



# WAKE FOREST UNIVERSITY

Medicine



## Health Professions

Pharmacy

Advising

Physician Assistant

GRE

Research



Physical Therapy

Nurse Practitioner

Study Abroad

AMCAS



MCAT

EMT



Veterinary

Speech Pathology

## Community Service

Shadowing

Gap Year

Dentistry





# The Wake Forest University Pre-Health Professions Handbook

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## **Frequently asked questions:**

### **I am an entering freshman. What courses should I take in the first year if I am interested in a pre-med track?**

In the first semester, you should take CHM 111 with lab. In the spring you should register for CHM 122.

### **When should I start biology courses?**

If you are not planning on majoring in biology, you should begin biology with BIO 114, in either the fall of your second year, or, if you have excelled in CHM 111, in the spring of your first year.

### **Who should I speak to if I am interested in attending a health professions program such as in medicine, dentistry, nursing, etc, after I graduate?**

In addition to your academic advisor, there are eight health professions advisors who are available to consult with you on the prerequisites and application process for the various programs. You can find a list of the health professions advisors and their areas of specialty in the Health Professions Handbook and on the Health Professions web page (<http://college.wfu.edu/prehealth/>).

### **When should I apply to medical school?**

Many prestigious schools have designed pre-medical programs that use the full four years of college to prepare their students for admission to medical school. Medical schools are looking for students that have demonstrated that not only are they good students, but that they are committed to service and have a breadth of life experiences. Every year, you will become more mature and have more life experiences that will make you a more competitive applicant. In addition, your senior year grades will be included in the consideration for medical school. In the fourth year you will be taking mostly courses in your major and elective courses, in which students generally do very well. This is an opportunity to maximize your GPA.

### **If I am a pre-health professions student, is it possible to study abroad?**

Absolutely! Even pre-medical students and pre-physician assistant students who have the greatest number of prerequisite courses to complete can study abroad. Please see the course planning guides in the Health Professions Handbook. Whatever health profession program you are aspiring to, study abroad is possible. But it takes careful planning. Visit the Office of Global Programs and Studies in Reynolda Hall during your first semester, and begin to plan!

### **Is there a study abroad program that will allow me to complete prerequisite courses that I need for my health professions program?**

It is difficult to find science courses in English abroad unless you study in an English-speaking country. But if you plan ahead, you can fit all of your science prerequisites in while at Wake

Forest, and use your study abroad time to appreciate the art, history and culture of the country in which you choose to study.

**What else should I be thinking about besides course work to make me competitive for a health professions program after I graduate?**

All of the health professions programs require that you have community service and some volunteer clinical service hours, and that you have “shadowed” (interned with) a professional who works in your chosen profession.

The other thing that you should be thinking about is that in three or four years you will need at least three letters of recommendation, two of which will most likely be from faculty members. A letter of recommendation that says “I had Johnny in class and he earned an A” is no better than no letter at all. Get to know several professors. Take a professor that you have enjoyed for more than one class. Work with faculty on projects in which they are involved. Visit during office hours. Discuss your career aspirations. Let the faculty know who you are above and beyond your performance in their class.

**What is the Health Professions Committee?**

The Health Professions Committee is comprised of all of the health professions advisors. Besides as serving as advisors for students interested in various health professions, members of the committee evaluate and rank pre-medical and pre-dental undergraduate students as part of their application process to medical or dental school.

**What is the “committee letter”?**

Medical and dental schools ask for a letter from the students’ undergraduate institution(s) that expresses the degree of support that the institution has for the student’s application, and an explanation of that support. This letter is written by the Director of Health Professions Advising, with input from the Health Professions Committee. In order to have a committee letter sent on your behalf, you must submit a Health Professions Application. Information on the application process and deadlines can be found in the Health Professions Handbook and online at <http://college.wfu.edu/prehealth/>.

## The Health Professions Advisors

<b>Premedical, years 3 and 4</b>	Dr. Carole Gibson. Professor, Department of Biology Director of Health Professions Chair, Health Professions Committee <a href="mailto:gibsoncl@wfu.edu">gibsoncl@wfu.edu</a>
<b>Premedical, years 1 and 2</b>	Dr. John Tomlinson, Associate Teaching Professor, Department of Chemistry Assistant Director of Health Professions <a href="mailto:tomlinjt@wfu.edu">tomlinjt@wfu.edu</a>
<b>Physician Assistant, A-K</b>	Dr. Jane Albrecht, Professor Department of Romance Languages Division II <a href="mailto:albrecht@wfu.edu">albrecht@wfu.edu</a>
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<b>Physical/occupational therapy A-K</b>	Dr. Samuel Cho, Associate Professor Departments of Physics and Computer Science Division V <a href="mailto:choss@wfu.edu">choss@wfu.edu</a>
<b>Physical/occupational therapy L-Z</b>	Dr. Kristina Gupta, Assistant Professor, Department of Women and Gender Studies Division I guptaka@wfu.edu
<b>Pre-dental and pre-veterinary</b>	Dr. Katy Lack, Assistant Teaching Professor Department of Biology Division V <a href="mailto:lackak@wfu.edu">lackak@wfu.edu</a>
<b>Nursing/Pharmacy/Audiology</b>	Dr. Fred Salsbury, Associate Professor Department of Physics Division V salsbufr@wfu.edu

## INTRODUCTION

There are a variety of health professions, each of which plays a vital role in meeting health care needs not only here, but throughout the world. This handbook contains information about what you should do as an undergraduate at Wake Forest to prepare for careers in these fields.

Which health profession to pursue often seems an easy choice at first, but as you become more familiar with the differences between them and the requirements for each, you may become interested in an alternate career path. As soon as you arrive at Wake Forest, sign up for the Health Professions listserv. That way you will be informed of programming that will help you choose the career option that best suits your interests and skills. Events include panel discussions on career choices, and workshops on how to be a competitive applicant, write a personal statement, and find an internship or shadowing opportunity.

The Health Professions Program at Wake Forest is designed to ensure that you are aware of what it takes to be a competitive applicant to the health professions program to which you aspire. We cannot make you a competitive applicant. Only you can do that. We will provide information and guidance, but the rest is up to you.

**Step one is to carefully read the relevant parts of this handbook; not as you enter your junior or senior year, but now!**



## **BECOMING A COMPETITIVE APPLICANT**

To be a competitive applicant for programs in any of the health professions, completing the prerequisite courses and earning good grades in them are a given. But you not only have to earn good grades and perform well on the appropriate standardized test, you must also demonstrate a knowledge of and experience in the field. And, as you will see, you should be able to explain why you have selected your chosen health profession as a potential career.

The GPA and test scores which are judged to be competitive vary by program, as do the requirements for experience and prerequisite courses. Generalized lists of prerequisite courses for each type of health professions program are listed in this handbook. But as you approach your final year, be sure to check the web sites of the programs to which you plan to apply. Some schools will have additional prerequisites.

Many schools will report the average GPA and test scores of their admitted applicants, so that you can evaluate your competitiveness in that respect. What if your GPA and test scores suggest that you are not competitive for admission to the program of your choice? You have many options.

There are a number of post-baccalaureate programs designed specifically to help students pursue a career in the health professions after they have completed the bachelor's degree. These one year programs offer students the opportunity to take required courses they may be lacking, and provide an opportunity to improve your GPA. For more information on post-baccalaureate programs, visit <https://services.aamc.org/postbac/>. Additional guidance on post-bac programs can also be obtained from the Graduate School Advisor, Dr. Cecilia Solano.

It is also possible to enter a master's program in a relevant field. MS programs are two or more years, and generally have research and thesis components. MA degrees often do not require a thesis.

How do you decide which is the best choice for you? Generally, if your grades and test scores are competitive, but you lack experience, a relevant master's degree can be very helpful. But if your GPA is not competitive, particularly your science GPA, you might consider a postbac program.

Another option is to work in a health care setting such as a hospital or clinic. Face-to-face patient time is an asset in an application to any health care program. There are many opportunities, but some common choices are to train as an EMT (emergency medical technician) or LPN (licensed practical nurse), or work as a medical scribe. The necessary short training courses are generally available at most community colleges. How do you find relevant clinical opportunities? See the section on internships herein.

Finally, service is an important component of any health care career. One to two years of service in organizations such as Americorps, Teach for America, or the Peace Corps can make an applicant more attractive.

So what is a competitive applicant? Grades and test scores are used by health professions programs to ascertain whether you will be able to succeed academically in their program. But there are many applicants with competitive metrics. It is the experiences that you have that may set you apart from the crowd. Don't just focus on the numbers; it is the complete package that that will get you admitted.

## **BECOMING A COMPETITIVE APPLICANT: ACADEMICS**

As you enter Wake Forest you will be assigned a lower division academic advisor who will see you through to the spring semester of your second year. Since you will not select a major until the end of the second year, your lower division advisor will most likely be in a field unrelated to the one in which you eventually major. If you are interested in a career in medicine, dentistry or veterinary medicine, you should attend one of the health professions introductory sessions that will be held during the first few weeks of classes. Regardless of the health profession field you are interested in, if you find yourself struggling academically or have concerns about course selection, please check in with the appropriate Health Professions Advisor!

As you begin your first year, you may find that the level of coursework is surprisingly more challenging than in high school. There will definitely be a lot of distractions to pull you away from your studies! Stay focused academically. Programs in medicine, dentistry, physician assistant, physical therapy and others are very competitive. Don't dig a hole that means that you will have to work twice as hard later to be competitive for admission. At the same time, remember that being competitive means much more than just a good grade point average. Most programs are looking for well-rounded individuals who have a variety of interests and who have demonstrated a concern for the welfare of others.

