

GOUCHER COLLEGE

**UNDERGRADUATE
PRE-HEALTH PROFESSIONS PROGRAM
HANDBOOK**

**Pre-Med, Pre-Vet, Pre-Dental
And
Allied Health Professions**

HANDBOOK

2017-2018

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Introduction

Welcome to the Pre-Health Professions Program at Goucher College. The goal of our successful and comprehensive program is to help Goucher students gain admission to professional schools and allied health programs. This includes professional schools such as medical, veterinary, and dental school, and schools in the traditional allied health professions, such as podiatry, physical therapy, physician's assistant, pharmacy doctorate and public health.

Traditionally, a college education grounded in the liberal arts and sciences well prepares students for the academic and personal rigors of a medical or professional education. At Goucher we not only provide the comprehensive coursework and scientific background necessary for professional and graduate school in the health professions, but we also stress the intellectual discipline and problem-solving skills necessary for careers that require life-long learning. In addition, we believe it is important to place our pre-professional education in the context of the humanities and social sciences. This context not only helps to develop an appreciation of the human experience and cultural differences, but also develops compassionate practitioners, who communicate effectively and deliver the best care to patients from a wide variety of backgrounds, cultures and family situations. We believe our success in placing Goucher students into professional schools at rates usually twice the national average is based on many factors. The ingredients for success include motivated, capable students, a dedicated teaching faculty, timely and rigorous coursework, and a knowledgeable Pre-Health Professions Committee that advises and supports the pre-professional students.

To become a competitive candidate for admission to any of these programs, you will need to work closely with your academic or pre-health advisor, who will help you select the courses required for application to the professional programs. You will need to complete a challenging major and the required pre-professional courses in a timely manner, demonstrating that you can successfully handle a rigorous academic schedule. You will also need to pursue advanced coursework to show that you can do sustained scholarly work and develop the academic skills required for independent, life-long learning. Finally, your participation in volunteer and other extracurricular activities will demonstrate that you can balance intellectual development with social and interpersonal growth. These tasks may, at first, seem daunting, but realize that you have at least three years to become a competitive candidate for medical or professional school.

You should be aware that your journey into one of these professions certainly will be one of delayed gratification. For example, a student pursuing medicine will spend four years at an undergraduate institution, four years in medical school, three years as a resident, and then may spend 1 to 6 years specializing in a particular area. Thus, it is especially important that you enjoy the educational journey!

The Pre-Health Professions Program is directed by the Pre-Health Committee. We will provide all of the information and advice you need regarding your academic program and application to professional schools. We are an important resource **for you!** And it is important for us to know our students well so please feel free to seek our advice at any time, while you are at Goucher. A more detailed

description of what you will need to do is provided in the following pages. As many students come to Goucher interested in medicine the information regarding that profession is covered first. However, we certainly encourage you to examine and learn about the many options available in the Health Professions.

I. Who gets into Medical School; the tangible and intangible criteria.

Understanding who gets into medical school and why probably generates more speculation and fiction than any other aspect of the medical school admission process. Without a doubt, admission to medical school has always been competitive and is very competitive at this point in time. Medical schools, therefore, have their choice of applicants and often have difficulty making distinctions among so many qualified individuals. We can, however, point to some tangible and intangible attributes that all competitive applicants will have:

- a) ***A strong academic record.*** This is a tangible criteria evaluated by grades and scores on the Medical College Admission Test. See the section below for specific science course requirements. Medical schools will look at your non-science and science grades separately. You need to be strong in both areas. The definition of a strong G.P.A. can change from year to year, but right now applicants need a 3.7 G.P.A. overall and in the sciences in order to be a competitive applicant.

- b) ***The second tangible indicator is the Medical College Admissions Test, or MCAT.*** This standardized test is taken the year you apply to medical school, and is required by all the medical schools. The test is computerized, and takes about 7 to 8 hours to complete. The test sections include: Biology and Biochemical Foundations of Living Systems, Chemical and Physical Foundations of Biological Systems, Psychological Social and Biological Foundations of Behavior, and Critical Analysis and Reasoning Skills (verbal reasoning). A basic knowledge of Statistics is also assumed in the MCAT. Students entering college in the Fall of 2017 should anticipate taking the 2020 or 2021 MCAT, and applying to medical school the summer following their junior or senior year.

The Pre-Health Program at Goucher is well prepared to address the MCAT. The course sequence we require for our students will certainly prepare them for the specific scientific competencies tested on the MCAT. We now need to require a Biochemistry course, rather than highly recommending one. We also find that Introductory Psychology (Psy 111) or Sociology 106 will enable our students to meet the competencies outlined in the Foundations of Behavior section. As for statistics, the core courses in Biology required for premedical preparation have always included a basic statistics component, but many of our students have elected to take a statistics course (MA268), as well.

How is the MCAT exam scored?

Each section of the MCAT is scored separately on a scale from 118 to 132. A score of 125 will represent the mean score for each section. Since there 4 sections to the exam the total or cumulative score for the test will range from 472 to 528 with the mid-point being a score of about 500. To be

competitive applicants need to be in the top 20% of all test takers.

- c) ***Using more intangible criteria medical schools try to find a "good" person and a highly motivated individual.*** In identifying a good person medical schools want applicants who demonstrate maturity, good character and integrity, self-discipline, and self-confidence without being arrogant or obnoxious. Medical schools also expect applicants to have a caring and compassionate nature, leadership ability, and to have good communication skills. Applicants who are well-rounded and achieve success in areas other than academics are especially attractive to medical schools. The medical schools will know the kind of person you are from your letters of recommendation, your personal statement on the medical school applications, and your interview at the medical school itself. Thus, it is important for you to develop an extracurricular life while at Goucher, so you can develop and demonstrate your personal qualities.

The medical schools now describe these qualities as intrapersonal and interpersonal competencies listed below:

Interpersonal Competencies:

service orientation,
social and interpersonal skills,
cultural competence,
team work and oral communication.

Intrapersonal Competencies:

integrity and ethics,
reliability dependability,
resilience and adaptability,
and capacity for improvement.

- d) ***The other major intangible criterion is motivation for a medical career.*** Medical schools expect highly motivated applicants, and will want to know your reasons for pursuing medicine. There are many reasons for pursuing a medical career--you have to be sure of yours. Obviously, you need to think seriously about why you want to pursue medicine and refine your ideas by the time you apply. Strong applicants also demonstrate their interest in medicine by spending a significant amount of time doing

volunteer work in a hospital. An internship in a hospital will usually help foster an applicant's interest in medicine and provide further motivation. We have relationships with five area hospitals, where students can do volunteer work.

Other types of volunteer work, which demonstrate an altruistic and service-oriented individual, are important as well. Medical schools are now especially interested in students who have performed some type of community service. Performing community service demonstrates a caring nature and helps students think about a holistic picture for patient care. It is also important for students to develop the personal skills required to work effectively with a wide variety of patients. Medical schools are very interested in students who will strongly consider primary care as an area of clinical practice. A strong community service background is a good indicator of an individual who will be happy practicing in a primary care setting. We have developed relationships with many community service organizations in the Baltimore area, where Goucher students can work.

