DOCTOR OF PHARMACY PROGRAM

Doctor of Pharmacy (Pharm.D.) Curriculum

The Doctor of Pharmacy (Pharm.D.) curriculum at the Ben and Maytee Fisch College of Pharmacy integrates both basic and clinical sciences into a single course. Unlike a traditional Pharm.D. curriculum that organizes its content into multiple stand-alone courses, our curriculum will integrate those various topics into a single, cohesive course.

Our curriculum is highly coordinated by design. This means that when students learn specific healthcare topics, such as "Pain and Inflammation", they will learn the basic sciences (such as the pathophysiology of the condition, the pharmacology of the agents used, the medicinal chemistry of the medication's activity) along with the clinical sciences (such as selection of appropriate agents, use within special patient populations, counseling, and monitoring for adverse side effects).

Our faculty facilitate student learning and problem-solving in the classroom using a teaching method called team-based learning. Instead of students spending their time in the classroom listening to faculty deliver content, students solve real-world problems that integrate the basic and clinical sciences.

The Pharm.D. curriculum has three major categories of courses, (1) integrated pharmacy courses, (2) longitudinal pharmacy practice skills laboratories and (3) experiential education courses. Each semester is divided into two eight-week sessions; where seven weeks are used for actively learning the content and the final week is for reflection and assessment. Each eight-week session is further divided into "modules" that focus on one or more therapeutic topics that build upon prior knowledge.

In the first three years of the program, students participate in Introductory Pharmacy Practice Experiences (IPPEs). These experiences are designed to complement the classroom and laboratory experiences, allowing students to practice knowledge and skills into the real world practice environment.

Starting in the fourth year, students begin their Advanced Pharmacy Practice Experiences (APPEs) or advanced clinical rotations. The last six weeks of the program, students are brought back to campus to complete the final Integrated Pharmacy 13-15 courses. These last sessions are designed to fine tune knowledge and skills before the students enter into the profession. Course descriptions are available in the UT Tyler Undergraduate and Graduate Catalog.

### Doctor of Pharmacy (Pharm.D.) Curriculum

**Professional Year 1 (P1)**

<table>
<thead>
<tr>
<th>Fall Courses:</th>
<th>SCH</th>
<th>Spring Courses:</th>
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<tbody>
<tr>
<td>7601 Integrated Pharmacy* 1</td>
<td>6</td>
<td>7603 Integrated Pharmacy 3</td>
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<td>7604 Integrated Pharmacy 4</td>
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<tr>
<td>7241 Longitudinal Laboratory* 1</td>
<td>2</td>
<td>7243 Longitudinal Laboratory 3</td>
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<tr>
<td>7242 Longitudinal Laboratory 2</td>
<td>2</td>
<td>7244 Longitudinal Laboratory 4</td>
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</tr>
<tr>
<td>7161 Introductory Pharmacy Practice</td>
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<td>7163 Introductory Pharmacy Practice</td>
<td>1</td>
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<tr>
<td>7162 Introductory Pharmacy Practice</td>
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<td>7164 Introductory Pharmacy Practice</td>
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<td><strong>Total Student Credit Hours (SCH)</strong></td>
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<td><strong>Total Student Credit Hours (SCH)</strong></td>
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**Professional Year 2 (P2)**

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<tr>
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<tr>
<td>7605 Integrated Pharmacy 5</td>
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<td>7507 Integrated Pharmacy 7</td>
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<td>7245 Longitudinal Laboratory 5</td>
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<td>7121 Pharmacy Selective* 1</td>
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<td>7246 Longitudinal Laboratory 6</td>
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<td>7122 Pharmacy Selective 2</td>
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<td>7165 Introductory Pharmacy Practice</td>
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<td><strong>Total Student Credit Hours (SCH)</strong></td>
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</table>
The Integrated Pharmacy (IP) courses, the pharmacy disciplines are not taught as separate courses. The IP courses are taught in a team-based learning (TBL) classroom setting. In each IP course, the student pharmacist discovers how medications impact the body according to its chemical and physical properties. Based on these properties, the student pharmacist also discovers how medications work to correct biochemical, immunological, and physiological disruptions in normal functioning. The IP courses also guide students to an understanding of the best dosage forms for the medication so that it is optimally absorbed, distributed and eliminated from the body. Finally, the students learn the optimal medication and dosage for each disease.

The Integrated Longitudinal Lab (IL) is where the student pharmacist learns and practices the skills needed to care for patients in a laboratory and model pharmacy settings. Among the most important of those skills are patient interviewing and counseling, compounding medications and sterile products, teaching patients how to take their medications, reading the scientific literature, how to manage a pharmacy, and how to legally fill a prescription in the state of Texas. The knowledge that the students discovered in the IP course(s) is applied directly to the skills needed to care for patients in the laboratory, before going into an operational pharmacy and directly caring for patients.