First year students, don't worry about your choice of major. Take the courses that will keep you on track for admission to a program in your chosen field, and then use the wide variety of divisional courses offered to explore various areas of study. As you near the end of your second year, you may be surprised by what you choose as your major! Majoring in a science may not offer an advantage. For almost all of the health professions, including medicine, what is important is that you complete the prerequisite courses. What courses you choose to take in addition to those courses are equally important because they say a lot about who you are and what your interests are.

## **AP or IB Credit**

Some programs will accept AP or IB credits, but many do not. For those schools that accept AP or IB credit, the credit must be reflected on your official transcript. In other words, you must have received credit for them at Wake Forest. Some schools will only accept AP and IB credits if additional advanced coursework has been taken in that discipline. Since you do not decide what schools to apply to until well into your college career, it is best not to count on AP/IB credits.

## **Online Courses**

Most programs do not accept online courses in the sciences, particular if they have a laboratory component. Some schools will accept blended courses, where lectures are online but the lab is done in person. However, unless you have graduated and are unable to take a course any other way, it is best not to take any science courses online. If the only way that you can take a course is to take it online, be sure to check with the programs you plan to apply to before doing so. If the programs you are interested in do accept online courses, they offer considerable flexibility that will allow you to take a course while working. Many (but not all) allow you to work at your own pace. Important things to take into consideration: Is the program accredited? What is the academic reputation of the institution offering the course? Is the instructor qualified?

## **Summer Courses**

Most of your science courses should be taken at Wake Forest, so that schools know that you have had a rigorous experience in these courses. If you do choose to take one or two courses elsewhere, make sure that it is at an accredited four-year university or college. Unless you are a science major, it is not necessary that the courses transfer into Wake Forest. You will need to submit an additional transcript for these courses with your medical school application. Courses taken in the summer for transfer must be pre-approved by the department before the course is taken. The Registrar's Office keeps a list of courses that are pre-approved. You might save yourself a lot of time if you start there!

## **Repeating Courses**

The best thing to do is to never get into a situation where you have to repeat a course! Most programs will not accept grades lower than a "C". So if you get a C- or lower in a class, you will need to repeat it. But if you are struggling in a course, don't think it is better to earn C- or lower rather than a C just so that you can repeat the course. Even though Wake Forest allows you to repeat courses and remove the first attempt from your Wake Forest GPA, the first grade is still on your transcript. Also, when you need to calculate your science GPA, you will need to include all of the science courses you have taken, even if you have

repeated some of them. Repeated courses don't just go away. The fact that you repeat a course and get a B+ or A- instead of a C- doesn't necessarily put you in a better position.

### **Help!**

If you are struggling in a course, take advantage of the resources that Wake Forest offers. Seek out advice from your course instructor or TA. Peer tutoring is available free of charge through the Learning Assistance Center. They can also help with time management issues or study skills. If you need assistance in writing, visit the Writing Center. The Chemistry Center, operated through the Department of Chemistry, allows students to drop in and work with instructors and/or peers. The Math Department offers a similar service. Finally, don't forget that you have an academic advisor who may not be able to help you with your biology exam, but can give you sage academic advice on whether or not you should drop a course.

### **Just say no**

There are so many things to do in college, many of which are unrelated to academics, that it is easy to become over-committed. While a variety of experiences makes for a well-rounded individual, spreading yourself too thin often means that you have many things on your resume, but have not excelled in any of them. Preparing for a career in a health profession does not preclude having a normal college experience. But always remember your goal, and make wise decisions on how to spend your time.

## **BECOMING A COMPETITIVE APPLICANT: COMMUNITY SERVICE**

As more schools adopt competency-based admissions and learning, service has become an even more important component of a student's application. Medical school want to know that you have a true commitment to serve the community. One way that you can demonstrate this is by service activities. These activities can be clinical, such as volunteering at the local hospital or clinic, but they do not have to be. There are many opportunities for service: working with the disabled, at a nursing home, in the soup kitchen or homeless shelter, etc.

**How much service is enough?** Most schools do not specify a specific number of hours that should be devoted to service, or even number of different service experiences in which you should you should engage. However, some do. For example, Rush Medical College has a minimum requirement of 150 hours of community service plus 150 hours of healthcare exposure.

It is better to show real commitment to a single service activity, rather than try to accumulate a number of service activities to which you have devoted just a few hours. And, it's not just about checking off the service box on your application. It is about truly making a difference and being able to communicate in what way the experience has changed you.

**When should you become involved in service?** It is never too soon. Once you have established yourself at college and are comfortable academically, it is time to start thinking about other experiences that will enrich your life, and thus make you a more competitive applicant. Summers are an ideal time to engage in service, particularly if you are not working at a job. But don't forget that it is important to maintain balance. Don't focus on service to the exclusion of other important parts of the college experience.

How do you know where to volunteer? A good start is at one of the local hospitals – Wake Forest Baptist Hospital, or Forsyth Hospital. Contact the volunteer coordinator. It often takes some time to get a volunteer position at the hospital, so contact them well before you hope to start.

The Wake Forest Volunteer Service Corps is a student-run organization whose mission is to serve the community by linking Wake Forest students, faculty and staff with service opportunities in the community. You can join the VSC and be a part of this effort, or take advantage of the list they have of community partners who need volunteers. The list can be found at (<http://vsc.groups.wfu.edu/off-campus-partners/>). What about mission trips? Is that a good way to accumulate service experience? That depends. Choose your trip wisely. You don't want to go for a week to a developing country where you are either asked to be involved in medical procedures for which you are not trained, or that are simply opportunities to see another country with no meaningful service component.

Think about keeping a service/shadowing journal. Take note of the things that move you, or how an experience has changed you. This will be very helpful when it comes time to apply to the health professions program of your choice.

## **BECOMING A COMPETITIVE APPLICANT: EXPERIENCE**

If you are considering a career in a health profession, you should have experiences that demonstrate what it means to be, for example, a physical therapist or occupational therapist, and that you are truly committed to helping those with medical problems. Many students choose a career in the health professions because these careers are lucrative and offer abundant job opportunities in the future. However, a poor choice can mean that you will be unhappy in your career. Admissions committees are looking for students who demonstrate a sincere interest in, and are an appropriate match for, their chosen career.

What counts as experience? Some programs accept shadowing, while others require hands-on patient contact. For example, shadowing a physician is recommended for medical school, but 1000 or more hours of direct patient contact is expected of an applicant for a physician assistant program. Once again, look at the program web sites of various schools to find out what the expectations are for clinical experience.

Some students choose to combine an abroad experience with clinical experience. An example would be a medical mission trip. There is a general concern in the medical admissions community that some students working/studying abroad are being allowed to perform procedures for which they are not trained. Please be wary of opportunities that sound too good to be true. You are not yet ready to put in stitches or deliver babies. For advice on how to make the most of your clinical experience abroad without overstepping any ethical boundaries, visit the University of Minnesota free online workshop on *Global Ambassadors for Patient Safety* at [healthcareers.umn.edu/online-workshops](http://healthcareers.umn.edu/online-workshops).

### **Finding an Internship or Relevant Job**

Don't be intimidated! This is easier than you think. There are many opportunities out there; you just need some help finding out what and where they are. And this is where the Wake Forest Office of Personal and Career Development (OPCD) comes to the rescue!

The minute you settle into your dorm room, go to [career.wfu.edu/handshake](http://career.wfu.edu/handshake). Follow the login instructions, using your Wake Forest username and password to sign in. Fill out the profile at the top of the page, and select "Profile" from the left hand navigation. Add your work experience, extracurricular activities, and any special skills you may have. Then, click the account tab and specify the industry and job functions that interest you. Internships and job related to your selections will appear in your news feed, and you will receive notifications of relevant events on campus. You'll want to periodically update Handshake, and begin to check it frequently as summer or a gap year approaches and you are looking for the perfect internship or job.

Another great site to visit is [career.opcd.wfu.marketplace](http://career.opcd.wfu.marketplace), where you can find lists of opportunities under headings such as health professions, biology, chemistry, community and social services, international gap year opportunities, and public health.

OPCD also offers career fairs each year, where literally hundreds of companies interested in hiring Wake Forest students will be represented. These include the Fall Career Fair in September, and the STEM Slam Networking event in February (this is a particularly good one). Once you have comfortably reached your third year, a definite must is the November Graduate and Professional School Day, when representatives from many health professions programs will be in attendance. As you begin to think about specific programs, be sure to attend the March Health Professions Expo, where admissions officers from a diversity of programs at many

schools will be present. This is a time to feel them out about whether or not you are a good fit for their program.

Finally - *and this is **IMPORTANT*** - once you begin think about an internship or job, make an appointment with an OPCD Career coach. They can help. Who to contact:

**Brian Mendenhall** ([mendenbh@wfu.edu](mailto:mendenbh@wfu.edu)) - specializes in the sciences and health professions.

**Patrick Sullivan** ([sullivpc@wfu.edu](mailto:sullivpc@wfu.edu)) – specializes in internships and experiential education.

## **BECOMING A COMPETITIVE APPLICANT: RESEARCH**

Many students ask whether they should be involved in research. Research is just one of the many ways that you can enrich your educational experience, and contribute towards making you a well-rounded person. It is an opportunity to get close to a faculty member, who can potentially write you a strong letter of recommendation.

Only do research in science if you are truly interested in the science side of health care. You could choose instead to do research in the humanities or social sciences for example. Medical schools do not expect that you will have done research; many successful candidates have not. But if you choose to do research, do it because you care about the research question. Be sure that you are prepared to discuss the research knowledgeably on an interview.

