

## Pre Pharmacy Information Sheet

Prerequisites can vary on a school by school basis. Please check the prerequisites for schools to which you hope to apply. Individual PharmD school information can be found at the [PHARMCAS School Directory](#) and the [Accreditation Council for Pharmacy Education](#).

Prerequisites	Mason Courses
Biology, 2 semesters with labs	BIOL 213 and 311
Anatomy and Physiology, 2 semesters, varies by school	BIOL 124 and 125 or 430 and 431
Biochemistry, 1 semester varies by school	BIOL 483 or CHEM 463
College Physics, 2 semesters varies by school	PHYS 243 and 244 and PHYS 245 and 246
Economics	ECON 100
English, 2 semesters	ENGL 101 and 302
General Chemistry, 2 semesters with labs	CHEM 211 and 213 and CHEM 212 and 214
Humanities/Social Sciences, 12 credits varies by school	Variable
Math, 6-8 credits	MATH 113 <b>and</b> BIOL 214 or STAT 250
Microbiology, 1 semester with lab	BIOL 305 and 306
Organic Chemistry, 2 semesters with labs	CHEM 313 and 315 and CHEM 314 and 318
Public Speaking, 1 semester	Communication 100

Highly recommended courses include Genetics, Biochemistry, Molecular Biology, Immunology and Cell Biology. Computer Science, Anthropology, History, Foreign Languages, Philosophy, and Religious Studies are also recommended.

A [Summary of Pre-Professional Course Requirements by Pharmacy Degree Institution](#) is available online.

Additional information is available at the [American Association of Colleges of Pharmacy](#) (AACP).

### Careers in Pharmacy

According to current [Bureau of Labor Statistics Occupational Outlook Handbook](#):

"Pharmacists dispense prescription medications to patients and offer expertise in the safe use of prescriptions. They also may provide advice on how to lead a healthy lifestyle, conduct health and wellness screenings, provide immunizations, and oversee the medications given to patients.

"Pharmacists typically

- Fill prescriptions, verifying instructions from physicians on the proper amounts of medication to give to patients;
- Check whether the prescription will interact negatively with other drugs that a patient is taking or any medical conditions;
- Instruct patients on how and when to take a prescribed medicine and inform them about potential side effects they may experience from taking the medicine;
- Advise patients about general health topics, such as diet, exercise, and managing stress, and on other issues, such as what equipment or supplies would be best to treat a health problem;
- Give flu shots and, in most states, other vaccinations;
- Complete insurance forms and work with insurance companies to ensure that patients get the medicines they need;
- Oversee the work of pharmacy technicians and pharmacists in training (interns);
- Keep records and do other administrative tasks;
- Teach other healthcare practitioners about proper medication therapies for patients."

"Some pharmacists who own their pharmacy or manage a chain pharmacy spend time on business activities, such as inventory management. Pharmacists must also take continuing education courses throughout their career to keep up with the latest advances in pharmacological science."

"With most drugs, pharmacists use standard dosages from pharmaceutical companies. However, some pharmacists create customized medications by mixing ingredients themselves, a process known as compounding."

"The following are examples of types of pharmacists:

- Community pharmacists work in retail stores such as chain drug stores or independently owned pharmacies. They dispense medications to patients and answer any questions that patients may have about prescriptions, over-the-counter medications, or any health concerns that the patient may have. They may also provide some primary care services such as giving flu shots.
- Clinical pharmacists work in hospitals, clinics, and other healthcare settings. They spend little time dispensing prescriptions. Instead, they are involved in direct patient care. Clinical pharmacists may go on rounds in a hospital with a physician or healthcare team. They recommend medications to give to patients and oversee the dosage and timing of the delivery of those medications. They may also conduct some medical tests and offer advice to patients. For example, pharmacists working in a diabetes clinic may counsel patients on how and when to take medications, suggest healthy food choices, and monitor patients' blood sugar.

- Consultant pharmacists advise healthcare facilities or insurance providers on patient medication use or improving pharmacy services. They also may give advice directly to patients, such as helping seniors manage their prescriptions.
- Pharmaceutical industry pharmacists work in areas such as marketing, sales, or research and development. They may design or conduct clinical drug trials and help to develop new drugs. They also may help to establish safety regulations and ensure quality control for drugs. Some pharmacists work as college professors. They may teach pharmacy students or conduct research.”

### **Education**

According to the current [Bureau of Labor Statistics Occupational Outlook Handbook](#) “PharmD. programs usually take 4 years to finish, although some programs offer a 3-year option. A PharmD program includes courses in pharmacology and medical ethics, as well as supervised work experiences in different settings, such as hospitals and retail pharmacies. Pharmacists seeking an advanced pharmacy position, such as a clinical pharmacy or research job, complete a 1- to 2-year residency following their Pharm. D. Some pharmacists who own their own store may choose to get a master’s degree in business administration (MBA). Others may get a degree in public health. All states license pharmacists. After they finish the Pharm. D., prospective pharmacists must pass two exams to get a license. One of the exams is in pharmacy skills and knowledge. The other is in pharmacy law in the state giving the pharmacy license.”

### **PCAT**

According to [Pearson](#), “The PCAT is a specialized test that helps identify qualified applicants to pharmacy colleges. It measures general academic ability and scientific knowledge necessary for the commencement of pharmaceutical education. The PCAT is constructed specifically for colleges of pharmacy. The PCAT is constructed specifically for use by colleges of pharmacy for admission purposes. The design and content of the PCAT are determined by the types of abilities, aptitudes, and skills deemed essential by colleges of pharmacy and by research concerning the kinds of tests that most accurately predict success in science-oriented courses.” The [PCAT Candidate Information Booklet](#) can be found online.

### **Centralized Application Service for Pharmacy Applications (PharmCAS)**

[PharmCAS](#) is a "centralized service which allows applicants to use a single application process to apply to multiple pharmacy programs. Not all pharmacy schools participate in PharmCAS. It is the responsibility of the applicant to determine which schools participate and send individual applications to those that do not participate. A complete set of official transcripts for each U.S., U.S. territorial or Canadian college, university, junior college, or graduate school attended should be forwarded directly to PharmCAS by the registrar of the institution(s) attended."

### **Employment Outlook and Earnings**

The current [Bureau of Labor Statistics Occupational Outlook Handbook for Pharmacists](#) can be found online.

### **Schools of Pharmacy in Virginia**

[Appalachian College of Pharmacy](#)

[Hampton University](#)

[Shenandoah University](#)

[Virginia Commonwealth University](#)



Jane Rockwood  
Health Professions Advisor

**Pre-Pharmacy Advising**

The information contained in this information sheet should be discussed with [the Health Professions Advisor](#). The availability of these health professions advising opportunities is announced through the [HEALTHPROFESSIONS-L listserv](#) for Mason students.

Students must still be advised in their department regarding their major.

Jane Rockwood, Health Professions Advisor