During the Introductory Pharmacy Practice Experiences (IPPEs) the student pharmacist works in a pharmacy for four hours each week throughout the academic year. In the IPPEs, the knowledge they discovered in the IP courses and skills that are practiced in the IL are applied to the care of a patient under the direct supervision of a preceptor pharmacist. The materials from the IP and IL courses are aligned with the IPPE so that the knowledge and skills discovered in the classroom and laboratory can be practiced in a real-life setting.

Pharmacy Selectives are courses that are of personal interest and selected from among a menu of courses. Examples of pharmacy selectives include making professional presentations, antibiotic stewardship, preparing compounding medications and sterile products, teaching patients how to take their medications, reading the scientific literature, how to manage a pharmacy, and how to legally fill a prescription in the state of Texas. The knowledge that the students discovered in the IP course(s) is applied directly to the skills needed to care for patients in the laboratory, before going into an operational pharmacy and directly caring for patients.

The potential topics are as many as the interests of the preceptor/faculty who will be offering the APPE rotations. The APPE rotations are developed and monitored by the Office of Experiential Education within the college.

Student pharmacists return to the Tyler campus for the final six-week session. During the final session, students will take a required capstone course to design, integrate, review and reflect on their APPEs under the supervision of faculty. The capstone course will help them to prepare for the North American Pharmacy Licensure Exam (NAPLEX) which is required to practice in the field. The final six-week session also will allow students to take specialty classroom and skill-based courses in one or more areas of practice discovered during their APPEs before they enter into practice or help them prepare for residency or graduate training.

<table>
<thead>
<tr>
<th>Professional Year 3 (P3)</th>
<th>Professional Year 4 (P4)</th>
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<tbody>
<tr>
<td><strong>Fall Courses:</strong></td>
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</tr>
<tr>
<td>7509 Integrated Pharmacy 9</td>
<td>7511 Integrated Pharmacy 11</td>
</tr>
<tr>
<td>7510 Integrated Pharmacy 10</td>
<td>7512 Integrated Pharmacy 12</td>
</tr>
<tr>
<td>7123 Pharmacy Selective</td>
<td>7125 Pharmacy Selective 5</td>
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<tr>
<td>7124 Pharmacy Selective 4</td>
<td>7126 Pharmacy Selective 6</td>
</tr>
<tr>
<td>7249 Longitudinal Laboratory 9</td>
<td>7211 Longitudinal Laboratory 10</td>
</tr>
<tr>
<td>7250 Longitudinal Laboratory 10</td>
<td>7212 Longitudinal Laboratory 10</td>
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<tr>
<td>7169 Introductory Pharmacy Practice</td>
<td>7171 Introductory Pharmacy Practice</td>
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<td>7170 Introductory Pharmacy Practice</td>
<td>7172 Introductory Pharmacy Practice</td>
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<tr>
<td>Total Student Credit Hours (SCH) 18</td>
<td>Total Student Credit Hours (SCH) 18</td>
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<table>
<thead>
<tr>
<th><strong>Fall Courses:</strong></th>
<th><strong>Spring Courses:</strong></th>
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<tbody>
<tr>
<td>7681 Advanced Pharmacy Practice Experience</td>
<td>6</td>
</tr>
<tr>
<td>7682 Advanced Pharmacy Practice Experience</td>
<td>6</td>
</tr>
<tr>
<td>Total Student Credit Hours (SCH) 18</td>
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</tbody>
</table>

* In the Integrated Pharmacy (IP) courses, the pharmacy disciplines are not taught as separate courses. The IP courses are taught in a team-based learning (TBL) classroom setting. In each IP course, the student pharmacist discovers how medications impact the body according to its chemical and physical properties. Based on these properties, the student pharmacist also discovers how medications work to correct biochemical, immunological, and physiological disruptions in normal functioning. The IP courses also guide students to an understanding of the best dosage forms for the medication so that it is optimally absorbed, distributed and eliminated from the body. Finally, the students learn the optimal medication and dosage for each disease.

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‡ During the Introductory Pharmacy Practice Experiences (IPPEs) the student pharmacist works in a pharmacy for four hours each week throughout the academic year. In the IPPEs, the knowledge they discovered in the IP courses and skills that are practiced in the IL are applied to the care of a patient under the direct supervision of a preceptor pharmacist. The materials from the IP and IL courses are aligned with the IPPE so that the knowledge and skills discovered in the classroom and laboratory can be practiced in a real-life setting.

§ Pharmacy Selectives are required of student pharmacists. Pharmacy selectives are courses that are of personal interest and selected from among a menu of courses. Examples of pharmacy selectives include making professional presentations, antibiotic stewardship, preparing compounding medications and sterile products, teaching patients how to take their medications, reading the scientific literature, how to manage a pharmacy, and how to legally fill a prescription in the state of Texas. The knowledge that the students discovered in the IP course(s) is applied directly to the skills needed to care for patients in the laboratory, before going into an operational pharmacy and directly caring for patients.