In summarizing experiences outside the classroom: a hospital experience is of primary importance, community service work would come in second, and a research experience, although beneficial, would be less important than exposure to a hospital environment and community service.

II. Medical School Course Requirements and Competencies: what this means for your academic schedule.

Medical schools now describe the academic background required for medical school admissions as **Thinking and Reasoning Competencies and Scientific Competencies**. They are listed below:

Thinking and Reasoning Competencies

Critical Thinking: Uses logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.

Quantitative Reasoning: Applies quantitative reasoning and appropriate mathematics to describe or explain phenomena in the natural world.

Scientific Inquiry: Applies knowledge of the scientific process to integrate and synthesize information, solve problems and formulate research questions and hypotheses; is facile in the language of the sciences and uses it to participate in the discourse of science and explain how scientific knowledge is discovered and validated.

Written Communication: Effectively conveys information to others using written words and sentences.

Science Competencies

Living Systems: Applies knowledge and skill in the natural sciences to solve problems related to molecular and macro systems including biomolecules, molecules, cells, and organs.

Human Behavior: Applies knowledge of the self, others, and social systems to solve problems related to the psychological, socio-cultural, and biological factors that influence health and well-being.

So, given the above list how does it translate to the premedical coursework? Let's start with some practical information first, as you will need to meet these competencies for the MCAT and meet the coursework required by the Medical Schools. Meeting these competences and requirements will have a significant impact on your academic schedule beginning in the freshman year.

Course Requirement Summary: *(for the MCAT and medical school course requirements)*

Biology: Introductory Sequence (Bio 101,102); Cell Biology with lab (Bio 210); Genetics with lab (Bio 220); Principles of Physiology (Bio 360)

Chemistry: Intro Chemistry with lab (Chem 111,112 and 151,152); Organic chemistry with lab (Chem230 and 235); Biochemistry I (Chem 341)

Physics: either Calculus based (Phy 125 and 126) or non-Calculus based (Phy 115 and 116)

Mathematics: two math courses among Pre-calculus, Calculus I and Statistics (MA 268) (very few medical schools require 2 semesters of calculus)

Social Sciences: either Psy 111 or Soc 106

Other Considerations:

Biochemistry is required at 24 medical schools and highly recommended by many others. There are now a few schools requiring 4 Chemistry courses from a mixed sequence. For example a student could take 2 semesters of general chemistry, one semester of organic chemistry and one semester of biochemistry. However, only a few medical schools follow this model. There are humanities and social science course requirements as well, but these are minimal, and are easily met by fulfilling the liberal arts distribution requirements for a Goucher degree.

Choosing a Major

In theory medical schools do not care about the specific nature of your undergraduate major, and you can apply to medical school with almost any major as long as the minimum requirements for medical school are met. However, medical schools do expect applicants to have a rigorous academic schedule and to perform extremely well in the science courses that they complete. The smaller the number of science courses, the more weight each individual science course carries. A double major with two

sciences does not necessarily enhance your application.

As you can see from the comments above there are a significant number of science courses to be taken in the premedical program. Most students interested in medicine major in the sciences, because their natural interest lies in this area and the course requirements for medical school and a major in biology or chemistry strongly overlap. Nationwide about 60% of the people going to medical schools have biology degrees, about 25-30% have degrees in chemistry or engineering, and the remaining 10-15% have degrees in the humanities and social sciences.

Again, given the constraints the science requirements place on your academic program **it is important that you enroll in both the appropriate Biology and Chemistry courses first semester your freshman year. This is true for science and non-science majors**, because there is a two to three year sequence of courses, which you need to complete in order to apply to medical school. Please realize that it is now common for students to apply at the end of their senior year, rather than at the end of their junior year, due to the increase in course requirements. In fact only 30% of pre-medical students now apply after their junior year. During the following glide year our students have always found productive work (e.g. Teach for America), which enhances their application to medical school. If you have any questions about this, be sure that you or your advisor talks with the premedical advisor.

III. How do you prepare; a year-by-year profile.

What we have described with regards to the making of a competitive medical school applicant can look intimidating, but do not let the requirements elevate your anxiety or stress levels. You have three or four years in which to develop into a competitive applicant for medical school. Remember many Goucher students have followed the same path and been successful applicants to medical school. Below we have listed a year-by-year outline of the program you should follow:

Freshman Year: Core Coursework

Fall

Chemistry 111

Biology 101

Spring

Chemistry 152

Biology 101

In addition to the coursework investigate which extracurricular activities are attractive to you and start your extracurricular life by getting involved. Once you feel comfortable with life on campus consider doing community service work during the spring semester. It is also a good idea to begin educating yourself about medicine or any other allied health professions, where you may have an interest. More on this subject in Section V.

Sophomore Year: Core Coursework (Biology major)

Fall

Organic Chemistry with lab (234)

Spring

Organic Chemistry with lab (235)

Cell Biology with Lab (210)

Genetics with lab (220)

- **In general students should not take 3 science courses with labs. A rigorous course schedule includes 2 two science courses with labs.**

Sophomore Year: Core Coursework (Chemistry major)

Fall

Organic Chemistry 234

Physics I

Spring

Organic Chemistry 23

Physics II

In addition to the coursework continue educating yourself about the medical profession, and be sure that you are involved with community service work. During the spring set up a premedical internship or research experience for the summer following your sophomore year.

Junior Year: Core Coursework (Biology major)

Fall

Principles of Physiology

Physics I

Spring

Biochemistry I

Physics II

*Chemistry majors should consult with their advisor about the best time to take the remaining course for their major and premedical studies coursework.

Your application year: Whether it is junior or senior year, this time will be a very busy year in many ways. You will need to:

- Work with the Premed Committee to educate yourself about the specifics of applying to medical school. There will be a four workshops over the fall and spring semesters, which will instruct you on what to do and when to do it. We also bring in admissions representatives from medical schools to speak with our students. You will interview with the Premed Committee at the end of the year.
- You need to review and prepare for the MCAT, which should be taken by the end of May. You will register electronically for the exam in late December. We do offer a free MCAT review course taught by the Post-bac teaching assistant.
- Complete a Premedical Internship during the January break or during the summer if you have not already done so. We have relationships with all of the local hospitals.
- You will apply to medical school in June, using the common on-line application service (AMCAS). We will provide you with the web site addresses for all

professional school applications. You will need to submit your application by the 2nd week of June.

- Decide where to apply to medical (or other professional) school. Meet with the premed advisor to discuss an appropriate application strategy.

Other considerations:

- Be sure you finish your coursework for the major in a timely manner.
- Independent Research your senior year (if possible).
- Practice medical school interview. This is set up and run by the premed committee.
- Hopefully interview at medical schools. You will need to do your homework before the interviews.
- If you are having difficulty gaining an acceptance to medical or professional school meet with the Premed Advisor before the end of the year to reassess your situation.