### **Summer Programs for Research & Healthcare Experiences**

The Rochester Institute of Technology List of research opportunities, co-ops, and internships for BioMedical Research and Pre-Health Studies Students. It is alphabetized by medical school or university where program is located. <http://people.rit.edu/gtfsbi/Symp/premed.htm>

The WF URECA Center – The Undergraduate Research and Creative Activities Center (<http://college.wfu.edu/ureca/>) is a center that promotes undergraduate research and creative activities between WF faculty and students. Students can apply for Research fellowships or Richter fellowships to help fund their projects (<http://college.wfu.edu/ureca/funding-and-fellowships>). There are also links to external opportunities for research on the URECA Center home page (<http://college.wfu.edu/ureca/opportunities>).

Summer Medical and Dental Education Program

<http://www.smdep.org/> – Dental and Medical summer programs at a variety of institutions

NSF REU summer research programs.

Often researchers that get grants from the National Science Foundation (NSF) often have money to pay students to be involved in summer research programs. The program is called REU – Research Experience for Undergraduates. Programs can be found located in any part of the country. <http://www.nsf.gov/crssprgm/reu/>

MD/PhD summer programs

This link - <https://www.aamc.org/members/great/169782/mdphdsummerprograms.html> will take you to a variety of summer research programs. Also look at Case Western School of Medicine is awesome! [http://casemed.case.edu/admissions/research/summer\\_programs.cfm](http://casemed.case.edu/admissions/research/summer_programs.cfm)

MD/PhD summer program at Ohio State University in Columbus, OH

<http://biomed.osu.edu/mdphd/success/index.cfm>

Summer Academic Enrichment Program at Virginia Commonwealth University in Richmond, VA

Are you interested in improving your academic credentials before applying to a health professional school? Are you a junior or a senior? Are you interested in learning test taking strategies? Do you want to participate in Mock interviews? Check out this 6 week program: <http://www.dhsd.vcu.edu/programs/college/saep.html>

Summer Program at Ohio University – College of Osteopathic Program in Athens, OH

Want a taste of what the first year of medical school curriculum is like? Apply for this summer program <http://www.oucom.ohiou.edu/SummerScholars/information.htm>

Or, try their summer research program. The SURF program is 7 weeks in length and includes room & board, a living allowance, 8 quarter hours of biology credit and the potential for a guaranteed interview for the entering class at the medical school. <http://www.oucom.ohiou.edu/surfprog.htm>

Summer Program at UM- School of Public Health in Ann Arbor, MI

Thinking about public health? Want to learn more to see if you would be interested in public health? Check out this summer program <http://www.sph.umich.edu/sep/>

Summer Research Programs at Wake Forest School of Medicine –

These include summer research programs for undergrads in injury biomechanics, regenerative medicine, and cardiovascular science just to name a few. <http://graduate.wfu.edu/summerprograms/>

UNC- Chapel Hill School of Dentistry and School of Medicine

<http://www.med.unc.edu/medprogram>

Research in Pharmacology at UNC-Chapel Hill.

<http://www.med.unc.edu/pharm/summer-undergraduate-research>



## WHAT TO DO DURING THE GAP YEAR

Balancing academics, preparing for the DAT, MCAT or GRE, shadowing, volunteering, and just being an all-around stellar person can be stressful. At times it may seem impossible. One of the best ways to accomplish what seems to be impossible is to spread the challenge over four years, rather than trying to do it all in three. In other words, apply for medical school after four years of undergraduate education, not three. This allows another year for clinical experience and volunteer activities, another year to bring that grade point into the competitive range and another year to prepare for that exam.

But if you don't apply for a health professions school until you graduate, what do you do with the year between when you graduate and when you matriculate, the so-called "gap year"?

Use the gap year to gain valuable experience that sets you apart from the crowd. You will have just begun the gap year experience when you complete your applications, but when you get that call for an interview, you will have something that distinguishes you from the thousands of other qualified applicants (yes, thousands). You are no longer just another good student; you are now someone with additional maturity gained through experience, and someone with a story to tell.

There are many things that you can do to enhance your competitiveness. These include

- Working in a job in a clinical field
- Participation in a service program such as the Peace Corps or Teach for America
- doing clinical or basic research
- earning a master's degree
- attending a post-baccalaureate program (next page)

If you decide to look for employment in the clinical or research sector, the first thing to do is to go to the **Office of Personal and Career Development (OPCD)**. Not only can they assist you with assembling a resume and working on your interviewing skills, they offer job fairs (including the STEM Slam which focuses on jobs in the sciences), they maintain a list of jobs available in relevant fields, and they have a list of alumni willing to assist our students in gaining experience and finding jobs. Make an appointment with a counselor in PCPD during your third year AT THE VERY LATEST, and start preparing for that very valuable gap year.

## POST-BACCALAUREATE PROGRAMS

If you feel that in most respects you are competitive for medical, PA or PT school, but are being held back by a lack of preparation or poor performance in the sciences, one possible route to take is to complete a post-baccalaureate program. **About 15% of the students entering medical school have completed a post-bac program.** That alone is good reason to consider such a program. There are over 100 such programs in the US, some at very prestigious institutions.

If you are considering a post-bac program, consider one that is linked to one or more medical schools, guaranteeing admission to the medical school based on achieving a specific level of performance in the program. There are also programs that give preference to under-represented minority students. The most important consideration in choosing a program is the school's acceptance rate of its students to medical school.

The disadvantage of a post-bac program is that tuition is comparable to that of a private college. But if you need to correct deficiencies in preparation or performance, this is an efficient way to do it. And folded into the cost of a medical education, it is worth the investment.

A list of post-bac programs can be found at <https://apps.aamc.org/postbac/#/index>. For additional guidance on applying to post-bac programs, please see the Graduate School Advisor, Dr. Cecilia Solano.

Some good articles to look at that might help you decide if a post-bac program is the best option for you:

<http://www.usnews.com/education/blogs/medical-school-admissions-doctor/2011/12/19/is-a-postbaccalaureate-medical-program-right-for-you>

[http://www.nytimes.com/2012/04/15/education/edlife/a-second-opinion-the-post-baccalaureate.html?\\_r=0](http://www.nytimes.com/2012/04/15/education/edlife/a-second-opinion-the-post-baccalaureate.html?_r=0)

<http://www.naahp.org/PublicResources/PostBaccalaureateOptions/PostBacArticle2.aspx>

## RESOURCES

The NAAHP (National Association of Advisors in the Health Professions) has a variety of resources for students applying to graduate programs in the health professions. These include the following brochure/books:

The Health Professions Admissions Guide provides detailed, up-to-date information on a variety of health professions. It begins with the initial questions students should ask when exploring these professions and continues through to the application procedure, giving helpful advice to increase chances of acceptance. Written and edited by a committee of experienced health professions advisors, and with the valuable contributions of the NAAHP Advisory Council members, the Health Professions Admissions Guide delineates a simple and effective strategy to approach the often complex process of applying to health professions schools. It can be ordered at <http://www.naahp.org/Publications/HPAG.aspx>.

Write for Success: Preparing a Successful Essay for Your Application to Health Professions School. This book is geared specifically to helping students write clearly for the tasks related to the health professions application process, including the personal statement. It includes examples of both successful and unsuccessful applications, critical reviews of actual applications by three admissions deans, and advice from the experiences of the authors. The importance of writing clearly must not be underestimated. Admissions committees report that factors other than GPA and entrance exam scores play a critical role in the evaluation process. One of the criteria mentioned repeatedly is the personal comment section of the health professional application. It can be ordered at <http://www.naahp.org/Publications/WriteforSuccess.aspx>

Interview Brochure. This concise booklet provides a thorough overview of the interviewing process and the various steps that students can take to prepare well for it. It pulls together the experience of numerous advisors, and the thoughts and suggestions of several health professions schools admission deans. It can be ordered at <http://www.naahp.org/Publications/InterviewBrochure.aspx>.

The University of Minnesota has wonderful free online workshops on *Planning for Medical School*, *Personal Statements for a Health Program*, and *Interviewing for a Health Program*. These can be accessed at [healthcareers.umn.edu/online-workshops](http://healthcareers.umn.edu/online-workshops). They also have a valuable online workshop entitled *Global Ambassadors for Patient Safety* that explains how to make the most of mission-type clinical experiences without going beyond your qualifications or expertise.

## LETTERS OF RECOMMENDATION

Check with the program that you are applying to for guidelines on from whom to request letters of recommendation. Generally, at least one letter will need to be a science professor, and another from an instructor in your major. The third letter might come from a professional in the field, someone that you have shadowed for example, who can speak directly to your ability to work with people (or with animals, for veterinary medicine!)

Start thinking about your letters at least a year before you need to request them. The letters need to be from someone who knows you beyond being able to say “This student received an “A” in my class. If the professor needs to ask your name, that is not the person to ask!

The application will include all of your grades. A good letter will describe the letter writer’s relationship to you, address your potential to succeed in the program that you are applying for, and explain the reasons why he or she believes you will succeed. The more concrete examples that the letter writer can provide, the more weight the letter will carry. How do you get to know a professor this well? Be an active participant in class. Ask and answer questions, contribute to class discussions. Meet with the professor outside of class. Take advantage of extra credit opportunities. Actively engage in service learning projects if the opportunity presents itself. An excellent way to get to know a professor better is to work with him or her on a research or honors project. But don’t sign on for research just so that a professor will know you! A lackluster commitment to research will likely result in an unenthusiastic letter.

What about a teaching assistant? Is a letter from a TA acceptable? Generally, not if you come from a school like Wake Forest which is known for the accessibility of its faculty.