¶ Advanced Pharmacy Practice Experiences (APPE) are completed over a 12-month period. Course numbering corresponds to the semester and session the course is taken rather than specific content. The accrediting agency requires four APPEs and the remainder are elective pharmacy practice experiences from an area of therapeutic or administrative interest for the specific student pharmacist. The elective rotations include such fields as psychiatry, transplant, nuclear pharmacy, academic, managed care. The potential topics are as many as the interests of the preceptor/faculty who will be offering the APPE rotations. The APPE rotations are developed and monitored by the Office of Experiential Education within the college.

^ Student pharmacists return to the Tyler campus for the final six-week session. During the final session, students will take a required capstone course to design, integrate, review and reflect on their APPEs under the supervision of faculty. The capstone course will help them to prepare for the North American Pharmacy Licensure Exam (NAPLEX) which is required to practice in the field. The final six-week session also will allow students to take specialty classroom and skill-based courses in one or more areas of practice discovered during their APPEs before they enter into practice or help them prepare for residency or graduate training.
Academic Calendar (2016-2017)

The College of Pharmacy has a separate academic calendar from UT Tyler. In general, the fall and spring semesters start one week earlier than UT Tyler, but both semesters the same time. Additional calendars, such as the UT Tyler Academic Calendar, Enrollment Calendar (Admissions, Financial Aid, Registrar’s Calendar), and the monthly College of Pharmacy is located on the UT Tyler Academics web page.

Organization of Semesters and Academic Sessions

The first professional years are organized into two semesters, i.e. fall and spring semesters. Within each of these semesters, there are two 8-week sessions. The Pharm.D. courses are organized to fit within each of these 8-week sessions; with each having a separate enrollments, census dates, add/drop dates, and final exam periods. One exception to this structure are longitudinal courses which may span across two or more sessions. The third professional year includes a 12 week summer semester.

<table>
<thead>
<tr>
<th>Fall 2016 Academic Calendar</th>
<th>Spring 2017 Academic Calendar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AUGUST</strong></td>
<td><strong>JANUARY</strong></td>
</tr>
<tr>
<td>19  Payment Deadline, 5:00PM CST for First 8-Week Session</td>
<td>1  New Year’s Day, all offices closed</td>
</tr>
<tr>
<td>22  Opening Convocation</td>
<td>6  Payment Deadline, 5:00PM CST for First 8-Week Session</td>
</tr>
<tr>
<td>29  Census Date for First 8-Week Session</td>
<td>9  Classes begin for First 8-Week Session</td>
</tr>
<tr>
<td>31  20º Class Day Equivalent for First 8-Week Session</td>
<td>16  Martin Luther King, Jr. Holiday, all offices closed, no classes</td>
</tr>
<tr>
<td><strong>SEPTEMBER</strong></td>
<td><strong>FEBRUARY</strong></td>
</tr>
<tr>
<td>5   Labor Day holiday, all offices closed, no classes held</td>
<td>1  Registration for Summer 2017 begins</td>
</tr>
<tr>
<td>23  Last day to withdraw from one or more courses for the First 8-Week Session</td>
<td>10  First Day to File for Fall 2017 Graduation</td>
</tr>
<tr>
<td><strong>OCTOBER</strong></td>
<td><strong>MARCH</strong></td>
</tr>
<tr>
<td>10-14 Final exams for First 8-Week Session</td>
<td>1  Final exams for First 8-Week Session</td>
</tr>
<tr>
<td>14  End of First 8-Week Session</td>
<td>3  End of First 8-Week Session</td>
</tr>
<tr>
<td>17  Classes begin for Second 8-Week Session</td>
<td>6  Classes begin for Second 8-Week Session</td>
</tr>
<tr>
<td>17  Textbook orders due for Spring 2017</td>
<td>7  Final grades due in Faculty Center by 12:00PM CST for First 8-Week Session</td>
</tr>
<tr>
<td>18  First Date to File for Summer 2017 graduation</td>
<td>10  Textbook orders due for Summer and Fall 2017</td>
</tr>
<tr>
<td>24  Final grades due in Faculty Center by 12:00PM CST for First 8-Week Session</td>
<td><strong>TBD</strong> Spring Break for staff</td>
</tr>
<tr>
<td>27  Census Date for Second 8-Week Session</td>
<td>20  Census Date for Second 8-Week Session</td>
</tr>
<tr>
<td>20º Class Day Equivalent for Second 8-Week Session</td>
<td>Final Filing Deadline for Spring 2017 graduation</td>
</tr>
<tr>
<td><strong>NOVEMBER</strong></td>
<td><strong>APRIL</strong></td>
</tr>
<tr>
<td>1   Final Filing Deadline for Fall 2016 graduation</td>
<td>3  Registration for Fall 2017 begins</td>
</tr>
<tr>
<td>21-26 Thanksgiving holidays for faculty and students</td>
<td>17  Last day to withdraw from one or more courses for Second 8-Week Session</td>
</tr>
<tr>
<td>24-25 Thanksgiving holidays for staff, all offices closed</td>
<td><strong>MAY</strong></td>
</tr>
<tr>
<td>28  Last day to withdraw from one or more courses for Second 8-Week Session</td>
<td>1  Final exams for Second 8-Week Session</td>
</tr>
<tr>
<td><strong>DECEMBER</strong></td>
<td>5-6  Spring Commencement</td>
</tr>
<tr>
<td>12-17 Final exams for Second 8-Week Session</td>
<td>6  End of Second 8-Week Session</td>
</tr>
<tr>
<td>16-17 Fall Commencement</td>
<td>9  Final grades due in Faculty Center by 12:00PM CST for Second 8-Week Session</td>
</tr>
<tr>
<td>17  End of Second 8-Week Session</td>
<td>29  Memorial Day holiday, all offices closed, no classes held</td>
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<tr>
<td>20  Final grades due in Faculty Center by 12:00PM CST for Second 8-Week Session</td>
<td>24-31 Holidays for staff</td>
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<tr>
<td><strong>20º Class Day Equivalent for Second 8-Week Session</strong></td>
<td><strong>MAY</strong></td>
</tr>
<tr>
<td><strong>20º Class Day Equivalent for Second 8-Week Session</strong></td>
<td>1  Final exams for Second 8-Week Session</td>
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<tr>
<td><strong>20º Class Day Equivalent for Second 8-Week Session</strong></td>
<td>5-6  Spring Commencement</td>
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<tr>
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<tr>
<td><strong>20º Class Day Equivalent for Second 8-Week Session</strong></td>
<td>29  Memorial Day holiday, all offices closed, no classes held</td>
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Course Descriptions