Considerations for Studying Abroad

As a premedical student it is possible to participate in a study abroad program. Careful planning is the key to a successful study abroad experience, as you must integrate the coursework you need for the premed program and your major with the course selections in your study abroad program. Given the premedical requirements most students fulfill their study abroad requirement with an ICA course in January or May/June. Students who wish to spend a semester abroad usually do so during their junior year or maybe first semester senior year. A semester abroad may influence the timing of your medical school application, and when you take the MCAT. Please keep the following specific suggestions in mind when planning your study abroad.

Remember most students will apply to medical school at the end of their junior year if they wish to enter medical school the fall semester following graduation from Goucher. This means you will need to be educated about the complex application process, write your application essays, and select the medical schools to which you would like to apply. Most of the support services we provide to help Goucher students with these issues are offered during the spring semester of the junior year. If you apply to medical school at the end of your senior year the timing problems are less cumbersome, as you will be on campus the spring semester of your senior year, and you will be able to take advantage of all the support services we offer on campus.

- The MCAT is usually taken at the end of your junior year if you are applying on the traditional time scale. In order to do well on this test you must allow a significant amount of time for preparation and review of basic chemistry, physics, biochemistry and biology. The MCAT is offered in the late spring, and few times during the summer. You can take the MCAT late in the summer; however, the scores from the later test are not reported until 30 days after the test date, and you will delay the completion and evaluation of your application

to medical school until then.

- If you are thinking of studying abroad for a semester, work closely with the premed advisor and your major advisor in order to work through these issues effectively.
- Goucher does have articulation agreements with the University of East Anglia in Norwich, England, the University of Glasgow and two universities in Australia, which seem to be a reasonable match for our science students. The articulation agreements make it easy for Goucher students to enroll, allow any Goucher scholarships you have to transfer, and enable the direct transfer of the coursework you complete with grades to your Goucher transcript. You can obtain more information about these programs from the International Studies Office.

IV. The Pre-Health Professions Committee at Goucher: How we can help you.

The role of the Premedical Committee is to advise and support Goucher students who are applying to professional schools in the Health Sciences. We are here to help guide your academic program and advise you on when and how to apply to medical school. We also provide seminars and reference material so that you can educate yourself with regard to medical school and other health professions.

Be sure to take advantage of the support services noted below:

- Relationships with five area hospitals where students can do a premedical internship (i.e., volunteer work) including: the University of Maryland Medical Center in downtown Baltimore, Johns Hopkins Hospital, Greater Baltimore Medical Center, Shepard Pratt Hospital, and Univ. of Maryland St. Joseph's Hospital
- A wide range of community service opportunities are available for premedical students in the Baltimore area.
- Routine visits from the Directors of Admissions committees from regional medical schools, including Johns Hopkins and the University of Maryland.
- We will provide you with a detailed manual on how to apply to medical and other professional schools at the beginning of your junior year.
- An in-house MCAT review during your junior year that is free of charge.
- Presentations by the pre-medical advisor covering the basics of medical education, how to finance a medical education and basic information on other allied health programs.

- Workshops to help you prepare the AMCAS application, write the Personal Statement required for professional school applications, and how to prepare a professional school interview.
- Practice professional school interview with the Career Development Office or a member of the premed committee.

Pre-Health Committee Letter

The other major function of the Premedical Committee is to provide a letter of recommendation for professional schools. This letter is required by the professional schools and is a major part of your application. In order to construct the letter the Premedical Committee will ask you to select faculty members to write to the Premedical Committee in your behalf. Using this faculty input we construct a composite letter that is sent to the schools where you apply. The committee also interviews each student before we write the letter. These letters are kept on file by the committee and are updated if an applicant needs to apply for a second time. Currently the Premedical Committee consists of:

Dr. George Delahunty, Professor of Biology, Chair
 Dr. Rodney Yoder, Associate Professor of Physics
 Dr. Scott Sibley, Associate Professor of Chemistry

V. Helping to Educate Yourself:

If you plan on pursuing a professional career it is certainly to your advantage to know as much as you can about the profession you wish to enter. Much of this is really a self-education process, which takes advantage of all of the opportunities you have to learn about medicine and the health-related professions. Realize that your knowledge of the profession will be an important indication of your motivation for medical school. At a medical school interview you will not be expected to have the perspective of a physician, but rather that of an informed undergraduate. You need to be informed of the changes directed by the **Health Care Reform Act of 2010 (ACA or Obamacare)**. Some suggestions on how to do this are listed below along with a listing of the resource material present at Goucher.

- One of the best things you can do is read. Newspapers, magazines, books, or any other resource material which will help you become aware of the issues facing the health professions. You do not need to have well defined opinions on every issue, but you need to know what the issues are.
- The Pre-Health Committee sponsors lectures and seminars each year concerning the health professions. Often these include talks by admission representatives from various schools.

VI. Allopathic vs. Osteopathic Medicine.

When most people refer to medical school they are referring to the traditional or allopathic medical schools, which grant an MD degree. There are, however, another thirty three medical schools which grant a D.O. or Doctor of Osteopathic Medicine degree. The osteopathic medical schools broke away from traditional medicine well over a 70 years ago, and focused on medical training, which emphasized manipulations of the muscular and skeletal system. Over time osteopathic medicine moved back toward the allopathic approach, but in revising their orientation the osteopathic schools stressed holistic medicine and were the first medical practitioners to do so. Today most osteopathic physicians are primary care physicians, but a significant number do go into specialties taught by the allopathic medical schools.

If you are interested in applying to osteopathic medical schools we suggest that you read the reference material in the library on osteopathic medicine. You can also visit the web site www.osteopath.org Osteopathic schools are a little less competitive than allopathic medical schools, but an increasing number of students are applying only to osteopathic schools, because they like the philosophy and holistic approach of osteopathic medicine.

The course requirements for osteopathic medical schools are the same as for allopathic schools. The osteopathic schools also require a letter from the Pre-Health Committee and the MCAT. The osteopathic schools, however, have their own central application service and require a separate letter from an osteopathic physician supporting your application. The central application service is called AACOMS (American Association of the Colleges of Osteopathic Medicine Application Service). <http://aacomas.aacom.org/>

Special linkage program for students interested in Osteopathic Medicine

We now have a program whereby Goucher Students can gain a pre-acceptance to the Lake Erie College of Osteopathic Medicine (LECOM). Students can apply for this linkage before they matriculate at Goucher or during their freshman or sophomore year. Requirements for this linkage include a 3.4 overall GPA, a 3.2 science GPA, a SAT of 1240 and a successful interview. With this linkage students have a pre-acceptance to medical school as long as they maintain a specific grade point average. The advantage is that students participating in this linkage do not need to take the MCAT, as long as they take both genetics and biochemistry in addition to the core science courses.

