

ASU Caduceus News



Spotlight On: Pharmacy

Each week we will be spotlighting a different health profession. In addition, we will also put out editions focusing on common questions like, should I be an MD/DO or a PA? Today's spotlight is on Physical Therapy. If you have a health profession or question you think should be addressed, feel free to email us and let us know at prehealthtempe@asu.edu

What is Pharmacy?

Pharmacists are medication experts and play a critical role in helping people get the best results from their medications. Pharmacists prepare and dispense prescriptions, ensure medicines and doses are correct, prevent harmful drug interactions, and counsel patients on the safe and appropriate use of their medications. They have specialized expertise about the composition of medicines, including their chemical, biological, and physical properties, as well as their manufacture and use. Pharmacists work with other health care professionals to maximize health outcomes. Pharmacists may work in healthcare settings such as hospitals or clinic, or in a retail setting.

As a pharmacist, you have to verify prescriptions, take doctor calls, make doctor calls, take patient calls, call patients to harass them, type prescriptions into the computer, deal with insurance claims, consultation, ring the register, ETC. All of this multitasking takes away from time spent focusing on how they can improve their patients' health.

Pros and Cons of a career in Pharmacy:

Pros

Students with an interest and aptitude in chemistry, biology, and statistics may find pharmacy a good fit. Future pharmacists will spend time learning about drug metabolism, compounding, research, and the science behind pharmaceuticals. They are licensed to provide immunizations in all 50 states. Pharmacists may also provide other services such as asthma care, blood pressure monitoring services, cholesterol screening, diabetes disease management, smoking

cessation consultation, bone density scans for osteoporosis screening, anticoagulation management clinics and more.

Pharmacists are involved in all healthcare settings and a main component of their work is engaging directly with patients. They consider the relationship between medical conditions, lifestyle, and other variables to help choose the best medications. Pharmacists also work with colleagues to conduct research, establish new pharmaceutical practices within specific business entities, and collaborate with doctors to ensure that patients are receiving the correct medications. Pharmacy is highly interactive, so students should be comfortable with constant communication and enjoy working directly with others.

Pharmacy has a unique role in the world of healthcare. Pharmacists work directly with patients and are involved in patient-care, but are not actively engaged in fieldwork. Many students who find they don't like the blood and guts aspects of medicine and other patient care areas will decide to consider pharmacy. Pharmacists work with other health care professionals to maximize health outcomes. Numerous studies have proven that the presence of a pharmacist on hospital rounds as a full member of the patient care team has been shown to prevent medication errors and reduce costs. Pharmacists provide optimal management of medication for chronic diseases such as diabetes, asthma, hypertension, etc. The collaboration of healthcare professionals, such as physicians and pharmacists, can help to ensure that patients properly take their medications as prescribed and avoid any harmful effects.

The field of pharmacy is seeing growth in medication therapy and technology. The field is always evolving and finding new ways to enhance efficiency and promotion of patient safety. Students should be okay with a rapidly changing field if they choose to enter pharmacy.

Cons

In the early 2000's pharmacy saw an increase in the demand for pharmacists. However, today there are more pharmacy graduates than there are positions and demand for pharmacists has been reduced. Nearly 60-70% of pharmacy positions are retail and recent graduates report having difficulties finding full-time pharmacy positions. In addition, pharmacies are increasing open late or even 24-hours. The need for medication does not take a holiday and it's common for new grads to work weekend, holiday, and evening shifts.

Pharmacy is a people-profession and while this is often a pro of the field, students should understand the challenges it also presents. You'll be working with patients who are angry, scared, and worried about costs. Physicians have an increasing workload, meaning the image of calling up a physician to discuss their prescription may very well lead to an office manager or 2-minute conversation with the physician with little to no conclusion.

Pharmacists are seeing an increasing workload as their offerings expand to include vaccinations

and other treatments.

Aside from physical demands, there are strong mental demands too. You have to be on top of your game as a pharmacist. Every. Single. Day. If you accidentally administer the wrong dosage or even the wrong drug to a patient, there could be serious repercussions, including big fines or even time in prison. In retail pharmacies, it can get difficult to counsel and advise each patient when it gets busy. When you can't sit down and talk to each patient, there's an increased chance that they might misuse the drugs. Don't overlook the liability issues of the healthcare industry.

Pre-Pharmacy Therapy Requirements

Students planning to enter pharmacy school should focus on academic and non-academic factors prior to application.

Academics:

All pharmacy schools require you to complete prerequisite coursework prior to admission. The total number of classes required does not pertain to any particular major, but will consist of a number of foundational science courses. These courses will provide the baseline for entering the more grueling academic courses in pharmacy school. You may major in whatever you like provided you plan to take the prerequisite courses prior to applying.

Prerequisite Chart:

X = required R = recommended

	ASU Course	Pharmacy
Chemistry	CHM 113 (or CHM 114)	X
	CHM 116	X
	CHM 233 & CHM 237	X
	CHM 234 & CHM 238	X
	BCH 361	X
Biology	BIO 181 or BIO 281	X
	BIO 182 or BIO 282	X
Anatomy	BIO 201	X
Physiology	BIO 202	X
Microbiology	MIC 205	X
Genetics	BIO 340	R
Physics	PHY 111 & PHY 113	R
	PHY 112 & PHY 114	R
Math	MAT 251, MAT 210, or MAT 270	X
	Statistics (STP 226 or 231 common, but not all)	X
English *	ENG 101 & ENG 102 (ENG 105, HON 171, ENG 301)	R; 6 Credits
Psychology	PSY 101	R
	Upper Division Psych	
Other**	Individual Schools may have additional requirements; be sure to double check requirements before applying!	R:Economics R:Public Speaking

Letters of Recommendation:

Pharmacy schools will require you to submit letters of recommendation along with your application. Letters should come primarily from academic science professors you've had in a classroom setting as well as a letter from a Pharmacist. You should be introducing yourself to faculty members and engaging throughout the semester to build a good working relationship prior to asking for a letter. Coming from a large university with large classes will not absolve you from needing letters. Letters are an important component to your application and are reviewed prior to admitting you to an optometry program.