The Pharm.D. curriculum includes required didactic, required experiential, and selective coursework. The UT Tyler Catalog contains a complete list of courses, course descriptions, and prerequisites.

The College of Pharmacy is currently updating the course descriptions for the Integrated Pharmacy and Pharmacy Practice Skills Laboratory courses. For a current description, please refer to the individual course syllabi. Course descriptions for elective courses.

PHAR 7161
Introductory Pharmacy Practice Experience 1 provides students with their first practical experience in pharmacy practice, including administering immunizations; an introduction to the pharmacists' professional obligation to the patient, and the legal basis to practice as a student pharmacist intern in the State of Texas. Prerequisite(s): admission into the College of Pharmacy; Corequisite(s): PHAR 7601, PHAR 7241.

PHAR 7162
Introductory Pharmacy Practice Experience 2 provides students with practical experience in community pharmacy practice, including accepting and interpreting prescription orders; dispensing prescriptions; patient interviewing; patient medication records; practice regulations concerning the distribution of medications and practice roles; and an introduction to the principles of self-care with over-the-counter medications and non-pharmacologic treatments. Prerequisite(s): PHAR 7601, PHAR 7241, PHAR 7161.

PHAR 7163
Introductory Pharmacy Practice Experience 3 provides students with practical experience in institutional pharmacy practice, including accepting and interpreting medication orders; medication distribution within the institution; sterile technique; patient interviewing; patient records; understanding of the institution's organizational structure, and pharmacists' practice responsibilities. Prerequisite(s): PHAR 7601, PHAR 7241, PHAR 7161.

PHAR 7164
Introductory Pharmacy Practice Experience 4 provides students with their first practical experience in providing direct patient care, including patient interviewing and professional communication; patient medication reconciliation, records and adherence; health and wellness screening; continuity of care; and an introduction to the principles of self-care with over-the-counter medications and non-pharmacologic treatments. Prerequisite(s): PHAR 7601, PHAR 7241, PHAR 7161.

PHAR 7121
Introduction to Preparing for a Future in Academic Pharmacy introduces the student to valuable tools for success in academic pharmacy. Students will be exposed to grant writing, precepting, presentation skills, service, work-life balance, and instructional design. Students will learn valuable tools to apply to any academic pharmacy environment.

PHAR 7122
Practical Applications to Preparing for a Future in Academic Pharmacy introduces the student to valuable tools for a success in academic pharmacy. Students will build upon the introductory class and design projects/presentations focused on teaching and clinical and academic service while incorporating work-life balance and academic efficiency. Prerequisite(s): PHAR 7121

PHAR 7123
Delivering an Effective Professional Presentation introduces the basic skills and concepts necessary to create and deliver all components of a professional presentation: curriculum vitae, biosketch/abstract, podium presentation, objectives, handout, references and assessment questions. A large component will also focus on public speaking, professionalism and communication skills. By the end of the course, all students will have created and delivered a podium presentation on a pharmacy topic of their choice. Prerequisite(s): P2 or P3 standing.