VII. What if I Don't Get into Medical School?

It is not unusual to be rejected with your first application to medical school. In fact, a significant number of students now in medical school applied more than once. If you do not gain acceptance to medical school you need to carefully reassess your application. The Premedical Committee will help

you assess the strong and weak points of your application, and help you plot a course to improve your situation, if you decide to try again. You will really need to strengthen the weak parts of your application rather than strengthen those parts, which are already strong. Some examples of how to improve weak parts of an application are listed below.

a) Low G.P.A.

If your G.P.A. is not strong enough you may find that a strong senior year will improve your overall G.P.A. enough to make you a more competitive applicant. However, if more coursework is still needed after graduation you may wish to consider applying to a Master's Degree Program that often acts as a feeder program to medical school. A number of these programs are available throughout the country, and the premedical advisor has a list of these programs if you would like more information. In the past Goucher students have attended the programs at Georgetown University and Drexel University, and then gone on to successfully apply to medical school.

b) Low MCAT scores.

Although many people find it difficult to improve upon their first set of scores, we have found that some applicants can improve significantly with rigorous preparation. The privately offered MCAT preparation courses (e.g. Kaplan, Princeton Review) may prove helpful, but it will depend on how well a student applies themselves during this course. The key is to allow enough time to thoroughly review and sharpen your test taking skills.

c) Improving the qualitative aspects.

In reviewing your application be sure to go over the essay on your medical school application. Is it well written? Did you make clear your motivation for pursuing medicine? Do you have enough evidence that you are interested in medicine? **If you reapply, be sure to write a new essay.** Medical schools usually keep files on previous applicants for at least two to three years.

Also ask yourself whether you can provide any other information to the Premedical Committee for your letter. Are there any other faculty members who can write in your behalf? Can a former or current employer or supervisor write a letter supporting your personal qualities? Do you need to provide more evidence of your interest in medicine by doing more volunteer work? Have you done community service?

d) Reassess any medical school interviews.

If you interviewed at one or more medical schools and were not accepted you need to review carefully what went on at the interview. Getting an interview means that the medical school admissions committee believes you have the academic ability to do the

work in medical school. The interview helps the school determine what kind of person you are. If you were not accepted your interviewer(s) either did not recommend your acceptance or did not argue strongly in your behalf in front of the admissions committee. You need to review how you presented yourself in the interview, including what was asked, what you said, how you said it, and your body language. Often times it is helpful to talk in detail with other students about their interviews. In addition, if you had any hostile interviews or were asked inappropriate questions tell your premed advisor about them.

VIII. Dental School.

There are usually one or two Goucher students who apply to dental school every year. We have had great success with our students gaining admission to dental school, as most applicants have been accepted. Although admission to dental school is a little easier than admission medical school, dental school is not really a fall back strategy for medical school. Dentistry is a profession that students either really like or don't like. Students pursuing dentistry usually have a very good idea of what dental school and dentistry are all about, and they distinctly want the dental profession. If you would like to learn more about dentistry the University of Maryland Dental School, here in Baltimore, offers a three day program in June program called Dentistry Today, which gives undergraduates a detailed look at dentistry. Students, who have taken this course, have found it to be extremely helpful. See the premedical advisor for details if you are interested. More information regarding dentistry can be found at the American Dental Education website: www.adea.org.

Other basic facts for dental school applicants:

- The required coursework for dental school is the same as for medical school. There may, however, be some variation in the physics requirement depending upon the specific dental school.
- Applicants need to take the DAT, Dental Aptitude Test, in the year they apply. It is a computerized exam that is offered at local testing centers by appointment.
- Applicants need a letter of recommendation from the Pre-Health Committee.
- Applicants need to demonstrate strong personal qualities and motivation for dentistry.
- Students normally apply during the summer following their junior year using a common application service called AADSAS (American Association of Dental School Application Service). This service can be accessed through the ADEA portal noted above.

DAT Basics:

- The DAT is a multiple choice test lasting 4 hours and 15 minutes, covering 4 different areas as noted below:
- Natural sciences (Biology, general chemistry, organic chemistry)
- Perceptual ability (two and three dimensional problem solving)
- Reading Comprehension (dental and basic sciences)
- Quantitative Reasoning (math problems in algebra, numerical calculations, conversions)

IX. Veterinary School.

Goucher students applying to veterinary school have had unusual success in being accepted at both state and private institutions. Veterinary school is just as competitive as medical school, as there are very few veterinary schools and many applicants. The key to admission to a veterinary school is not only having a very strong academic record, but also gaining a good deal of experience working with animals in a veterinary practice. This last point can not be overstated as veterinary schools look for applicants who have a demonstrated interest in veterinary medicine and as much practical experience as possible. More information can be found at the American Association of the Veterinary Colleges of medicine web site; www.aavcm.org.

Other basic facts for veterinary school applicants:

- The course requirements for veterinary school are the same as those for medical school plus some additional coursework. Depending upon the veterinary schools you are applying to you may need to take additional coursework in microbiology, biochemistry, nutrition, or animal science. (See Appendix H for course requirements to specific schools.)
- Applicants will also need to take a standardized test; usually the GRE, Graduate Record Exam, but some schools do require the VCAT, Veterinary College Aptitude Test.
- Applicants need a letter of recommendation from the Premedical Committee.
- Applicants will need two additional letters of reference, usually from Veterinarians.
- Applicants need to demonstrate strong personal qualities and motivation for veterinary medicine.
- Most schools utilize the central application process: VMCAS, Veterinary Medical College Application Service.
- Students normally apply the fall semester of their senior year

GRE Basics:

-The Graduate Record exam or GRE is a test similar to the SAT, which tests reading comprehension and quantitative skills (no calculus). The exam is taken on a computer at a registered testing site, and usually takes about 2 hours to complete. The GRE is an iterative exam. The testing program will give you a question of a certain difficulty; if you answer the question correctly your next question will be more difficult, and if you answer the question incorrectly the next question will be less difficult. The exam will then quickly find your level of ability. Information about registering for the GRE and testing sites can be found in the Career Development Office. You can also go on-line at; http://www.ets.org/gre/revised_general/register

PART II: Allied Health

This section of the manual contains information regarding the basic information regarding what we traditionally refer to as the Allied Health Professions. These careers are usually less well known than medical, dental or veterinary schools, but they are certainly worth investigating by anyone interested in the health field. A summary of the more popular allied health possibilities are presented here; however you may find the following web site useful, as it is a comprehensive resource for over 7,000 allied health programs. www.ExploreHealthCareers.org

AH-I. Podiatry School.

Podiatric physicians diagnose and treat diseases, injuries or deformities affecting the foot and ankle. **Besides the doctors of medicine and dentistry they are the only other health professionals to administer both medical and surgical treatment.** Most podiatric physicians function as a primary care giver. More information regarding podiatric medicine can be found at the web site of the American Association of the Colleges of Podiatric Medicine; www.aacpm.org.

Podiatrists spend 4 years in professional with a curriculum very similar to that of medical school. Following graduation, a 2 year residency is the norm, and is required for Board Certification.

Podiatry is a profession that has grown at a significant rate due to an aging population and the emphasis on physical fitness in this country. Some Goucher students have gone onto podiatry schools in recent years. Admission to podiatry school is less competitive than medical school.

