Pharmacy

A career in pharmacy is much more than counting pills. Pharmacists provide pharmaceutical care to millions in patient-centered, outcome-driven settings. As a member of the total health care management team, the pharmacist is uniquely qualified and positioned to positively impact patient outcomes. With thousands of prescription and over-the-counter drugs being sold in the U.S., the pharmacy has evolved into a consultation center where patients learn more about their medications and ways to increase safety and effectiveness of treatments. Providing excellent care is further challenged by the fact that many patients take a variety of drugs and see several health care specialists, placing the pharmacist in the critical position to monitor and advise both patients and physicians.

Pharmacists work in a wide range of settings. While the retail pharmacy may be the most familiar setting (65%), pharmacists also work in hospitals (22%), research facilities, home health care, compounding pharmacies, veterinary, mail order, government and nuclear pharmacy settings. The American Pharmacists Association provides Career Option Profiles which discuss not only the characteristics of each career setting, but also provide survey results from pharmacists about working conditions and duties.¹

The job outlook for pharmacists is expected to outpace other employment sectors and job prospects look excellent according to the Bureau of Labor Statistics. Employment of pharmacists is expected to grow 25% between 2010 and 2020. Median wages of pharmacists in May 2010 was $111,570, with 90% of pharmacists earning more than $80,090 per year. Demand will also grow for additional pharmacists in mail order settings, outpatient care settings, doctor offices, and nursing care facilities.²

**Becoming a Pharmacist** To become a licensed pharmacist, you must complete a Doctor of Pharmacy degree (PharmD), typically a four-year professional school program. There are currently 119 fully accredited pharmacy schools in the U.S., with seven in Texas. In Fall 2013, the University of North Texas HSC will open a new pharmacy school in Fort Worth. Most PharmD programs have a minimum of 62-90 hours of required prerequisite courses, including the sciences and core curriculum (About 5% require a baccalaureate degree).³ Additional requirements for admission are the Pharmacy College Admission Test (PCAT), various assessments (letters of recommendation and/or evaluations), and a complete application. Some pharmacy schools also require documentation of your volunteer or work experience in a pharmacy. Most schools subscribe to the Pharmcas application service, which opens the application in June. Selected applicants are interviewed in late fall, early spring, and offers of admission are generally made before June. **Prerequisites.** Although a bachelor’s degree is not currently required, over half of new pharmacy students do possess one at the time of enrollment, and some school ‘prefer’ those with a degree. The proportion of pharmacy students who enter with a degree is expected to rise as admission becomes more competitive across the country. Texas A&M does not have a


designated prepharmacy major, so students have the luxury to choose from over 150 major fields of study. Most students select majors which include the science prerequisites and which provide an alternate career choice.

The Texas A&M Pharmacy PreRequisite chart is an excellent starting point for planning your undergraduate experience and was developed in consultation with the pharmacy schools and is accurate as of April 2012. However, please note that you are responsible for gaining approval for any alternate course. For example, if you take a different calculus course than one listed for a particular school you should contact the admissions office at each school to gain approval. Also, courses you are responsible for ensuring that courses taken at another school will be acceptable by the pharmacy school. For instance, University of Texas does not accept Engl 1302 as a literature course, but Texas A&M undergraduate does.

**Pharmacy College Admission Test (PCAT).** The PCAT is required for admission to any pharmacy school and is given during three testing periods per year: July, September, and January. The test covers general biology, microbiology, anatomy & physiology, chemistry, organic chemistry, math (including calculus), reading, writing, and verbal abilities. Although scaled scores are provided, most schools and applicants discuss scores in terms of percentiles. Applicants should plan to take the exam no later than July in the year they apply. This allows the applicant to retest in September if necessary.

**Confirming your Career in Pharmacy.** As in any career choice, applicants should confirm their decision to become a pharmacist through personal experience. Such experience ranges from shadowing a pharmacist, working in a pharmacy, participating in related research and learning more about different fields. Keep track of all experience (date, location, description) because some schools request a listing when you apply or matriculate. Working in a pharmacy as a Pharmacy Technician is a great way to obtain long-term exposure to the daily life of a pharmacist. In Texas, you must pass the exam given by the Pharmacy Technician Certification Board and pass a background investigation by the State of Texas. Pharm techs typically earn competitive wages while working part-time and gaining valuable experience. Additionally, some shadowing and internship programs require you have your PharmTech certification in order to participate. You should gain certification as soon as possible.