PHAR 7124
Clinical Research: Drug Development and the Role of the Pharmacist will help the students develop expertise with the clinical research drug development process and locating enrolling clinical trials. Students will gain the ability to discuss with patients, caregivers, and other healthcare providers the advantages and disadvantages of participation in clinical research and become and expert about trial availability for specific conditions that may be prevalent in their practice location and patient population. In addition, this course will evaluate ethical issues in the clinical drug develop process, including patient access to experimental therapies. Prerequisite(s): P2 or P3 Standing.
PHAR 7125  
**Principles of Drug Design** provides basic understanding to principles of drug discovery, design and development. The topics covered include choosing a disease, identifying drug targets, establishing testing procedures, finding a lead compound, lead optimization, performing the preclinical and clinical trials, and introducing new drugs to the market. The course will have more emphasis on the methods used to design a lead compound, such as ligand/structure-based drug design methods. It will also explain the approaches used in improving the pharmacodynamic and pharmacokinetic properties of lead compounds. Recent advances in drug design such as the use of molecular modeling software tools will also be presented. Prerequisite(s): CHEM 3342 or PHAR 7602.

PHAR 7126  
**Infectious Diseases – Antimicrobial Stewardship 1** reviews the importance of antimicrobial stewardship programs in improving outcomes in patients with infectious complications, while minimizing the unintended consequences of antimicrobial use. During this course the student will be exposed to the different tools needed to design and implement an antimicrobial stewardship program. These skills include antibiogram development, metrics, guideline and clinical trial reviews, and optimization of antimicrobial therapy. The student will also have the opportunity to meet other members of the antimicrobial stewardship team (infectious diseases physician, microbiologist, infection preventionists, pharmacists, informatics). Prerequisite(s): PHAR 7606.

PHAR 7127  
**Social-Behavioral Aspect of Health Care** offers an overview of the social-behavioral aspects of health care. The pharmacist's role is explored in the context of major social issues affecting health care - in particular medication safety issues - integrating information from both pharmaceutical and social sciences. Students may use this knowledge towards understanding the individual needs of the patient in a practice setting. The course will help students consider how organizations and social systems impact patient experiences with medications, contributing to an improved system of patient-centered practice and care. Prerequisite(s): PHAR 7606.

PHAR 7165  
**Introductory Pharmacy Practice Experience 5** provides students with an understanding of many aspects of senior care. The course is divided into two sections. The students will be able to gain valuable experience in a closed door pharmacy setting that specifically delivers medications to long-term care facilities for three weeks. They will be able to understand the operational aspects of dispensing and delivery to an institutional setting. The other part of the experience (four weeks), students are paired with a senior patient living in a nursing home. Students will complete assignments with their senior patient on communication strategies, screening tests, medications and conditions that effect the senior population. Prerequisite(s): PHAR 7164.

PHAR 7166  
**Introductory Pharmacy Practice Experience 6** provides students with an understanding of community pharmacy practice as a registered pharmacist intern in the State of Texas. This experience teaches a higher progression of concepts about pharmacist duties which include: prescription processing tasks, pharmacy operations, medication safety and an introduction to counseling patients. This course integrates with the Integrated Pharmacy (IP) didactic course and Lab (IL) in which the students are enrolled at the College of Pharmacy. Prerequisite(s): PHAR 7164. PHAR 7167  
**Introductory Pharmacy Practice Experience 7** provides students with a higher level of objectives for institutional pharmacy practice. The student is now considered a pharmacist intern in the State of Texas. Therefore, they will be performing pharmacist functions under the direct supervision of a preceptor. Students will have the opportunity to participate in pharmacy operations, informatics, drug information, medication safety and patient interviewing as part of the course. Prerequisite(s): PHAR 7164.

PHAR 7168  
**Introductory Pharmacy Practice Experience 8** provides students with the opportunity to work with an interdisciplinary team to promote the health and wellness of a family living in East Texas. The pharmacy student will help the families with their medications and health and wellness strategies. Prerequisite(s): PHAR 7164.

PHAR 7241-7248  
**Pharmacy Practice Skills Laboratory 1-8** For these courses, please refer to the current syllabi for the course description, prerequisites, and corequisites.

PHAR 7601-7508  
**Integrated Pharmacy 1-8** For these courses, please refer to the current syllabi for the course description, prerequisites, and corequisites.
Doctor of Pharmacy (Pharm.D.) Outcomes

The curriculum was developed to deliver the goals of the Pharm.D. program, these include the Core Curricular Outcomes, Institutional Outcomes, and Co-Curricular outcomes.

Core Competencies

The Pharm.D. curriculum is designed so that students will meet the following competencies essential to the practice of pharmacy:

1. Integrate and apply an appropriate level of scientific, social-behavioral and clinical knowledge to make therapeutic decisions and recommendations.
2. Demonstrate ethical behavior, including self-reflection, in all practice and professional activities.
3. Demonstrate professional behavior in all practice and professional activities.
4. Collaborate and advise in therapeutic decision making and use appropriate referral in an interprofessional team.
5. Provide patient care in accordance with legal, ethical, social, economic and professional guidelines.
6. Demonstrate effective communication abilities in interactions with patients, families, care
7. Identify and resolve medication-related problems.
8. Identify sources, retrieve, evaluate, organize, assess, and disseminate relevant medication information according to the needs of patients, families, care-givers and other healthcare providers.
9. Demonstrate a commitment to and a valuing of patient safety in all practice activities including accurate interpretation, preparation, labeling, dispensing and distribution of prescriptions and medication orders.
10. Recommend and provide healthcare information about lifestyle and other non-drug measures that promote health or prevent the progression of a disease or medical condition.