Non-Academics:

Pharmacy Exposure & Experience

Exposure to the field of pharmacy is essential to articulating why you are interested in entering the profession. ***It is highly recommended students interested in pharmacy consider obtaining a [pharmacy technician license](#).*** To become a pharmacy technician, students will need to pass an exam and follow all protocols. ***It is not necessary to enter a pharmacy tech program to***

obtain licensure. Due to the strict policies surrounding drugs and pharmaceuticals, it is rare a student will be able to do meaningful shadowing experience as a volunteer without proper training. In addition, nearly 70% of pharmacy positions nationally are retail, so it is recommended students experience retail pharmacy prior to entering the profession. Even students planning to go to hospital or other healthcare settings may not get the chance and should experience retail to understand the realities of the field.

Although all types of exposure are accepted, if you have the opportunity, engage with pharmacists in a variety of settings. While there is no minimum number of hours students should complete, the more exposure you gain the better understanding you will have of the pros and cons to entering the profession.

Other Extracurricular Opportunities

Students should also plan to engage outside the classroom through internships, volunteer work, student employment, part/full-time employment, and/or research. What you choose to do with your time will help schools build a picture of who you are, what your interests are, and what responsibilities you had in addition to being a student. There is no preference for students to engage in one type of activity over another.

[ASU Pre-Pharmacy Club](#)

Pharmacy School

There are 144 pharmacy schools in the U.S.

There are two pharmacy schools in Arizona in 3 locations:

- College of Pharmacy, Midwestern University located in Glendale (3-year accelerated program)
- College of Pharmacy at The University of Arizona in Tucson & Phoenix

Pharmacy school curriculum:

The Doctor of Pharmacy (Pharm.D.) degree program requires at least two years of specific undergraduate college study followed by four academic years of pharmacy study. Most students enter a pharmacy degree program after completion of three or more years of college. Although a bachelor's degree is not required for acceptance, most applicants will complete a bachelor's degree prior to starting pharmacy school. Some pharmacy schools do give preference to students who have earned a bachelor's degree.

Pharmacy School Applications

Total Applicants - 15,886

Total Accepted - 13,139 (82% Acceptance Rate)

Women - 63%

Men - 37%

Average PCAT % - 60%

Average Science GPA - 3.15

Average GPA - 3.3

Pharmacy Outlook

There is an ongoing demand for pharmacy services in most areas of pharmacy, although the employment of pharmacists is projected to show little or no change from 2018 to 2028.

Employment in retail pharmacies will be affected by increasing sales via mail order and online pharmacies. It is true that pharmacists are a saturated market in much of the U.S. Many recent grads report greater than average difficulty in finding full-time, full-benefit positions in major metropolitan areas. There is a greater need for pharmacists in rural and underserved areas of the country.

Most positions in the field of pharmacy are retail. Residency is not required for graduates of pharmacy school, but are often required for the more prestigious or specialized positions. Competition for residency slots is high. In 2020, over 7,300 pharmacists applied for 4,800 positions.

Compensation: The median salary for pharmacists is currently \$128,090 per year.

Cost

PCAT Test: \$210

- Results sent to 5 schools
- \$36 per score report for additional schools

PCAT Prep: Average \$500, but can increase to over \$1000

PharmCAS Application: \$175 + \$55 per additional school

- Average: \$500

Fee Assistance: Yes

Secondary Applications: Varies, fee assistance varies

Interviews: Varies

Average Application Costs: \$500

Average Tuition at Pharmacy School: \$100,000 - \$200,000

Average Debt from Pharmacy School: \$180,000

Cost is a major factor when considering any type of professional healthcare degree. Students who are passionate about pharmacy should not let the prospect of high debt scare them away. There are many options for paying down debt and most pharmacists are able to do so comfortably, though payoff may take as many as 20-years.

Videos and resources for more information:

[PharmCAS](#)

[Pharmacy School Directory](#)

[PCAT Preparation](#)

[Pharmacy is Right for Me](#)

An overview of the role and conditions cared for by Pharmacist

- Review prescriptions to assure accuracy, to ascertain the needed ingredients, and to evaluate their suitability.
- Provide information and advice regarding drug interactions, side effects, dosage, and proper medication storage.
- Work in hospitals or clinics or for Health Management Organizations (HMOs), dispensing prescriptions, serving as a medical team consultant, or specializing in specific drug therapy areas, such as oncology or nuclear pharmacotherapy.
- Plan, implement, or maintain procedures for mixing, packaging, or labeling pharmaceuticals, according to policy and legal requirements, to ensure quality, security, and proper disposal.
- Compound and dispense medications as prescribed by doctors and dentists, by calculating, weighing, measuring, and mixing ingredients, or oversee these activities.
- Analyze prescribing trends to monitor patient compliance and to prevent excessive usage or harmful interactions.