**Other Items of Importance.** Pharmacy schools are looking for people of good character who enjoy helping others and who possess the intellectual curiosity to excel in a challenging curriculum. Participate in community service projects and get involved in causes that you care about. Consider working on a research project while you are an undergraduate; check with your academic advisor or favorite professors. Gain leadership experience through student activities, work, and community involvement. Some students study abroad or participate in internships with the government, nonprofits or corporations. Plan your undergrad time wisely and you will be prepared for handling the rigors of professional school. Throughout your studies at Texas A&M, take advantage of the programs and services provided by Professional School Advising, including workshops, one-on-one advising, listserv announcements, visits with pharmacy schools and professional development opportunities. The Texas A&M Pre-Pharmacy Society is an excellent organization for pre-pharmacy students.

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4 Information about testing can be found at http://www.pctb.org and licensing at http://www.tsbp.state.tx.us/Pharmacytechs.htm. Getting the license approved takes several weeks after your score is available. Testing is available throughout the year.
This prerequisite sheet is offered as a guide to assist you in selecting courses. Pharmacy prerequisites change from year-to-year, so it is ultimately the applicant’s responsibility to check with each pharmacy school on a regular basis if you have concerns. Applicants must get any course exceptions approved by individual pharmacy schools.

<table>
<thead>
<tr>
<th>Biology</th>
<th>Texas A&amp;M HSC Kingsville</th>
<th>Texas Southern Univ Houston</th>
<th>Texas Tech HSC Amarillo and Abilene</th>
<th>Univ of Houston Houston</th>
<th>Univ. of the Incarnate Word San Antonio</th>
<th>Univ. of North Texas HSC Fort Worth</th>
<th>Univ. of Texas Austin</th>
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</thead>
<tbody>
<tr>
<td>Biology</td>
<td>Biol 111 AND Biol 112</td>
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<tr>
<td>Physics</td>
<td>Phys 201</td>
<td></td>
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<tr>
<td>Microbiology</td>
<td>Biol 206 or Biol 351 or Vtpb 405</td>
<td>Biol 351</td>
<td>Biol 351 or Vtpb 405</td>
<td>Biol 206 or Biol 351 or Vtpb 405</td>
<td>Biol 351 or Vtpb 405</td>
<td>4 hrs</td>
<td>Biol 351 or Vtpb 405</td>
</tr>
<tr>
<td>Other Biological Sciences</td>
<td>Biol 213 or Gene 301, 302, or 320</td>
<td>Biol 319 and Biol 320</td>
<td>3 hours. See TxCtech note</td>
<td>(Biol 319 &amp; 320) OR (Vibs 305 &amp; Vtpb 423)</td>
<td>3 hr anatomy and 3 hr genetics</td>
<td>Gene 301, 302, or 320</td>
<td></td>
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<tr>
<td>Math</td>
<td>Math 147, 151 or 171</td>
<td>Math 150 and Math 151</td>
<td>Math 131, 147, 151, or 171</td>
<td>Math 131, 147, 151, or 171</td>
<td>Math 131, 147, 151, or 171</td>
<td>Calculus I</td>
<td>Two Semesters of Calculus</td>
</tr>
<tr>
<td>Statistics</td>
<td>Stat 201, 211, 301, 302 or 303</td>
<td>Stat 201 or 302</td>
<td>Stat 201,211,302 or 303</td>
<td>Stat 201,211,301,302 or 303</td>
<td>Stat 201 or 302</td>
<td>3 hrs</td>
<td>Stat 201,211, or 302</td>
</tr>
<tr>
<td>English</td>
<td>Engl 104 and (Engl 203 or 210 or 241 or 301). (6 hr total)</td>
<td>Engl 104 and Engl 203 and Soph. Lit* (9 hr total)</td>
<td>Engl 104 and Engl 203 and Soph. Lit* (9 hr total)</td>
<td>Engl 104 and (Engl 210 or 301) and soph lit* (9 hr total)</td>
<td>6 hours, plus soph lit*. (9 hr total)</td>
<td>Engl 104 and soph. lit*. 6 hr total</td>
<td></td>
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<tr>
<td>Public Speaking</td>
<td>Comm 203</td>
<td>Comm 203</td>
<td>Comm 203</td>
<td>Comm 203</td>
<td>None</td>
<td>Recommend Comm 203</td>
<td>None</td>
</tr>
<tr>
<td>Social Science</td>
<td>3 hrs of Psyc, Soci, or Econ</td>
<td>Econ 202 or 203</td>
<td>Psyc 107 or Soci 205</td>
<td>3 hours of Anth, Econ, Psyc, Soci</td>
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<tr>
<td>Other</td>
<td>1 hr Med. Terminology; 3 hr computer science</td>
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<td></td>
<td>Recommend Bich 410</td>
<td>See UNT HSC note</td>
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</table>