Other basic facts for the podiatry school applicant:

- The basic course requirements for podiatry school are the nearly the same as for medical school.

Biology 8-12 hours; Chemistry (General or Inorganic) 8; Organic Chemistry 8; Physics 8; English 6-8

- Applicants also need to take the MCAT.
- Applicants will need a letter from the Premedical Committee and, depending upon the school, a letter from a podiatric physician.
- As with other professional schools you will need to demonstrate good personal qualities and a strong motivation for a career in podiatric medicine.

-applications are channeled through an on-line central application service: <https://portal.aacpmas.org/> (American Association of the Colleges of Podiatric Medicine Application Service).

AH-2. Optometry School.

A Doctor of Optometry or optometrist is a primary health care provider who diagnoses and treats conditions or impairments of the eye or human vision system. Optometrists provide the majority of primary eye care in this country. In addition, more than half of the states also allow Doctors of Optometry to treat diseases of the eye. Optometrists practice in a wide variety of settings including solo practice, associate or multi-disciplinary practice, and in clinical or hospital settings. Admission to optometry school is less competitive than medical school.

The Association of Schools and Colleges of Optometry website contains a complete list of schools and students can download admission applications from links to specific schools. The web site can be found at; www.opted.org. You can also register for the Optometry Admission test (OAT) online at this site. As with other standardized tests the OAT is a computerized exam.

Other basic facts for optometry school applicants:

- The basic course requirements for optometry school are the same as for medical school, plus some schools require a year of calculus and a statistics course. The requirements for admission to the schools and colleges of optometry vary, but students wishing to study optometry should be certain to take **at least a year of biology, chemistry, organic chemistry, general physics, and microbiology; English; college mathematics; and other social science and humanities courses.** The science courses should be pre-professional level courses designed for science majors or health professional students and should offer laboratory experience.
- Applicants must take the OAT, Optometry Admissions Test. The OAT consists of four sections: Survey of the Natural Sciences (Biology, General Chemistry, and Organic Chemistry), Reading Comprehension, Physics and Quantitative Reasoning. The OAT exam is computerized and examinees are allowed to take the OAT an unlimited number of times but must wait at least 90 days between testing dates. You can register for the OAT at: <https://www.ada.org/oat/index.html>
- Applicants need a letter from the Premedical Committee.
- Applicants must demonstrate good personal qualities and motivation for optometry.
- Applicants normally apply during the fall of their senior year.

AH-3. Physical Therapy Programs.

Physical therapists are health care providers who work to correct and alleviate acute or chronic movement dysfunction. There are 210 schools in the U.S. offering physical therapy training programs.

A Bachelors Degree in Physical Therapy is no longer offered, and all degree programs are at the graduate level. In fact, 81% of all the programs now offer the doctoral degree. Given the changes in the profession **it is best to earn a clinical doctorate degree in Physical Therapy (DPT)**. The programs are usually three years long and students take approximately 90-95 graduate credits depending on the program. Physical therapists are licensed to practice in all 50 states, and there is a National Exam taken upon completion of a physical therapy program. Physical therapists work in a wide variety of settings including hospitals, outpatient clinics, industrial settings, retirement and nursing homes, and in private practice.

Typical prerequisites for a graduate program in physical therapy may include: general biology, human anatomy and physiology, general chemistry, general physics, psychology and statistics. Exercise physiology or kinesiology may be required depending on the program. Specific requirements will vary somewhat from school to school. You can obtain more information regarding a career in physical therapy and physical therapy programs at www.apta.org. There are also 10 specialty areas within physical therapy, which require additional training.

Admission to a physical therapy program is competitive as there are many applicants for every opening. A competitive applicant will have the following characteristics:

- * A strong undergraduate GPA.: 3.37 is currently the national average.
 - * You will need to submit GRE scores: See the GRE information under veterinary schools.
 - * Volunteer experience in physical therapy (roughly 300 hours) to demonstrate interest and knowledge of the profession.
 - * References: 2 academic references, letters from practicing physical therapists, and a letter from a community service supervisor is also helpful. This will vary from school to school.
 - * An interview is usually required.
- Applications are handled through a centralized application service: **PTCAS** (Physical Therapy Common Application Service) see; <http://www.ptcas.org/Overview/>

AH-4. Physician Assistant Programs

Physician Assistants (PAs) were introduced into the American medical culture in the mid 1960s. The profession has grown over the past 3 to 4 decades, and PAs are now found working in all aspects of medical care delivery. By law, PAs are clinicians, who practice medicine under the supervision of a physician. There are 75,000 PAs in practice in 2009 accounting for over 10% of all outpatient care. A 39% increase in job growth is expected by 2018. They are licensed in all 50 states and programs educating PAs are accredited by two national organizations.

PA programs are designed to be generally two years long, usually including a year in the classroom and a year of training in the clinic. There are significant differences in the types of programs available. 90 of the 135 nationwide programs award a Masters Degree. Approximately 7,000 PAs are trained each year compared to 20,000 physicians. About half of all PAs work in primary care, while the others work in medical and surgical specialties. The average PA earns \$93,000/year (2009 data).

Admission to PA programs is primarily based on your academic record and medical experience. Some programs will require you to take the GRE. A common application service is used by most schools. The central application service (CAPSA) and more information regarding PA programs can be found at the web site for the Association of Physician Assistant Programs: www.aapa.org.

Other Basic Facts for PA Applicants:

- There are 2.25 applicants for every position nationwide. The mean science GPA is 3.07 and the mean non-science GPA is 3.37.
- Course prerequisites differ from school to school, but can usually be met by the premedical requirements.
- Some programs will require the GRE
- Most programs will require an interview
- You will need a minimum of 1000 hours of work in a health-related setting. See individual programs for what counts in this area.
- You will need a pre-medical committee letter plus one or two letters from medical professionals.
- 87% of the PA programs utilize an electronic application service; CASPA (Central Application service for Physician Assistants) <https://portal.caspaonline.org/#>

AH-5. Nurse Practitioner:

A **Nurse Practitioner (NP)** is an [Advanced Practice Registered Nurse \(APRN\)](#), who has completed graduate-level education (either a Master of nursing or Doctor of Nursing Practice degree). Nurse Practitioners treat both physical and mental conditions through comprehensive history taking, physical exams, ordering and interpreting diagnostic tests. NPs can then diagnose the disease and then provide appropriate treatment for the patients, including prescribing medications.^[1] NPs can serve as a patient's primary health care provider, and see patients of all ages depending on their specialty (family, pediatrics, geriatrics, etc.). The core philosophy of the field is individualized care that focuses on patients' conditions, as well as the effects of illness on the lives of the patients and their families. NPs make prevention, wellness, and patient education priorities. In addition to health care services, NPs conduct research and are often active in -patient advocacy activities. To become licensed/certified to practice, Nurse Practitioners hold national board certification in an area of specialty (such as family, women's health, pediatrics, adult, acute care, etc.), and are licensed through the state nursing boards.