## **THE PERSONAL STATEMENT**

All program applications include essays, at least one of which is designed to better understand who you really are beyond your GPA and test score. The “personal statement” strikes fear in the hearts of students applying to medical, dental and physician assistant programs. Attend the workshops that will be offered each spring on preparing a personal statement. Look at examples of personal statements from successful applicants. Seek help from the Office of Personal and Career Development (OPCD) and the Writing Center.

No one can tell you what to put in your personal statement. The whole point is that it is about you. It is your opportunity to communicate to the admissions committee what it is that sets you apart from the other applicants. Rather than a list of things that you have accomplished, it should show how you have reflected on the things that have the greatest significance to you.

The personal statement often takes the form of story. You want to begin with something that catches the attention of the letter reader – perhaps a personal experience that moved you. What did you learn from this experience and how is relevant to your career plans? Don’t just say that you are committed to service. What has motivated you to serve? Are there any hardships that you have overcome that have influenced your decision to pursue a career in the health professions? Do you have relevant talents or skills that you would like to highlight that might not be clear in your application?

For advice on writing your personal statement, visit the free online workshop offered by the University of Minnesota at [healthcareers.umn.edu/online-workshops](http://healthcareers.umn.edu/online-workshops).

## **WHAT THE OFFICE OF CAREER AND PROFESSIONAL DEVELOPMENT CAN DO FOR THE HEALTH PROFESSIONS STUDENT**

OCPD offers workshops on writing the personal statement/admissions essay and how to find a relevant summer job/internships in the health professions. In addition, there are two opportunities you shouldn’t miss – the first is assistance in preparing a resume. If you are looking for a summer job or internship, you will need to have a resume. OPCD can help you find the right format for you, and help guide you in terms of knowing what is or is not appropriate for a resume. Secondly, a wonderful service offered by OCPD is the mock interview. Once you receive an invitation to interview for an internship, job, or health professions program, OPCD will do a mock interview, designed to mimic the interview that you have scheduled. They know what questions you are likely to be asked, and can offer good advice on how to polish your interviewing skills. Reviews from students in past years have been very positive.

## **THE GRADUATE RECORD EXAM**

All of the health professions programs require that you take a standardized exam for admission. For many programs it is the graduate record exam\*. Advice for the GRE: Practice! Practice! Practice! It is possible that you have forgotten all of the geometry you ever knew. Revive your math skills, and acquaint yourself with the expectations for the written part of the exam.

The exam is offered only on computer. You can take it at any time, by appointment, at designated testing centers.

Kaplan periodically offers practice GRE tests on campus at no cost. For further information on the GRE, visit the webpage of the Office of Career and Personal Development, and follow the link to Exploring Graduate Schools, and then to the GRE.

\*Students planning to pursue careers in medicine, dentistry and pharmacy take the MCAT, DAT, or PCAT, respectively.

## **UNDERGRADUATE HEALTH PROFESSIONS ORGANIZATIONS**

Alpha Epsilon Delta (AED) is the pre-medical honor society. Information on AED can be found at their web site, <http://college.wfu.edu/biology/undergraduate/alpha-epsilon-delta-honor-society/>.

The Allied Health Student Association is for students pursuing health professions other than medicine, dentistry and veterinary science. Information in how to join the AHSA is on the health professions web site.

There is also a Pre-Dental Student Association. Information on how to join the PDSA is on the Health Professions web site.

# **THE HEALTH PROFESSIONS**

**Audiology/speech pathology**

**Dentistry**

**Medicine**

**Nursing/ Nurse Practitioner/ Nurse Anesthetist**

**Occupational Therapy**

**Pharmacy**

**Physical Therapy**

**Physician Assistant**

**Veterinary Medicine**

## AUDIOLOGY/SPEECH PATHOLOGY

Speech pathologists diagnose, evaluate, and treat communication and swallowing disorders. For example, this would include working with patients who have speech difficulties following a stroke or brain injury, or working with children with delayed language development. Speech pathologists might be employed by public or private schools, hospitals, short and long-term care facilities, rehabilitation centers, government agencies, and community clinics.

It is possible to earn either a MS or PhD in speech pathology, or a doctorate in audiology (Au.D.). The MS degree is required for national certification, and enables one to practice as a speech pathologist. The PhD generally leads to an academic career, which may involve research in the field.

***Many programs have specific prerequisite courses that are not available at Wake Forest.***

There are also programs however, that will admit students with no previous coursework. There are a number of three-year programs that allow you to complete prerequisite courses while completing your graduate degree. And it is possible to take pre-requisite courses online through Florida State and other schools. But before pursuing this option, be sure that the program you are applying to accepts online courses. Most programs will accept at least some online courses.

**Required courses.** Requirements vary by program. But many programs require the following:

- Communications
- Linguistics
- Biology
- Chemistry
- Physics
- Human Anatomy and Physiology
- Developmental Psychology
- Statistics

Wake Forest offers a minor in linguistics. Linguistics is the scientific study of human language, how words are formed and organized, and their meanings. **Any student wishing to study speech pathology should consider the linguistics minor.**

**Also recommended:** Courses in Math, Counseling and Education

**Graduate Record Exam (GRE):** The general test is required.

**Years of post-graduate education required:** The MS program in speech pathology is generally 2-3 years. The PhD program is another 2-3 years.



## DENTISTRY

*The first thing to do if you are planning to apply to dental school is to read every word of the American Dental Education Association "Go Dental" site.*

<http://www.adea.org/godental/>

*The second thing to do is to meet the Health Professions Dental School Advisor!*

The process of applying to dental school is much like that of applying to medical school. The coursework needed and the application process are very similar. Dental schools are also very competitive. The courses required (which may vary for particular programs) are laid out below. As is the case for students applying to medical school, you will need to have not only a competitive GPA and test scores, but you are expected to have shadowed one or more dentists and have relevant clinical experience, as well as demonstrate a commitment to service. Please read the introductory sections of this Handbook.

### COURSEWORK

Most students apply to dental school in the summer between their third and undergraduate fourth years of undergraduate study. It does not matter what major you choose; only that you complete the prerequisite courses.

In order to be competitive for admission after three years, a student may want to follow this plan:

Fall year 1	Spring year 1	Fall year 2	Spring year 2	Fall year 3	Spring year 3	Summer Year 3	Fall year 4	Spring Year 4
CHM 111/L	CHM 122/L	CHM 223/L	CHM 280/L	PHY 113/L	PHY 114/L	Apply to dental school	Complete divisionals and major	Complete divisionals and major
MTH 111?	BIO 114/L	BIO 213/L	BIO 214/L		Prepare for DAT			

Although dental school require only two semesters of biology, the Biology Department has a four course introductory sequence, three semesters of which must be taken to cover all of the material tested on the DAT exam. The fourth semester, BIO 113, should be taken only if you are planning to be a biology major, or would like to use it as an elective course. It can also be used to complete a biology minor (16 hours), however, other courses may be substituted for completion of the minor as well.

## DENTISTRY: THE APPLICATION PROCESS

Remember to first read the ADEA's "Go Dental site"!

<http://www.adea.org/godental/>

As the time to apply approaches, visit the American Dental Association **Pre-dental Student Virtual Fair**. It offers a free online opportunity to communicate directly with dental school admissions officers about the admissions process.

<http://www.adea.org/prehendentalvirtualfair>

You will want to begin the process of application to dental school about **18 months before you plan to matriculate**, typically in the middle of your third or fourth year.

Early in the fall semester of your third year, you will want to meet with the Health Professions Committee Dental School Advisor. This is to ensure that you understand the process, and also gives the advisor an opportunity to get to know you better, so that he or she can speak for you when the Health Professions Committee Letter is written.

By February 15<sup>th</sup> of your third year, you will want to request three letters of recommendation, fill out and submit the required waiver forms, and initiate the Health Professions Committee application (see sections on "Health Professions Committee Application" "The Committee Letter" and "The Personal Statement"). The Health Professions Committee application must be submitted by April 30<sup>th</sup>.

All US dental school participate in the ADEA (American Dental Education Association) AADASAS (Associated American Dental School Application Service) centralized application service. The letters of recommendation can be submitted to the Health Professions Committee, which will forward them to the AADASAS, along with a statement from the committee on the level of confidence at which they can support your application to dental school.

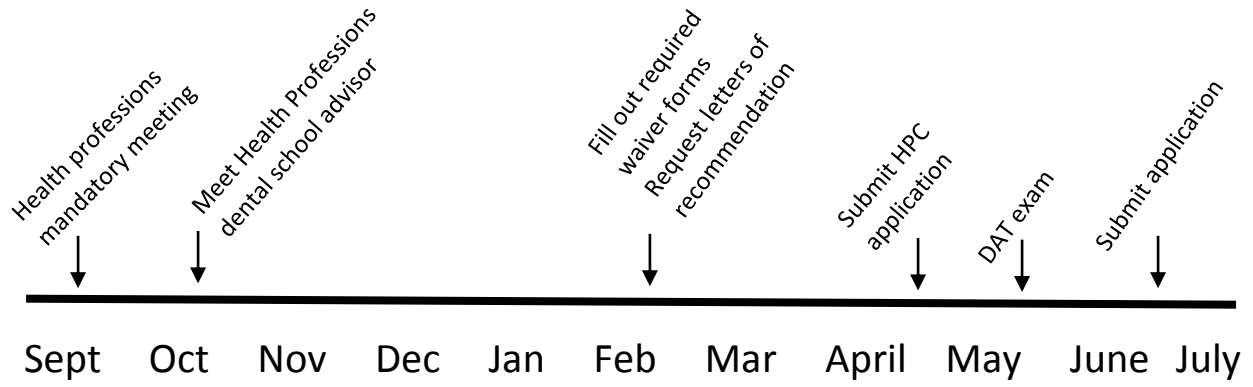
During the spring, research dental schools and establish the ones to which you will apply. Work on your personal statement. Attend the spring workshop offered by the Health Professions Committee and the OPCD on how to write an admissions essay/personal statement.

