program. However, this should be done by spring semester of the first year to gain full potential benefits of the program. Application forms for admission to the Ph.D. degree program may be obtained from the Department of Pharmaceutical Sciences website.

All applicants to the Pharm.D./Ph.D. program must have an earned Bachelor of Arts or Bachelor of Science degree. In addition, applicants are expected to satisfy the requirements for admission to both Pharm.D. and Ph.D. programs.

Program Requirements

Upon acceptance into the Pharm.D./Ph.D. Degree Program, an advisor from the faculty of the Department of Pharmaceutical Sciences will be assigned to the student. The advisor will schedule the program of study until the student selects a major professor. The specific program selected will be determined by the student's previous academic history as well as by the departmental requirements of the Ph.D. program. The structure of the Pharm.D./Ph.D. Degree Program differs from that of the Pharm.D. program in several respects.

1. During the first year, the student's research capability and commitment will be assessed through documented evaluation by the research advisor after the end of the 1st semester, 2nd semester, and again at the end of the 1st summer, with oversight of the Dissertation Committee as well as the Director of Graduate Studies and Department Chair. Additionally, Pharm.D./Ph.D. students will complete a self-assessment of their first year and present their first year research results at the end of the first summer as a requirement for progression. At the end of the first year, if progress is determined to be unsatisfactory, the student has the option of changing dissertation advisors, if one is willing to take them.
2. Pharm.D./Ph.D. students will take Ph.D. core courses in place of professional electives that simultaneously satisfy the requirements of both the Pharm.D. electives and the Ph.D. program.
3. Pharm.D./Ph.D. students are exempt from the following Ph.D. core courses: PHA 808, Pharmacokinetics (3 hours); PHA 842, Foundations in Pharmaceutical Sciences (5 hours).

4. Pharm.D./Ph.D. students are required to complete five (5) advanced pharmacy practice experiences (APPEs) in the areas of Community Pharmacy, Institutional Pharmacy, Adult Medicine or Medicine Sub-Specialty, Ambulatory Care, and Acute Care. In addition, students complete three (3) elective experiences by registering for PHA 696 (Research) over 3 APPE blocks. PHA 620 (Pharmacy Review I), PHA 621 (Pharmacy Review II), and PHA 622 (Pharmacy Review III) are also required.
5. The student is expected to participate in Graduate Seminar throughout their matriculation and to enroll for credit in the summer semester beginning with the third year.

Following completion of the third year, the student focuses on the research component of the curriculum. With the exception of the Advanced Pharmacy Practice Experiences, the student should have completed all prerequisite and core courses by this time.

Continuation in the Pharm.D./Ph.D. Degree Program is contingent upon satisfactory performance and progress toward fulfillment of the requirements of the Doctor of Pharmacy Degree Program and the Doctor of Philosophy Degree Program. Students admitted to the Pharm.D./Ph.D. degree program are expected to complete all program requirements. Should a student decide to withdraw from the combined degree program at any point, they must reapply for admission to either program separately, and if accepted, they must fulfill all requirements of either program individually.

Financial Arrangements

Students who are enrolled in the Pharm.D./Ph.D. Degree Program will pay full tuition for the first three years. Tuition waiver will be granted for the remainder of the program, normally the fourth through seventh years. Students will be encouraged to apply for extramural funding of their educational program. Departmental stipends will be awarded on a competitive basis for years 4-7, subject to availability. Stipend support beyond this time will be based on extramural funding. Financial support through tuition waiver or stipends is provided based on contribution to the teaching program as described in departmental policies.