According to the [International Council of Nurses](#), an NP/Advanced Practice Nurse is "a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which would be determined by the context in which s/he is credentialed to practice."^[2]

To be [licensed](#) as a Nurse Practitioner, the candidate must first complete the education and clinical experiences necessary to be a [registered nurse](#), then go on to complete a graduate-level nurse practitioner program (either a Master's or Doctorate degree). Next, the candidate must pass a national board certification in their area of specialty. Registered nurses initially trained at the associate degree or diploma level must therefore first complete a [Bachelor of Science in Nursing](#) (BSN) or enter various programs offering an ADN-to-MN/MSN bridge program. Some of these bridge programs may award a Bachelor's degree while the candidate continues to complete the elements of their Master's or Doctorate degree.

AH-6. Physician Assistant vs Nurse Practitioner

Note that people often compare the role of a PA to that of a Nurse Practitioner. Both of these health professionals essentially do the same thing; there may be small differences from state to state depending upon what the laws allow. To be eligible to apply to a Nurse Practitioner program you must have a nursing degree (B.S. in Nursing) and at least two years of working experience. Some bridge programs may be available for basic science students to earn a nursing degree first, then eventually move into a Nurse Practitioner program. Thus, most Goucher students with a degree in the basic sciences would pursue a Physician Assistant program and degree.

AH-7. Pharmacy Doctorate or Pharm D Programs

There has been significant interest in Pharm D programs by our students in recent years. This reflects the fact that the working degree for pharmacists is now a doctorate. Pharmacists are professionals, who have a strong interest in drug chemistry and how medications affect the body. They have become the professionals of medication therapy management. A **standard premedical curriculum** will prepare a student for entry into a Pharm D Program. However, a number of schools require the additional courses noted below: (Credit hours)

Calculus (3)	Microbiology w/lab (4-5)	Human Anatomy (3-4)	Communications (3)
Statistics (3)	Biochemistry (3)	Physiology (3-4)	Microeconomics (3)

After earning a bachelor's degree a student should plan on spending four to five years to earn the doctorate degree. The last year of training will be in a clinical setting. You can obtain more information regarding the profession at the professional web site; www.aacp.org.

Other basic facts for the Pharm D applicants:

- Admission is competitive as there are 14,000 slots for 43,000 applicants every year.
- Extracurricular activities and community service are important considerations, as pharmacists must interact with a wide variety of patients.
- Applications are made through a common application service at www.pharmcas.org.
- Applicants will also be required to take the **PCAT** (Pharmacy College Admissions Test).

The PCAT exam is a computerized exam taken at a local testing center. The takes over 4 hours to complete, and consists of 5 Sections and two writing topics. Each section consists of 48 questions. The sections are: **Writing Ability, Verbal Ability, Biology, Chemistry, Reading Comprehension and Quantitative Ability**. Note that in the quantitative section 20% of the questions will be Statistics based, and 22% of the questions will be calculus based. A competitive applicant will score in the 70th percentile and above.

The PCAT exam is given on specific dates in July and September. To be a competitive candidate the applicant should take the exam no later than the September test dates.

AH-8. Graduate School in Public Health.

Schools of Public Health train individuals in the techniques of health preservation and disease prevention and control. In other words, public health focuses on the health of entire populations, while they are still healthy, rather than focus on individual patients after they become sick. Currently, there are 26 accredited schools of Public Health in the country, all offering Master's Degree Programs and a few offering Doctoral Degree Programs. Of the approximately 5,000 graduate students accepted per year in public health programs 70% are seeking Master's Degrees while 30% seek doctorates. Degree candidates will specialize in specific areas of public health such as biostatistics, epidemiology, environmental and occupational health, health services administration, nutrition, maternal and child health and social and behavioral sciences. Roughly 50% of public health graduates find positions with government, while 30% find work with non-profit agencies and 20% are employed in for-profit industries. Most graduates received a minimum of 1-2 job offers.

The entrance requirements for graduate school in public health are usually met by an undergraduate degree in the basic sciences; however, some schools may highly recommend or require work experience before entering their program. For further information, you can look into the following web sites, www.asph.org or www.whatispublichealth.org; or you can contact the Association of Schools of Public Health at:

Association of Schools of Public Health
1015 Fifteenth Street, Suite 404
Washington, DC 20205

1-202-842-4668

The Harvard School of Public Health has a very informative web site, which you may wish to visit. Simply Google the site and note the wide range of opportunities available.

Goucher does offer a minor in Public Health. The minor requires 24 credits, and is compatible with both science and non-science majors. Once on campus you can access the internal Goucher web site for the Public Health minor, where a great deal of information is available regarding the Public Health minor and careers. Goucher also has an affiliation with the University of Maryland School Public Health in Baltimore, where a student, if qualified, can enroll in graduate level public health coursework during their senior year. This arrangement enables the student to begin coursework toward a Master's in Public Health before they graduate.

Applicants now use a common application service for all schools of public health. If you are interested in applying go to: www.sophas.org. Most schools will also require the GRE with the quantitative score being most important. If you are applying to a doctoral level program it is very important that you contact the Department, which interests you, to find out about research opportunities and possible financial aid.

XVI. Questions to Ask

When applying to any allied health program it is important to gain as much information as possible about each specific program. Go to the web site for each school and become familiar with the admission requirements and norms. You will want to know not only cost, but also what financial aid packages are available. Do not be afraid to ask the following questions;

What percent of the graduates pass the licensing exam?

Is the program accredited by the appropriate professional organization?

What is the attrition rate in the program?

What percent of the graduates find work within six months?

APPENDIX I

WEB SITE SUMMARY

Allopathic Medical Schools and MCAT

<http://www.aamc.org>

Osteopathic medicine:

<http://acomas.aacom.org>

Dental School:

<http://www.adea.org>

Veterinary School

www.aavcm.org

GRE (Graduate Record Exam)

http://www.ets.org/gre/revised_general/register

Summary of all health Professions:

www.ExploreHealthCareers.org

Optometry School:

www.opted.org

Physical Therapy Programs:

www.apta.org

Physician Assistant Programs:

www.aapa.org

Pharm D Programs:

www.aacp.org

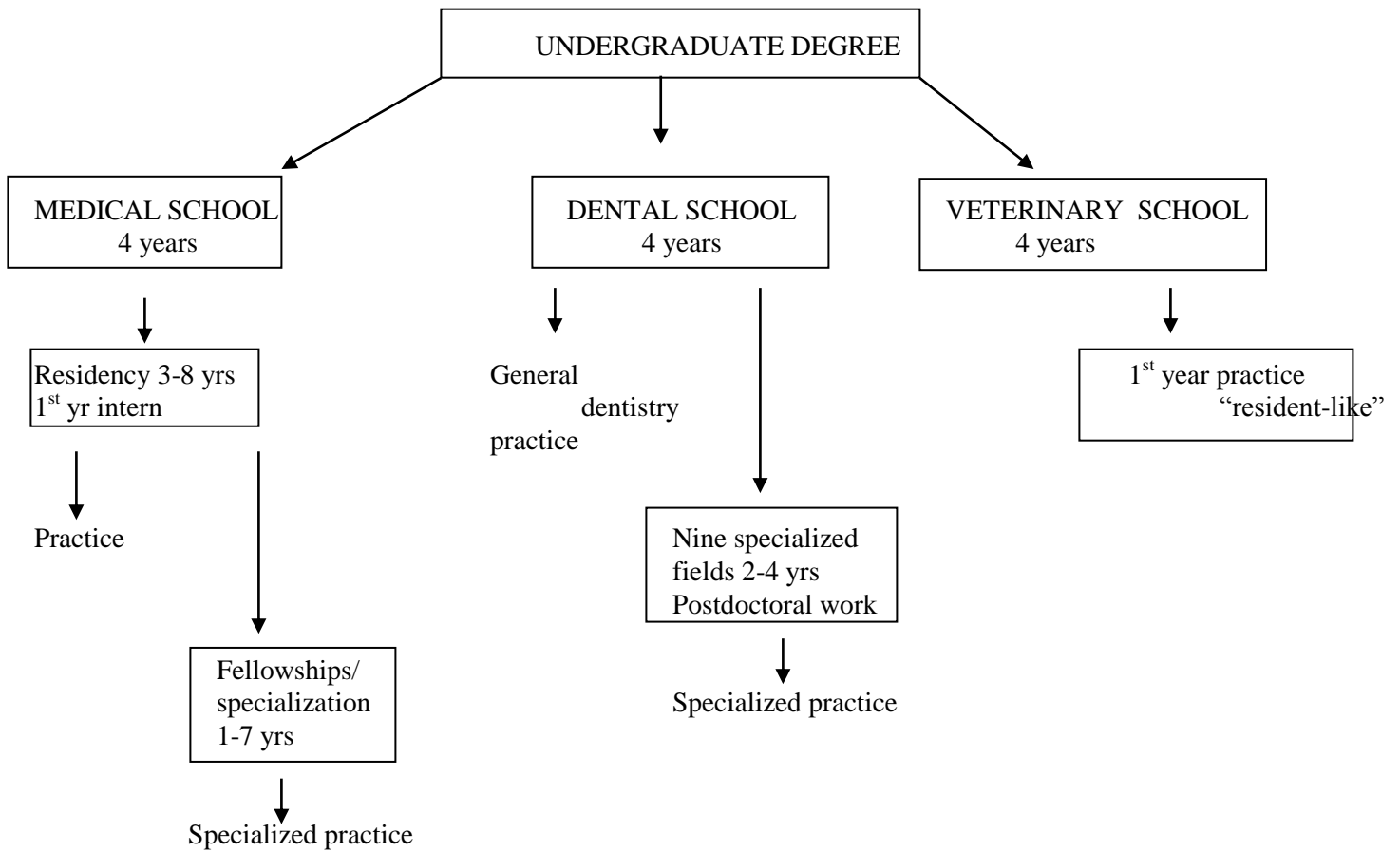
Public Health Programs:

www.asph.org or www.whatispublichealth.org

APPENDIX II
Summary of Basic Information for Dental, Medical, and Veterinary Schools

	Dental	Veterinary	Medical
Competitive GPA	3.5	3.5 and above	3.7
Standardized Test	DAT	GRE	MCAT
Needed Scores	Scale 1→ 30 17 avg score 19 or better needed Sections: Natural Sciences Perceptual Ability Test Reading Comprehension Quantitative	600V 600M	Scale 118 → 132 in each section: Biology & Biochem Chem and Physics Verbal Reasoning Psych and Soc Behavior Need a 510 total
Application	Centralized: AADSAS	Centralized: VMCAS	Centralized: AMCAS
No. of schools applied to	8-10	4-5	15-20
Basic coursework	General chem-1 yr Organic chem-1 yr Physics-1 yr Biology-1 yr Few schools: Calc or Stat	General chem-1 yr Organic chem-1 yr Physics-1 yr Biology-1 yr Some may require: Math-2 semesters Biochem-1 semester Genetics-1 semester Stats-1 semester Microbio-1 semester	General chem-1 yr Organic chem-1 yr Biochem 1 sem Physics-1 yr Biology-1yr Stats 1 sem Calculus-1 semester
Experience	Shadow a dentist (□ 100 hrs) U of MD Dental School “Dentistry Today”	Need extensive experience with both small and large animals	Hospital experience; at least 100 hours and community service

APPENDIX III
Practical and Financial Information for Professional Schools



APPENDIX IV

Minimum Science Course Requirements for Veterinary Schools Commonly Applied to by Goucher Students

SCHOOL	CREDITS REQUIRED								
	Biology	General Chemistry	Organic Chemistry	Physics	Math (Calc)	Biochemistry	Genetics w/Lab	Statistics	Micro w/Lab
Cornell	2 sem.	2 sem.	2 sem.	2 sem.	-----	2 sem. + lab	-----	-----	3 credits
U of Penna	3 sem.	2 sem.	1 sem.	2 sem	3 credits	-----	-----	-----	-----
Purdue	3 sem.	2 sem.	2 sem.	2 m.	2 sem.	1 sem.	1 sem.	1 sem.	-----
Tufts	2 sem.	2 sem.	2 sem.	2 sem.	2 sem.	1 sem.	1 sem.	-----	-----
VA-MD Regional	2 sem.	2 sem.	2 sem.	2 sem.	6 credits	1 sem.	-----	-----	-----
Ohio State	2 sem.	2 sem.	1 sem.	2 sem.	1 sem.	1 sem.	1 sem.	-----	1 sem.

* Check the Veterinary Medical School Admission Requirement Guide for other schools accepting out of state applicants and those schools with contract agreements.

Appendix V

Sample Pharmacy Programs

Required Courses	University of Maryland	University of Southern California (assuming 3 credits per class and 4 for labs. The USC website uses semesters)	Temple University Holders of a degree (BA/BS, MA/MS, Ph.D.) may be exempt from completing up to 9 elective credits. Min GPA: 3.0
English Composition	3	6	
Calculus	3	3	4
Statistics	3	3	
Biology (with lab)	4	8	4
Microbiology (with lab)	4	4	
General Biology II (with lab)			
General Chemistry (with lab)	8	8	4
General Chemistry II (with lab)			4
Organic Chemistry (with lab)	8	8	
Organic Chemistry II (with lab)			4
Physics	8	4 (with lab)	4 (with lab)
Physics II			4 (with lab)
Human Anatomy and Physiology	6	3 (Just Human Anatomy)	
Humanities and Social Science	18	3 (Psych or Sociology)	
Speech, Communications, or Public Speaking	3	3	
Microeconomics	3	3	3
Analytical Reading/Writing			3-4
Economics			3
Mosaic I: Intellectual Heritage I			3
Mosaic II: Intellectual Heritage II			3
General Bio II			4 (with lab)
U.S. Society			3
Race and Diversity			3
Arts			3
International Studies I & II OR Foreign Language I & II			3
Required Credits	71	56	59-60