Institutional Learning Outcomes

Institutional learning outcomes (ILOs) are knowledge, skills, abilities, and attitudes that students are expected to develop as a result of their overall experiences with any aspect of the college, including courses, programs, and student services. ILOs are different from course and programmatic learning outcomes in that they are the collective expression of the learning environment that a college or university offers to any enrolled student. Programmatic and student learning outcomes focus on the more particular skills, knowledge, and attitudes that students learn in specific courses and programs. ILOs are universal educational goals of the college or university and a single course cannot and is not expected to meet all of the ILOs. The ILOs for the Ben and Maytee Fisch College of Pharmacy are:

1. Critical Thinking

   **Description:** Critical Thinking is the ability of students to engage in a process of disciplined thinking that informs beliefs and actions. It is a core skill to clinical reasoning. A student who demonstrates critical thinking applies the process of disciplined thinking by remaining open-minded, reconsidering previous beliefs and actions, and adjusting his or her thinking, beliefs and actions based on new information. The process of critical thinking begins with the ability to remember and understand, but it is truly realized when the student demonstrates the ability to:

   a. Integrate knowledge with mental, emotional, and creative processes for increased insight;
   b. Use complex information from a variety of sources including personal experiences and observation to draw logical conclusions and form a decision or opinion;
   c. Demonstrate ability to recognize and effectively manage ambiguous ideas, experiences and situations; and
   d. Identify and adjust behaviors by applying previously understood information, concepts, and experiences to a new situation or setting.

2. Values and Ethical Reasoning

   **Description:** Ethical reasoning is an ability of students to make sound decisions with respect to individual conduct, citizenship, and demeanor. Ethical reasoning is guided by a student’s core values. A sense of values and ethics is demonstrated by the student’s ability to:

   a. Make informed and principled choices and to foresee consequences of these choices;
   b. Understand ethical principles within diverse cultural, social, environmental and personal settings; and
   c. Exhibit respect and preserve the dignity of others.
3. Integration and Application of Knowledge

*Description:* Integration and application of knowledge is an ability of students to use information and concepts from studies in multiple disciplines in their intellectual, professional, and community lives. *Integration and application of knowledge are demonstrated by the student’s ability to:*

- a. Seek and identify new information to solve problems;
- b. Identify connections between classroom and out-of-classroom learning;
- c. Relate co-curricular experiences to major career decisions;
- d. Demonstrate transferrable life skills (e.g., time management, communication, and problem solving) that were developed while participating in curricular and co-curricular activities; and
- e. Work across course and inter-professional boundaries.

4. Personal Development & Life-Long Learning Skills

*Description:* Interpersonal skills develop in the student an ability to be aware of their emotions, behaviors, and motivations, analyze their strengths and weaknesses, and take responsibility for their decisions, professionalism, and learning; providing the skills necessary for life-long learning. *Personal development and life-long learning skills are demonstrated by the student’s ability to:*

- a. Articulate one’s values, beliefs, strengths, and challenges;
- b. Take responsibility for one’s own actions based on analysis of one’s values, beliefs, strengths, and challenges;
- c. Manage adversity and life challenges in a flexible and ethical manner that promotes individual growth and development; and
- d. Undertake and grow professionally through ongoing, voluntary, and self-motivated pursuit of knowledge for either personal or professional reasons.
- e. Explores a topic in depth.
- f. Explores opportunities to expand knowledge, skills and abilities.
- g. Reflect on one’s own learning process and learn new information independently.

Co-Curricular Outcomes

The “co-curriculum” pertains to activities contributing to the academic learning experience; especially activities that provide students with opportunities to learn and develop skills through active participation. They are required elements that are conducted outside of a course, such as independent study, advocacy and outreach, the white coat ceremony and annual professional orientations. Co-curricular activities and programs may be developed or led by faculty or staff - or by students themselves - but they must have stated goals and measurable outcomes. The co-curriculum is designed to inculcate knowledge, skills, abilities, and attitudes that contributes to the students’ professional development and behaviors outside of the classroom. The co-curricular and institutional outcomes are inter-related and the co-curriculum provides a venue for teaching and learning these other outcomes.

1. Leadership Skills

*Description:* Leadership is a process of social influence in which one person can enlist the aid and support of others to accomplish a common task. *Students will demonstrate leadership and social influence if they are able to:*

- a. Cultivate a sense of self-awareness through identifying a leadership vision, mission, style and values;
- b. Demonstrate communication skills and the ability to interrelate and work in teams with others;
- c. Utilize internal practices that support organizational sustainability;
- d. Assume a sense of social, civic and professional responsibility through involvement in the community;
- e. Enhance awareness and commitment toward effective citizenship and social and professional responsibility;
- f. Develop collaborative relationships with student organizations and professional and community partners;
- g. Be able to identify policies, practices, and resources relevant to planning and implementing programs; and
- h. Exhibit responsible and adaptive decision making that benefits the College of Pharmacy and the profession, such as analyzing decisions by considering multiple points of view and a variety of outcomes.