If you will not graduate from Texas A&M undergraduate before entering pharmacy school, the following core curriculum courses are required. You should speak to each pharmacy school to ensure that courses you take will satisfy their school’s admission committee. For some schools, if you are considered “Core Curriculum Complete” at Texas A&M, then some of the requirements in the box to the left may be considered ‘satisfied.’ (e.g., 1st Year Seminar at Univ. of Texas).

<table>
<thead>
<tr>
<th>Texas A&amp;M</th>
<th>TSU</th>
<th>Texas Tech</th>
<th>Univ of Houston</th>
<th>Incarnate Word</th>
<th>UNT HSC</th>
<th>UT Austin</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td></td>
<td>Engl 104 and (Engl 203 or 301)</td>
<td>Engl 104 and (Engl 203 or 210)</td>
<td>6 hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citizenship</td>
<td>6 hours American/Texas history, and Pols 206 and 207</td>
<td>none</td>
<td>6 hr Am/Tx hist, Pols 206 &amp; 207</td>
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<tr>
<td>Vis/Perf. Art</td>
<td>3 hours</td>
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*Senior Literature includes Engl 221, 222, 227, 228, 231, or 232. Engl 203 might be used if not used for other requirements and if taken at Texas A&M.

Notes for specific schools are included on next page.
TAMHSC note: If you are not graduating from Texas A&M, TAMHSC Pharmacy also requires 4-6 hours of literature, philosophy, language, anthropology, or geography, and 3 hours of sociology, psychology, economics or computer science.

TX Tech HSC note: The three hours of “other human based science” could be genetics, anatomy, physiology, histology, molecular, etc. You should check the appropriateness of this course with Tech. If you are not graduating from Texas A&M, Texas Tech also requires 15 hours of humanities and social sciences, which can include your core curriculum history and poli. sci. courses, which is 12 hours, but not the Econ.

TSU note: There is not a one hour Medical terminology course offered at Texas A&M; Hist 354 is acceptable and HITT1305 at Blinn is also acceptable. Math 150 (precalculus) is required even if you already took calculus; you may have to take Math 2312 or 2412 at a community college. CSCE 111 is acceptable for computer science.

UNT HSC note: The pre-pharmacy advisor has submitted courses to UNTHSC for approval. These courses are the same as those accepted by other pharmacy schools.

Web Resources

American Association of Colleges of Pharmacy
http://www.aacp.org

American Pharmacists Association
http://www.pharmacists.com

Office of Professional School Advising
http://opsa.tamu.edu
http://www.facebook.com/opsa.tamu
pharmadvisor@tamu.edu

Pharmacy Application Service
http://www.pharmcas.org

Pharmacy College Admission Test
http://www.pcatinfo.web

Pharmacy Technician Certification Board
http://www.ptcb.org

Texas A&M Pre-Pharmacy Society
http://prepharmacsociety.tamu.edu

Texas State Board of Pharmacy
http://www.tsbp.state.tx.us/

Pharmacy Schools in Texas

Texas A&M HSC Rangel College of Pharmacy
http://pharmacy.tamhsc.edu

Texas Southern University College of Pharmacy
http://www.tsu.edu/pages/460.asp

Texas Tech HSC College of Pharmacy
http://www.ttuhsc.edu/sop/

University of Houston College of Pharmacy
http://www.uiw.edu/pharmacy

University of the Incarnate Word
http://www.uiw.edu/pharmacy/

University of North Texas
http://www.hsc.unt.edu/education/scp

University of Texas College of Pharmacy
http://www.utexas.edu/pharmacy

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