Appendix VI PCAT Summary

Subtest	Time	Items	Content Areas	Approximate Percentages
Writing	30 min	1	Conventions of Language Problem Solving	
Verbal Ability	30 min	48	Analogies Sentence Completion	60% 40%
Biology	30 min	48	General Biology Microbiology Anatomy and Physiology	60% 20% 20%
Chemistry	30 min	48	General Chemistry Organic Chemistry	60% 40%
Writing	30 min	1	Conventions of Language Problem Solving	
Reading Comprehension	50 min	48	Comprehension Analysis Evaluation	30% 40% 30%
Quantitative Ability	40 min	48	Basic Math Algebra Probability and Statistics Precalculus Calculus	15% 20% 20% 22% 22%

Appendix VII

Physician Assistant Programs

Required Courses	George Washington University	Duke University	Drexel University
Biological Sciences (Human Anatomy and Physiology strongly recommended, Botany not acceptable)	6 (B- or better)		
Two semesters of Biological Sciences for science majors (one semester must be either be Organic Chemistry or Biochemistry)	6 (B- or better)		
Two semesters of Psychology (General Psychology required, Abnormal Psychology strongly recommended)	6 (B- or better)		
Anatomy		3 (C or better)	
Physiology		3 (C or better)	
Microbiology		3 (C or better)	
Need two: genetics, cell biology, molecular biology, embryology, histology, or immunology		6 (C or better)	
Chemistry courses with labs		8 (C or better)	
Statistics		6 (C or better)	
Psychology: One course in General/Introductory, Developmental, or Abnormal Psychology			3-4
Human Anatomy and Physiology with Lab			8
General Biology with Lab			8
General Chemistry I with Lab			4
General or Medical Microbiology (Preferably with Lab):			3-4
General or Medical Genetics (Preferably with Lab)			3-4
Medical Terminology			1-3
Required Credits	18	29	30-35

Appendix VIII

Nurse Practitioner Programs

Required Courses	Georgetown*	Johns Hopkins	University of Maryland**
English I and II	6		6
General Chemistry w/lab	4		4
Anatomy & Physiology I w/lab	4	6-8	4
Anatomy & Physiology II w/lab	4		4
Microbiology w/lab	4	3-4	4
Intro. to Psychology			3
Intro. to Sociology			3
Human Growth & Development	3	3 (can be taken online thru Hopkins)	3
Social Science Elective			3
College Algebra, Calculus or Pre-calculus			3
Statistic	4	3	3
Humanities Elective			9
Nutrition	3	2-3 (can be taken online thru Hopkins)	3
General Elective	12 * See footnote		7
Required Credits	44	17-21	59

*Georgetown

SEVEN COURSES from Group II must be completed PRIOR TO ENTERING THE PROGRAM. *The remaining four courses from Group II will be incorporated into your Accelerated Second Degree BSN program of study.*

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(6-12 – your choice)

English A 3 credits

English B 3 credits

Theology (Religion) A 3 credits

Theology (Religion) B 3 credits

The “A” and “B” designations above serve only to clarify that two courses in both English and Theology can be used towards the requirement. For example, if you have taken two English courses and two Theology courses, you have completed four of the seven courses required from Group II. You would then need three additional Group II courses.

Courses officially designated as "writing-intensive" by the university will fulfill English prerequisites.

English, Theology (Religion) and Philosophy prerequisites can be fulfilled by any courses in these respective

departments.

Philosophy 3 credits

Ethics 3 credits

Ethics may be fulfilled by a number of ethics-based courses including, but not limited to, Bioethics, Introduction to Ethics, and Environmental Ethics. Ethics courses are frequently housed in Philosophy or Theology (Religion) departments.

Human Nutrition 3 credits

Human Growth and Development 3 credits

Human Growth and Development is commonly housed in a Psychology department and covers lifespan development from birth through death (may also be titled “Lifespan Development” or “Developmental Psychology across the Lifespan”).

Health Care Delivery Systems C or better 2 credits

This course explores the social, economic, political, technological, and legal forces that influence the delivery of health care in the United States. The organization, financing and delivery of health care are examined, as are the legislative and policy processes related to health care. Professional and ethical issues arising from system inequities are explored, and implications for national health status are discussed.

Abnormal Psychology C or better 3 credits

Courses such as General Psychology and Developmental Psychology will **NOT** fulfill this prerequisite. This course is readily available in classroom and online venues through most universities and community colleges.

Research Methods C or better 2 credits

Research Methods can be fulfilled by a lecture course covering the scientific method, experimental design, implementation and analysis. These courses are frequently housed in Psychology and Sociology courses. A laboratory-based independent research course will not fulfill this requirement.

****University of Maryland**

Social Science Electives: Anthropology, Economics, Geography, History, Political Science, Criminal Justice, Women’s Studies, additional Psychology, or Sociology.

Humanities Electives: Theory courses taken from at least two different departments – Art, Music, Theatre, Dance, Communications, Philosophy, Literature, Religion (if completed at a non-religiously affiliated school), Language, Speech, Math, Women’s Studies.

General Electives: Any additional courses, academic in nature, that are not below the 100 level – English as a Second Language is not accepted and no orientation courses are accepted.

APPENDIX IX

Sample Physical Therapy Program (DPT) Requirements (Univ. of MD)

- Human Anatomy (with lab recommended, 4 semester credit hours). One course in Human Anatomy or the first course in the series of Anatomy and Physiology I&II. Anatomy content should include skeletal and muscular systems of the human body.
- Physiology (with lab recommended, 4 semester credit hours). One course in Physiology or the second course in the series of Anatomy and Physiology I&II. Physiology content should cover various systems including: cardiovascular, endocrine, respiratory, etc...
- Biology (4-8 semester hours) - In addition to Human Anatomy and Physiology listed above, one or two courses from the field of biology, not to include Botany).
- General Chemistry I (with lab 4 semester credit hours). Content must include atomic and molecular structure. This course should be the first in the Chemistry I & II series.
- General Chemistry II with lab (4 semester hours) - In addition to Chemistry I listed above. This course should be the second course in the Chemistry I&II series and must include a lab.
- General Physics I (with lab 4 semester credit hours). Non-calculus or calculus based.
- General Physics II (with lab 4 semester credit hours). Non-calculus or calculus based.
- Statistics (3-4 semester credit hours). Course content should include mean, median, mode, standard deviation, t-tests, etc...
- Psychology (3 semester credit hours). Abnormal or Developmental Psychology recommended.
- Human Behavior (3-6 semester hours) - In addition to Abnormal Psychology or Developmental Psychology listed above, one or two courses that include a knowledge of human behavior from an individual or societal perspective.
- In addition to the course requirements applicants must:
 - submit GRE scores
 - submit 3 recommendations: one from a physical therapist; one from a community service organization; one from an academic source
 - minimum 100 hours volunteering or working with a physical therapist
 - demonstrate on-going non-PT related community service work
 - Have CPR and Basic First Aid certification