2. Innovation and Entrepreneurship

*Description:* Students engage in innovative activities by using creative thinking to envision better ways of accomplishing professional goals. *Innovation and...*
entrepreneurship is demonstrated by the student’s ability to:

a. Demonstrate initiative when confronted with challenges.
b. Develop new ideas and approaches to improve quality or overcome barriers to advance the profession.
c. Demonstrate creative decision making when confronted with novel problems or challenges.
d. Assess personal strengths and weaknesses in entrepreneurial skills
e. Apply entrepreneurial skills within a simulated entrepreneurial activity.
f. Conduct a risk-benefit analysis for implementation of an innovative idea or simulated entrepreneurial activity.

3. Patient Advocacy

Description: Patient advocacy assures that patients’ best interests are represented. Patient advocacy is demonstrated by the student’s ability to:

a. Empower patients to take responsibility for, and control of, their health.
b. Assist patients in navigating the complex healthcare system.
c. Ensure patients obtain the resources and care required in an efficient and cost-effective manner (e.g., triage to social and/or other healthcare services).

4. Ability to serve special patient populations and awareness of cultural diversity

Description: A focus on special patient populations and cultural diversity gives the student an ability to identify and empathize with the interests, beliefs, and customs of their community, and others, through interaction, self-discovery, scholarship, and active participation in communal traditions. Understanding the challenges of special patient populations and cultural diversity is demonstrated by the student’s ability to:

a. Demonstrate appreciation of the range of diversity and universality in human history, societies, and ways of life;
b. Demonstrate understanding of the interconnectedness of global and local communities;
c. Demonstrate civility in day-to-day interactions;
d. Recognize and respect values, customs and beliefs of various cultures and communities; and
e. Incorporate knowledge of diverse groups into practice and community-based services.

Team-Based Learning (TBL)

Changing the Classroom

Over the past 20 years or so there has been a shift in how college students are taught. This change has occurred as we gained a better understanding of how people learn and what improves the retention of what they learned. As a result, more faculty members are moving away from traditional lectures and incorporating active learning as part of their teaching. This active learning may include intermittent question and answer periods, writing exercises or other activities that engage students in the classroom as they learn the course material.

One of the active learning techniques that has gained popularity in health care education over the past decade is team-based learning (TBL). This method focuses on students working in teams to solve problems in the classroom rather than sitting through lectures during class time and doing homework exercises at some later point. Read more about TBL in pharmacy education.

A few pharmacy programs have begun to incorporate TBL into their curriculum with only a small number using the method more than just occasionally. Our Pharm.D. program will use TBL extensively throughout the curriculum. In fact, our new pharmacy building, W.T. Brookshire Hall, has been designed specifically for TBL in the classroom and collaborative learning outside the classroom.

The Appeal of TBL

Being a successful pharmacist involves more than knowing a lot about drug therapy. While medication therapy knowledge is essential, equally important is the ability to think critically and solve problems. Since it is impossible for a single person to learn every possible nuance of medication therapy management in pharmacy school, the ability to take core knowledge and apply this knowledge to new situations is what will differentiate our graduates as exceptional pharmacists. This is where TBL shines.

Students in our Pharm.D. program will be learning the foundational sciences and drug therapy management skills while developing critical thinking and problem solving skills.

Another attribute of an exceptional pharmacist is being able to communicate clearly. With TBL, students will constantly interact with their team members as they work through problems, deliberate possible solutions and agree on answers. As students progress through the Pharm.D. program, they will hone their communication skills and learn how to comprehend and explain complex concepts in
followed that begins with (1) guided preparation, knowledge. For each TBL module, a general process is topics that are best learned together and that build on prior classroom as they learn about pharmacy and how to manage drug therapy. This is very different from “team projects” when a group of students may met a “couple of times” to work on something together, where the result was anything but work from the entire group.

To function well as a team takes a bit of time and a lot of work, just like any good interpersonal relationship. TBL helps students learn how to develop these professional relationships through improved communication and collaborative learning. In our Pharm.D. program, we place the students in teams at the beginning of each semester and students will remain in these same teams for each course during that semester. Over the first few weeks the teams will become cohesive as they communicate and work collaboratively to solve real-world problems. By the end of the school semester, our goal is that the incoming group of individuals will have developed into a knowledgeable, high-functioning team who respect and trust one another. This is the hallmark of an effective health care team.

Each semester the teams will be reorganized. Students will get to work with new team members from the class just like they did in the prior semester. Using this approach, students will continue to develop and refine the team-building and team-maintenance skills so valued in the workplace today.

The TBL Difference

TBL is a significant departure from how many students have been taught in school. Rather than receiving content in class and then going away to solve homework problems, the process is essentially reversed. Class time is used to solve problems and time outside the class is used to digest content. TBL is different from “flipping” the classroom by using the readiness assurance process. This is the real key to TBL’s success. Coming to the classroom truly prepared to solve problems is what will keep our student on top of the material and be able to apply and retain what was learned.