In late spring to early summer, you will take the DAT (Dental Admission Test). It is a computer-based test which can be taken at almost any time at testing centers throughout the country. You can find information on the DAT at the American Dental Association site:

<http://www.ada.org/en/education-careers/dental-admission-test/>.

Complete the ADEA AADAS application early. The verification process can take up to six weeks.

**Dentistry application timeline**



## MEDICINE

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## MEDICINE: COURSES

For more useful information, please visit the AMCAS Tools and Tutorials site

<https://students-residents.aamc.org/applying-medical-school/applying-medical-school-process/applying-medical-school-amcas/amcas-tools-and-tutorials/>

These are the courses required by most medical schools:

1. Four semester of chemistry. At Wake Forest those courses are CHM 111 (general chemistry I), CHM 122 or 123 (organic chemistry I), CHM 223 (organic chemistry II) and CHM 280 (general chemistry II). Most students take the courses in that order; in other words, general chemistry 2 is the last course taken. Please be aware that these courses are only offered in one semester of each academic year, so if you skip a semester, you will need to either take the course in the summer, or wait a year to take it.
2. Two semesters of biology. At Wake Forest, the introductory biology sequence is actually four semesters long. The first course, Bio 113, is required for the biology major but not recommended for pre-medical students. The remaining three courses are Bio 114 (Comparative Physiology), Bio 213 (Genetics and Molecular Biology), and Bio 214 (Cell Biology). Bio 114 is a pre-requisite for many other courses. You are not required to take both Bio 213 and 214, but it is highly recommended that you do so, in order to cover all of the material that will be on the MCAT exam. These courses are offered every semester, but not every summer.
3. Two semesters of physics. The physics offered at Wake Forest is calculus-based. Some medical schools recommend calculus, and since it is a pre-requisite for PHY 113 and 114, you should plan to take it if you do not have AP credit for it.
4. Social science. At least one social science, such as psychology, anthropology, or sociology is recommended. More would be better.
5. Biochemistry. This course can be taken through either the Biology or Chemistry Departments as BIO 370 or CHM 370. You can use the credits for both the Biology and Chemistry majors and minors (it counts towards both).

These are the traditional requirements. However, there is a movement among medical schools towards what is called “Competency-based” admissions. This reflects a movement towards competency-based medical education, which has been recommended by the Association of American Medical Colleges (AAMC), in collaboration with the Howard Hughes Medical Institute (HHMI) (see <https://www.insidehighered.com/news/2009/06/05/medical>). These recommendations have resulted in some medical school reassessing and becoming more flexible about admissions requirements. Medical schools are trying to identify students based on a more holistic approach, one that recognizes Interpersonal and Intrapersonal competencies. These competencies are listed below.

Interpersonal Competencies	Intrapersonal competencies
Service orientation Social and interpersonal skills Cultural competence Team work Oral communication	Integrity and Ethics Reliability and Dependability Resilience and adaptability Capacity for improvement

Despite the increased emphasis on competencies, most schools still require the traditional prerequisite coursework, and the content of these courses is covered on the MCAT exam. Most pre-medical students apply to ten or more medical schools, so it is very likely that one of the schools that you apply you will still require these courses. Also, the material covered in these courses is all covered on the MCAT exam, a standardized test required for admission to almost all medical schools.

## MEDICINE: COURSE PLANS

Your goal is to be accepted to medical school. In order to do that, you need to be the most competitive applicant that you can be. In 2016, Wake Forest School of Medicine had over 9,000 applications for 110 spots in the entering class. While they certainly accepted more than 110 students, the point is clear. You need to rise to the top of that pile. Here are some important statistics:

- **In 2014, the national average for acceptance to medical school was 41.8 %.**
- **The average age of students entering medical school is between 24 and 25 years.**

Many prestigious schools have designed pre-medical programs that use the full four years of college to prepare their students for admission to medical school. These include Duke, Davidson, and Princeton. Other schools also recommend that students complete college before applying. These students take a “gap year” between graduation and matriculation to medical school.

What are the advantages of applying to medical school at the end of four years, as opposed to three? Medical schools are looking for students that have demonstrated that not only are they good students, but that they are committed to service and have a breadth of life experiences. Every year, you will become more mature and have more life experiences that will make you a more competitive applicant. Some advantages to the four year plan are as follows:

- You do not have to squeeze all of the prerequisite courses into three years. Many of the prerequisite courses are very challenging, and if you do not try to take them all at once, you are likely to do better in them. Your GPA is an important factor in consideration by medical schools.
- Your senior year grades will be included in the consideration for medical school. In the fourth year you will be taking mostly courses in your major and elective

courses, in which students generally do very well. This is an opportunity to maximize your GPA.

- You will have the opportunity to study abroad. Studying abroad is one of the greatest growth experience that you can have as an undergraduate. Where you chose to study abroad, how you use that time, and how it has changed you are assets when writing a personal statement for or interviewing for medical school.
- You have more time for service activities and shadowing.
- If you use your gap year wisely, you will be engaged in an activity which enhances your competitiveness for medical school and that can help you “rise to the top” in the interviewing process.
- Not trying to do it all at once allows you to take advantage of all of the amazing opportunities that college offers. **Medical schools are not simply looking for the best students. They are looking for the best people** (who happen to be good students). With the movement towards a more holistic view of admissions and medical education, that final year in college gives you the opportunity to develop more as a person.

If you have a grade point average of 3.85, have had your poetry published in a national magazine, have won awards for service, and climbed Mount Everest, you should consider applying after your third year. Otherwise, give serious consideration to taking the full four years to make yourself the most competitive applicant you can be.

Below are some options for how you might plan your science courses. You would work basic and divisional courses and major courses around these courses.

**Two options for *students who do not plan to major in biology, chemistry, or physics.***

Fall year 1	Spring year 1	Fall year 2	Spring year 2	Fall year 3	Spring year 3	Fall year 4	Spring year 4	Right after graduation
*CHM 111/L	CHM 122/L  MTH 111?	CHM 223/L  Bio 114	CHM 280/L  *Bio 214	Study abroad?	BIO 370 or CHM 370  *Bio 213	PHY 113/L	PHY 114/L  Prepare for MCAT exam	Apply to medical school

**-OR-**

Fall year 1	Spring year 1	Fall year 2	Spring year 2	Fall year 3	Spring year 3	Fall year 4	Spring year 4	Right after graduation
*CHM 111/L	CHM 122/L	CHM 223/L  MTH 111	CHM 280/L  Bio 114	Study abroad?	BIO 370 or CHM 370  *Bio 213	PHY 113/L  *BIO 214	PHY 114/L  Prepare for MCAT exam	Apply to medical school

\*see plan below for students who take CHM 123 in their first semester

Basic and divisional courses and courses in the major can be easily worked into this schedule. Study abroad can be done on either fall or spring of the junior year. \*Please note that Bio 213 and 214 can be taken in any order.

### For students who place into CHM 123

Fall year 1	Spring year 1	Fall year 2	Spring year 2	Fall year 3	Spring year 3	Fall year 4	Spring year 4	Right after graduation
*CHM 123/L	BIO 114	CHM 223/L  BIO 213 Or 214	CHM 280/L  BIO 213 or 214	Study abroad?	BIO 370 or CHM 370	PHY 113/L	PHY 114/L  Prepare for MCAT exam	Apply to medical school

### For students who are considering the biology major:

As a major in any of the sciences, you will have numerous semesters in which you will be taking two science lab courses, and three science courses. But if you plan to major in biology, science is your strength, so that should not be a problem. Plus, your first years of medical school are very science-heavy, so this is a good warm up!

Fall year 1	Spring year 1	Fall year 2	Spring year 2	Fall year 3	Spring year 3	Fall year 4	Spring year 4	Right after graduation
CHM 111/L	CHM 122/L  Bio 114	CHM 223/L  Bio 213 or 214	CHM 280/L  Bio 213 or 214	Study abroad?	BIO 370 or CHM 370	PHY 113/L	PHY 114/L Prepare for MCAT exam	Apply to medical school!

### For students considering a major in physics:

Once again, if you are strong in science and are considering a major in physics, multiple labs in one semester will play to your strengths.

Fall year 1	Spring year 1	Fall year 2	Spring year 2	Fall year 3	Spring year 3	Fall year 4	Spring year 4	Right after graduation
CHM 111/L  MTH 111  PHY 113/L	CHM 122/L  MTH 112  PHY 114/L	CHM 223/L See bulletin for additional physics requiremen ts	CHM 280/L  Bio 114/L	Study abroad?	Bio 213/L	Bio 214/L	BIO 370 or CHM 370  Prepare for MCAT exam	Apply to medical school!



There is of course the option of the three year plan. Remember, with this plan you will have to double up on lab sciences more often, will not have time to study abroad during the academic year unless you take physics during the summer, and you will have less time for service, shadowing, and other experiences that will make you a more competitive applicant.

Fall year 1	Spring year 1	Fall year 2	Spring year 2	Fall year 3	Spring year 3	Summer Year 3	Fall year 4	Spring Year 4
CHM 111/L	CHM 122/L	CHM 223/L	CHM 280/L	PHY 113/L BIO370 or CHM 370	PHY 114/L  Prepare for MCAT	Apply to medical school	Complete divisionals and major	Complete divisionals and major
MTH 111?	BIO 114/L	BIO 213/L	BIO 214/L					

## CHOOSING A MAJOR

At the end of your second year, you will choose a major. There is no particular major that will make you more competitive for medical school. You will learn what you need to know to be a physician once you get to medical school. Medical Schools clearly delineate their prerequisite courses. After that, you're on your own.