TBL uses modules. Modules are a collection of related topics that are best learned together and that build on prior knowledge. For each TBL module, a general process is followed that begins with (1) guided preparation, (2) assessment of readiness for class, and (3) application exercises that allow students to apply knowledge and skills in such a way that students learn to think critically and solve problems.

Guided Preparation

Pre-class preparation can take many forms, including pre-recorded presentations, specific reading assignments, and introductory problem sets. It all depends on the faculty member and the content to be learned. In general, an instructor will assign the pre-class material with appropriate learning objectives designed to guide the student s to what needs to be accomplished before class begins.

The expectation is that you will understand important foundational concepts prior to coming to class so that deeper learning can occur during class time. It is not the goal to have you master material before class, but rather have a solid fundamental understanding of the important concepts so that those concepts can be applied during class. Of course, you can always work with your team or seek help from the instructor before class on those really tough topics.

Assessment of Classroom Readiness

At the start of class, students take an individual quiz that assesses their readiness to actively participate in the class. This graded quiz is called an individual readiness assurance test (iRAT) and assesses a student’s preparation for class. It also serves as a powerful incentive for students to keep up with the course material since the iRATs are graded.

Following the iRAT, each student team takes the same graded RAT together; this is called the team readiness assurance test (tRAT). The team discusses, negotiates and selects the best answer for each of the questions. Since not all students study the same way or come to class with same level of understanding of the pre-class material, discussions that occur during the tRAT are great for refining conceptual understanding and preparing the team to solve problems in the classroom.

After the iRAT and tRAT, the instructor reviews the questions and has an interactive discussion with the entire class. This helps to ensure the students have an appropriate understanding of the pre-class material. At this time, instructors will generally review more challenging concepts and perhaps introduce more advanced topics in preparation for the problems to be solved during class. This facilitated discussion, often called a mini lecture, is important for both the instructor and students to help identify areas that may still be perplexing and provides
topics the instructors can address with individual teams later during the class period.

When the iRAT, tRAT, and the facilitated discussion is finished, the readiness assurance process is complete.

### Application Exercises

The problems students teams solve in the classroom are called **application exercises**. These exercises are at the core of learning using TBL. These problems are designed for teams to delve into real situations that face practicing pharmacists. Just like in the real world, these problems often don’t have a single right answer, but have several correct answers where one may be better than the others. This approach helps the teams appreciate that in practice, pharmacists need the ability to seek alternative solutions when multiple potential solutions are available.

Following completion of the application exercises, teams are often asked to present and defend their answers. At times, teams even debate each other over the merits of their choices. Instructors use these events to enrich the learning experience as a team may present an approach to solving a problem not intended by the instructor. Instructors will also use this time to explore new avenues of critical thinking that help students enhance their problem solving skills.

### Midterms and Finals are Different

At designated intervals during the semester, most courses will have major examinations, such as midterm exams. At the end of the semester, a final exam will be given to assess the knowledge gained during the course. These exams are different than with traditional courses in that the way students study for them is greatly influenced by the use of TBL.

Students keep up with the material as they prepare for class and take the iRATs and tRATs. The students then apply that knowledge during class. As a result, there is less of a pre-exam scramble to study that lessens the stress for many students. In other words, the exams are just as detailed and tough as traditional courses, but students are better prepared and students end up not needing to cram for the exams.

### Why Not Lecture?

That’s a valid question with an easy answer. The lecture format is not routinely used at the Ben and Maytee Fisch College of Pharmacy, because lectures really don’t work well. As odd as that may sound, it’s true. The lecture format is very common in colleges of pharmacy and within colleges and universities because lectures are efficient at delivering content. However, lectures are not necessarily effective for learning. Another reason lectures are efficient for giving information, is that lectures can be given to a large number of people. It takes the same energy to prepare and deliver a slide presentation for hundreds of students as it does for dozens of students. With this teaching method, more people may have heard the information but the individuals may not have learn more as a result. Probably the most likely reason that many teachers teach using lectures is that they were taught using lectures. We model what we know. Although bright and talented teachers may be exceptional at delivering a lecture, it’s clear that when students are actively engaged in the classroom and responsible for their learning, they have better comprehension and greater retention. And that’s what learning is all about.

### A Better Way to Learn

We believe that using TBL is a better way to teach and a better way for you to learn. Not only will our students prepare better for class, but the time in class will be spent applying what this material in a way that improves communication and critical thinking. This will lead to a deeper understanding of the complex world of pharmacy and a stronger set of skills when you enter into the profession. Instructors will challenge the students both in and out of the classroom to be the best possible pharmacist for their patients. Our Pharm.D. students will develop lasting professional relationships with their classmates as they learn and teach each other throughout the curriculum.

*We believe our graduates will have the best education in pharmacy.*

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*Robert R. Muntz Library at UT Tyler*