A double major in chemistry and biology has no more value than a double major in Art and Philosophy. And a double major does not have any greater value than a major and a single minor. ***What is most important is that you are good at what you do.***

Major in what you feel most passionate about. If you love the subject, you will do better academically, and you will enjoy your time in college more.

Medical Schools are looking for broadly educated students. At Wake Forest, it is hard NOT to be broadly educated! Consider the Divisional Courses as a shopping expedition to find out what it is that you want to know more about. ***What is most important is that, once you have chosen your major, whatever it is, excel in it.***

## THE APPLICATION PROCESS

### How do I know if I am ready to apply to medical school?

You should apply to medical school once you feel that you are a competitive applicant. Remember that the average age of matriculation to medical school is over 24 years. When are you ready? That could be during or after your college career. Different people take different paths to medicine. But once you decide to apply, you need to be organized. Make a schedule and stick to it.

There are many factors taken into consideration when reviewing candidates for admission to medical school, but the only objective data available is on GPA and MCAT scores.

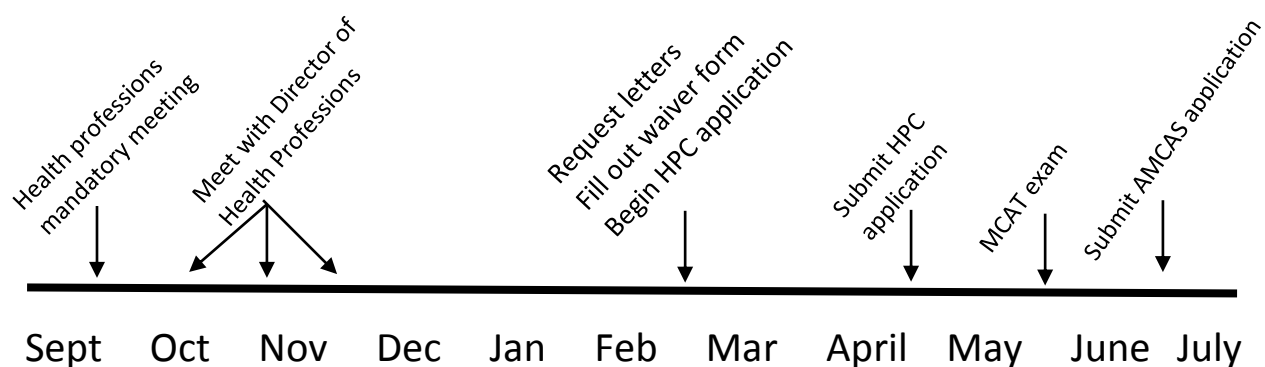
Data provided by the American Association of Medical Colleges on the entering class of **2015** was as follows:

	Average MCAT score	Mean GPA	Mean science GPA
Applicants to medical school	28.3 (505)	3.56	3.45
Matriculated to medical school	31.4 (510)	3.70	3.64

**Admission to medical school is very competitive. In 2015, 50,778 students applied, and 19,115, (37%) matriculated.**

### WHEN TO APPLY: APPLICATION TIMELINE

Applying to health profession schools takes time. One way to increase your chances of admission is to apply early in the process. Most health profession schools have rolling admissions. Applications begin to be reviewed in early July or August. The earlier you apply, the more likely you are to get an interview.



**September** - Attend ONE of the mandatory meetings in which the Health Professions Committee review process will be explained. This is only for students applying to medical school the following summer.

**September to December** – meet with Director of Health Professions.

**February 15** – Request letters of recommendation (see section on “letters of recommendation”).

Fill out required waiver forms and initiate Health Professions Committee application process.

**April 30** - Deadline for submission of Health Professions Committee application via the Qualtrics link provided in the application.

**Late April – June** Take the MCAT exam, the standardized test required for application to medical school. The earlier you take the exam, the more time you have to prepare to take it again, if necessary.

**May 1** - Start to complete the on-line AMCAS application

**June 1, 2016** – Submit your on-line AMCAS application.

**July, 2016** – Once your centralized application is submitted and reviewed by the schools you have applied to, you will receive secondary or supplementary applications. Complete them as soon as possible, to enhance your chance of getting an interview.

## The MCAT exam

The MCAT (Medical College Admission test) is a standardized test administered by the American Association of Medical Colleges. It is required for application nearly all allopathic and osteopathic medical schools. Information on the MCAT and registration for the exam is at <https://students-residents.aamc.org/applying-medical-school/taking-mcat-exam/>. There, you can find *The MCAT Essentials* guidebook with detailed instructions on preparing for and taking the test, and interpreting your scores.

The MCAT exam was changed in 2015, with an addition of new material (biochemistry and social sciences) and a new scoring structure. The new MCAT exam has four sections: Biological 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. It is an arduous exam, lasting seven and a half hours.

The mean score for the 2015 MCAT was 515.1. The distribution of scores is as follows:

Score Range	Percent
518 +	3%
514-517	5%
510-513	8%
500-509	34%
< 500	50%

Because the data is not yet in on the first class admitted with the new MCAT, the mean score for admitted students is not yet available.

You can take the exam more than once. If you are not accepted upon your first application to medical school and plan to reapply, it is a good idea to retake the test (after proper preparation) if your MCAT scores are borderline. If you take the MCAT a second time, both scores are forwarded to the medical schools. Some schools count the highest score; some average the two scores.

Do medical schools care whether you take the MCAT more than once? While there are some schools that prefer that students only take the MCAT once, most have no bias against a second attempt as long as the scores improve significantly on the second attempt.

If you have been out of college for a while, know that most schools do not accept MCAT scores more than three years old.

## **How to prepare for the MCAT exam**

The exam is very comprehensive, so allow a significant amount of time for review of the material. Do not take a heavy credit load in the semester in which you are preparing for the exam. Make a study schedule, and stick to it.

The American Association of Medical Colleges (AAMC), the organization that produces the MCAT exam, offers The Official Guide for the MCAT exam, an overview of the new exam accompanied by practice questions and solutions.

Other MCAT practice materials developed by AAMC are available at <https://students-residents.aamc.org/mcatprep>. Take advantage of this resource – these are the people that make up the MCAT exam, so they are the experts! The AAMC offers practice exams, question packs, and flashcards for studying. AAMC has partnered with Khan Academy to offer the Khan Academy MCAT collection of videos and questions

You can't take too many practice exams. You will get more comfortable with the test format and discover what areas you need to review more extensively. There are many review books and practice tests available at bookstores or through Amazon. If you find that you are not disciplined about preparing for the exam, you can spend an exorbitant amount of money to take a test prep course such as those offered by Kaplan and Princeton Review.

## **When to take the MCAT exam**

It is wisest to take the MCAT no later than May of the summer in which you plan to apply. Many schools have rolling admissions, and taking the exam later in the summer delays completion of your application.

It takes 30 days for the MCAT scores to be processed.

## The AMCAS application

AMCAS is the centralized application process that allows you to apply to all medical schools (except for those in the state of Texas, which has its own application processing service.)

*Instructions for applying to medical school can be found online in the 89-page AMCAS instruction manual.* Really. Eight-nine pages. It is never too early to download the manual, and begin to understand the process.

### From the NAAHP: AMCAS Application Fact Sheet

<http://www.naahp.org/MemberResources/ApplicationServicesFactSheets/AMCAS.aspx>

<b>Association</b>	Association of American Medical Colleges <a href="http://www.aamc.org">www.aamc.org</a>
<b>Number of Schools</b>	Most medical schools participate in AMCAS. The only exception is Texas Tech University Health Sciences Center, El Paso, Paul L. Foster School of Medicine. 6 Texas schools use AMCAS only for M.D.-Ph.D. application.
<b>Contact Information</b>	Applicant Contact: <a href="mailto:amcas@aamc.org">amcas@aamc.org</a> (202) 828-0600
<b>Opening Date(s)*</b>	May 1
<b>Submission Date(s)**</b>	June 4
<b>Deadline(s)</b>	The Early Decision deadline including transcript deadline is August 1. Regular M.D. and all other program deadlines range August- December.
<b>Letters of Recommendation</b>	Most medical schools receive letters through AMCAS (5 schools/programs do not participate). Evaluators submit letters electronically directly to AMCAS through the AMCAS Letter Writer Application, VirtualEvals, Interfolio or through U.S. Mail.
<b>Standardized Test Scores</b>	MCAT Scores are automatically sent to AMCAS for distribution to applied participating schools once the applicant scores are available.
<b>Transcripts</b>	Send transcripts directly to AMCAS attached to an AMCAS Transcript Request Form.

## **The TMDSAS application**

TMDSAS is the Texas Medical and Dental Schools Application Service, the centralized application service for all applications to the first year entering class at all medical dental and veterinary schools supported by the state of Texas. (Baylor College of Medicine is a private school, and thus is an exception.) The TMDSAS application handbook is available online as a pdf.

A unique element of the TMDSASA application is the “match”. Students rank each of the Texas state medical schools at which they have interviewed in order of preference, and the medical schools rank the applicants in order of desirability. The system then matches the student to their highest school that has also ranked them most highly.

## **The AACOMAS application**

AACOMAS is the centralized application service for all schools of osteopathic medicine. Application instructions and frequently asked questions can be found at <http://help.unicas.com:8888/aacomasHelpPages/instructions/index.html>.

## THE HEALTH PROFESSIONS COMMITTEE APPLICATION AND LETTER

Medical and dental schools ask for a letter from the students' undergraduate institution(s) that expresses the degree of support that the institution has for the student's application, and an explanation of that support. The letters of recommendation you have requested will be attached to this letter.

You do not have to have a Health Professions Committee letter to apply to medical or dental school. But generally, the lack of a committee letter indicates that your undergraduate institution could not strongly support your application.

At the same time, the Health Professions Committee does not want to write a letter indicating a lack of support for your application. ***Except in exceptional circumstances, the Health Professions Committee cannot write a strong letter for a third year student with an overall or science GPA below is 3.4, or for a fourth year student whose overall or science GPA falls below 3.3. The Committee puts no restrictions on letters for alumni.***

**In order to write a strong letter of support, the Committee needs to know you. Therefore it is important that you**

- 1. have an interview with the Director of Health Professions in the fall preceding your application to medical or dental school.**
- 2. submit the Health Professions Committee application, which can be found on the Health Professions web site.**

If you plan to apply to medical or dental school one year or more after graduation, it is a good idea to go through the process now. Your application and letters can be updated at a later date if you wish.

By February 15<sup>th</sup> you must

1. Complete the required waiver forms. The waiver forms can be downloaded from the health professions web site. Put the waiver forms in a sealed envelope. Place your name on the envelope, along with the words "HPC waiver" and place it in Dr. Gibson's mailbox in the Biology Department office.
2. Begin to fill out the Health Professions application. **The application can be found online at the Health Professions website.** By this date, the application must include the names and e-mail address of those from whom you have requested a letter. They will receive an e-mail giving them instructions for writing and submitting their letter of recommendation to the Committee and information on whether you have or have not waived your right of access to the individual and committee letters.



By April 30, you must complete and submit the Health Professions Committee application.

It is essential that you meet these deadlines in order to guarantee that your Committee letter reach the medical schools in a timely fashion. Medical Schools have a rolling admissions policy, so it is important that you take these deadlines seriously.

Students applying to allopathic medical schools must forward their AMCAS ID number and AMCAS letter ID as soon as they open an AMCAS application. Otherwise the Health Professions will not be able to upload their letters to the AMCAS site. Students applying to schools of osteopathic medicine will include the name and e-mail address of the Director of Health Professions on the AACOMAS application, and AACOMAS will request the letter from the College. Dental schools also request the committee letter directly from the College.

## ALLOPATHIC VS OSTEOPATHIC MEDICAL SCHOOLS

There are actually two pathways to medicine: allopathic and osteopathic. When we think of a physician, we think of an MD, but in the United States many physicians have trained as osteopathic physicians (DO). Osteopathic medicine began in the 19<sup>th</sup> century as a new approach to medicine that emphasized preventative care and a more holistic approach to the treatment of disease. While in many ways the training for an MD and a DO are very similar, there are some elements of training that are unique to osteopathic medicine. In particular, osteopathic medicine focuses on a system of hands-on diagnosis and treatment known as “osteopathic manipulative medicine” which involves physical manipulation of the body.

DOs also receive a medical license and have all of the same privileges to treat patients as do MDs. In many areas DO and MDs work together. However, DOs are more likely to train in primary care, and therefore it is more common to see DOs in rural areas, or working with under-served populations.

The Colleges of Osteopathic Medicine generally have the same prerequisites and use the MCAT exam, but the application service used is AACOMAS rather than the AMCAS. According to the 2015 edition of the AACOM (American Association of Colleges of Osteopathic Medicine), in 2015 there were more than 73,000 practicing osteopathic physicians in the US, and more than 20% of the students studying medicine today are enrolled in schools of osteopathic medicine. In 2105 there were 107 Colleges of Allopathic Medicine vs 34 Colleges of Osteopathic Medicine.

Reasons to consider attending a school of osteopathic medicine: Many of the new medical schools that are opening are Schools of Osteopathic medicine, and although all medical schools are highly competitive, admission to schools of osteopathic medicine is slightly less competitive. According to US News and World Report’s Education blog, students accepted to osteopathic medical schools have lower average MCAT scores and GPAs.

If you are considering applying to a school of osteopathic medicine, you should shadow one or more osteopathic physicians to obtain a good understanding of the differences.

For more information on schools of osteopathic medicine, please visit <http://www.aacom.org/become-a-doctor/us-coms> or <http://www.aacom.org/become-a-doctor/applying>. At the latter site you can download the free and very useful **2017 Osteopathic Medicine Handbook**.

You also might want to check out this article in the NY Times: [http://www.nytimes.com/2014/08/03/education/edlife/the-osteopathic-branch-of-medicine-is-booming.html?\\_r=5](http://www.nytimes.com/2014/08/03/education/edlife/the-osteopathic-branch-of-medicine-is-booming.html?_r=5).

## **PROGRAMS WITH WAKE FOREST SCHOOL OF MEDICINE**

### **INTERDISCIPLINARY HUMANITIES PATHWAY TO MEDICINE**

As an undergraduate, you will take divisional courses which build your appreciation of culture, art, and literature. You can take this a step further through participation in the Interdisciplinary Humanities Pathway to Medicine.

Site Information: The Interdisciplinary Humanities Pathway to Medicine Program recognizes the value of the humanities in preparing individuals to undertake the study and practice of medicine.

The interdisciplinary humanities train students to: examine the historical, linguistic, cultural and aesthetic contexts in which we live; explore and attend more fully to the enduring question of what it is to be human; and think deeply and critically about, and respond creatively to, the complex circumstances in which we find ourselves.

To learn more, please visit <http://college.wfu.edu/pathway>

### **EARLY ASSURANCE PROGRAM – WAKE FOREST SCHOOL OF MEDICINE**

Well-qualified Wake Forest students upon completion of the sophomore year may apply for acceptance to the class entering two years later through the Early Assurance Program (EAP). To be eligible for this program, candidates must:

- Complete all prerequisites at Wake Forest University by the end of their sophomore year.
- Have an overall GPA of 3.5 and a science GPA of 3.5 for each semester in school
- Have satisfactory ethical conduct.

The MCAT will not be required. Application is made through the American Medical College Application Service (AMCAS) by the November 1 deadline, asking consideration for the EAP. The applicant must be a permanent resident or citizen of the US and must agree to complete requisite course, continue the same or better academic excellent, continue to demonstrate high ethical conduct, and not to apply to any other medical school. Non-acceptance by the EAP does not influence further applications. The EAP should not be confused with the Early Decision Program.

## Page Acree Humanities in the Sciences Scholarship

Dr. Page Acree, a Wake Forest alumnus who helped pioneer open heart surgery, believed that potential physicians need a strong dose of the humanities to make them better physicians and citizens. To this end, he established a scholarship for pre-medical students.

“The purpose of the Fund is to provide scholarship support for undergraduate students who are **majors in Biology, Chemistry, Health & Exercise Science, Mathematics/Computer Science, or Physics, who have career objectives in medicine** or science-related fields that require human service, and who also wish to take unrequired academic work in the humanities. The support is to enable the student(s) to enhance and increase their humanitarian and ethical awareness. **Recipients must have an academic record that will, in Wake Forest’s judgment, make them likely to be admissible to a medical school.** In addition, each student must apply for the award by submitting a written description of his or her proposed study program in terms of content and objective, with particular reference to increasing their humanitarian and ethical awareness.”

Students may elect to:

1. take an extra semester or year of courses beyond graduation from college to concentrate on the humanities;
2. meet basic and divisional humanities requirements during summer sessions, thereby allowing unrequired humanities courses (outside their major fields) during the regular semester; or
3. enroll for a semester in Wake Forest’s London, Venice, or Vienna programs, or in any accredited university in the United States or the world. In all cases, students must submit a written study program that will qualify for full academic credit at Wake Forest.”

Preference for funding will be for students who are currently juniors or seniors. Details and a description of the content of the proposed study program, as well as an itemized budget proposal, must be submitted electronically to Ms. Tammy Burke Griffin (burketj@wfu.edu) by February 20. Completed proposals should be submitted electronically as a Word document or pdf. The average budget of a successful Acree scholarship is in the range of \$5,000 to \$9,000. If a published brochure or registration bulletin describing the program you plan to attend, please include that with your application. Students who apply will be notified of decisions in March. Recipients obligate themselves to submitting a detailed report on completion of the program to the Dean of the College no later than one month after the program has ended.

## NURSING

As baby boomers age and health care needs increase, it is projected that there will be nursing shortage in the US. There are many levels of nursing degrees.

A Licensed Practical Nurse (LPN) has completed one year of in-hospital training.

A registered Nurse (RN) has earned a two-year associate degree in nursing, or a bachelor's degree in nursing (BSN) from a four-year college.

If you have earned a liberal arts bachelor's degree and wish to pursue a nursing degree, there are programs that lead to the Second Degree BSN (Bachelor of Science in Nursing) that allow you to earn a second bachelor's degree, in nursing, in one-two years. The BSN degree is a prerequisite for advanced nursing degrees that lead to careers as Clinical Nurse Practitioner or Nurse Anesthetist. Schools that offer the Second Degree BSN can be found at <http://www.bestnursingdegree.com/programs/accelerated-bsn/>.

### **Required courses:**

- Human Anatomy
- Human Physiology
- Microbiology
- Statistics
- Psychology
- Sociology

**Also recommended:** Nutrition, Developmental Psychology

**Graduate Record Exam (GRE):** Most programs require the GRE general test.

**Years of post-graduate education required:** One – two years

### **Nurse Practitioner or Clinical Nurse Specialist:**

The Nurse Practitioner provides medical care services similar to those of a Physician Assistant. The NP also specializes in areas such as psychiatry or oncology or geriatric care. He or she works closely with physicians and other health care providers in providing primary care to patients. The NP may take patient histories, evaluate the patient, prescribe medications, and make referrals. They may serve as educators, working towards disease prevention. NPs most often work in hospitals, clinics, and physician's offices.

Both the Nurse Practitioner and Clinical Nurse Specialist are master's level nursing positions. A clinical nurse specialist (CNS) specializes in a particular area, such as oncology, emergency room care, or neonatal care. The CNS can practice in a variety of settings, including hospitals, long term care facilities, and clinics, or may even be in private practice. The CNS works with other nurses and health care providers to maximize patient outcomes. In many states, the CNS is able to prescribe medications. The CNS often allows one to move into management-level positions.

**Requirements:**

Most programs that prepare nurses to become NPs or CNSs require that one first earn a bachelor's degree in nursing. The Bachelor of Nursing degree can be obtained in 1-2 years after completion of a liberal arts bachelor's program. There are several programs that allow students without the BSN degree to go from a four year college into a combines BSN/NP program.

**Years of post-graduate education required:**

Two years of training beyond the bachelor's degree in nursing, plus additional clinical experience

## **Nurse Anesthetist**

The nurse anesthetist is the primary source of delivery of analgesia in many surgeries of all types, and are in particular demand in rural hospitals and the armed forces.

**Requirements:**

To become a certified registered nurse anesthetist (CRNA), one must successfully complete a master's program a minimum in nurse anesthesiology. In addition, of one year of acute care experience is required, For more information about the nurse anesthesia profession and its requirements, please refer to

<http://www.aana.com/ceandeducation/becomeacrna/Pages/default.aspx>.

**Years of post-graduate education required:** Two years of training beyond the bachelor's degree in nursing, plus additional clinical experience

## Occupational Therapy

Occupational therapists assist people with injuries or disabilities to better cope in their home or work environments. For example, this includes helping people with disabilities such as spinal cord injuries participate in work (or school) and social situations, and providing supports for older adults experiencing physical and cognitive changes. Occupational therapy programs can be either at the doctoral (OTD) or masters (MSOT) level. The difference between the two degrees is that it is possible to enter the master's program before completion of the baccalaureate degree, however, the doctoral program requires the degree. It is possible to enter a dual program to earn a master in occupational therapy and a master in public health.

**Required courses.** Requirements vary by program. But most programs require the following:

Human anatomy with lab  
Human physiology with lab  
General biology (Bio 114 and Bio 213 or 214)  
Developmental Psychology  
Abnormal Behavior  
Statistics  
Sociology/Anthropology

### **Additional experience:**

Many programs require relevant observational or volunteer experience. To obtain such an experience, contact an occupational therapist at a hospital, nursing home, rehabilitation center, or school near you.

### **Graduate Record Exam (GRE).**

The General Test is required.

### **Application process:**

Many schools participate in OTCAS, Occupational Therapist Centralized Application Service (<https://portal.otcas.org/>). This allows students to apply to multiple programs with a single application. You must fill out the OTCAS application form, and submit three letters of recommendation plus transcripts from all accredited institutions of higher education which you have attended.

### **Years of post-graduate education required:**

Both the OTD and MSOT programs are typically of 2-3 years duration.

## PHARMACY

Pharmacists are health care professionals that dispense drugs that have been ordered by physicians. They provide information to patients about the safe and effective use of prescription drugs. To be a pharmacist, one must earn a doctorate in pharmacy, a Pharm.D.

There are also graduate programs leading to the MS or PhD in pharmaceutical sciences. These programs prepare students for careers in pharmaceutical research leading to drug development and application.

Pharm.D./ PhD, Pharm.D./MBA and Pharm.D./MPH combined degree programs are also offered.

**Required courses.** Requirements vary by program. The list here includes courses required by most programs. Requirements for specific Pharm.D. programs can be found at <http://www.aacp.org/resources/student/pharmacyforyou/admissions/pages/PSAR.aspx>

- Biology (two semesters, with lab)
- Chemistry (two semesters, with lab)
- Organic chemistry (two semesters, with lab)
- Calculus
- Physics (one semester)
- Anatomy and Physiology
- Biochemistry
- Microbiology

### **Also recommended:**

- Sociology
- Psychology
- Ethics
- Communications

**Additional requirement:** About two-thirds of pharmacy programs require the Pharmacy College Admission test. For information on this test, visit <http://www.pcatweb.info/>. Other schools require the general GRE exam.

**Years of post-graduate education required:** It generally takes four years to earn the Pharm.D. degree, two years for the MS, and four-five years for a PhD. Some pharmacy programs allow students to transfer in after their sophomore year of college.



## Physical Therapy

A physical therapist works with patients who through injury or illness have suffered a loss of mobility, and may be suffering from debilitating pain. The role of the physical therapist is to work with the patient to help reduce pain and/or restore function, and to promote quality of life. A physical therapist must enjoy physical activity, and working one on one with patients. Physical therapists may work in hospitals, long term care facilities, clinics, home health agencies, schools, fitness centers, work settings, and may even have a private practice. Many physical therapists hold a master's degree, however, few masters programs remain. Today nearly all physical therapy students are in programs which lead to the doctorate in physical therapy (DPT). For more on careers in physical therapy, visit <http://www.ptcas.org/CareersEducation/>. The PhD degree in physical therapy would be appropriate for someone interested in research or an academic career in that area.

It is possible to enter a **dual career program in physical therapy and athletic training**. These programs generally require 6-7 years of study, and prepare one to work in clinics, high schools, and universities, and with professional sports teams, to treat and rehabilitate injured athletes. There are a limited number of dual degree programs but some offer a small number of graduate assistantships, which include a tuition waiver and stipend.

Some students are interested specifically in **sports medicine**. In sports medicine, you work with athletes, assisting with their training and aiding in injury rehabilitation. Those employed in sports medicine can be not only physical therapists, but also MDs and certified athletic trainers. For a list of programs in sports medicine, and further information about the field, visit this web site: [http://education-portal.com/schools\\_that\\_offer\\_sports\\_medicine.html](http://education-portal.com/schools_that_offer_sports_medicine.html).

**To see a list of physical therapy required courses by program, visit this web site:**

<http://www.ptcas.org/ProgramPrereqs/>

**Required courses:** The courses required for admission vary by program, but in general, they include:

- Biology (two semesters, but some schools require an additional upper division course
- Chemistry (one to two semesters. The second semester can be general chemistry II or organic I.)
- Physics (two semesters)
- Human Physiology
- Human Anatomy
- Psychology – some schools require an additional psych course, either abnormal psychology or developmental psychology.
- Statistics

**Additional recommended courses:**

Exercise physiology  
Communication

**Other useful courses:**

Biomechanics  
Nutrition

**To see a list of required courses by program, visit this web site:**

<http://www.ptcas.org/ProgramPrereqs/>

**Additional requirements**

GRE general test required

**The application process:**

Nearly all physical therapy graduate programs participate in PTCAS (Physical Therapist Centralized Application Service). This service allows students to submit a single application which will then be delivered to the schools to which they have chosen to apply. To learn more about the PTCAS, visit <http://www.ptcas.org/home.aspx>.

**Years of post-graduate education required:**

Three years

**List of schools that offer degrees in physical therapy**

<http://physicaltherapy.about.com/od/careersinphysicaltherapy/a/PTSchools.htm>

## Physician Assistant

The position of physician Assistant was created in the 1960's to address a shortage of primary care physicians. There are over 1,000 physician assistants practicing in the US today, and it is the fastest growing sector of the health professions. There are 191 accredited PA programs, but more programs are planned and will be up and running soon.

A Physician Assistant (PA) practices medicine under the direction of a physician. However, it is possible for a PA to have his or her own practice. In rural areas, a PA is often the primary health care provider. While the physician is medically, legally, and administratively responsible for the patient, the PA can examine patients, analyze laboratory results, order treatment and direct follow-up care.

According to the American Association of Physician Assistants, many PAs are in primary care (32%), but 26.6% are in surgical subspecialties, 11% in emergency medicine, 10% in internal medicine, and 18.8% in other specialties.

One of the major advantages of being a Physician Assistant is that the training is generally about 27 months, as compared to four years plus a residency for the MD, and there is no internship or residency. PA training has one year of classroom work followed by 2000 hours of clinical training.

PA programs are often as competitive as medical school, and have the additional requirement of 1000 or more hours of hands-on clinical experience before admission. A recent report by the Physician Assistant Education Associations reports that the mean overall GPA for matriculating students was 3.58. The science GPA was 3.5.

### What major should I choose?

Fifty percent of students who matriculate to PA school major in natural sciences. (biology, chemistry or physics, 20% in health sciences, and 14.5% in applied sciences such as nursing. 15% majored in other areas such as languages and humanities.

### Required courses:

Course requirements vary from program to program, but the following courses are required by most:

Chemistry – varies with the program. Almost all require a minimum of two semesters of chemistry, which can be general chemistry I and II, or one semester of general chemistry and one semester of organic. Some schools have a requirement for a third course, either an organic or biochemistry course. The Wake Forest PA program is one of those that requires a course in biochemistry.

Human anatomy or comparative/vertebrate anatomy with lab


Human physiology with lab (Bio 114 is a prerequisite)  
Microbiology with lab  
Two additional upper level biology courses (Bio 213 and 214)  
Psychology (developmental psychology is often recommended)

**Required by SOME programs**

Medical terminology (not offered at WF but can be taken online)  
Biochemistry  
Statistics (required by most good programs. Can be taken in math, psychology, HES, sociology or biology departments)

**Also recommended:**

Genetics  
Cell biology  
Molecular biology



These are covered by Bio 213 and 214

**Additional Requirements:**

In addition to required coursework, **applicants to PA programs must have relevant hands-on clinical experience. The amount of clinical experience required varies, but generally is in the range of 1,000-2,000 hours.** It is very difficult to acquire this experience while in college, so most candidates for PA programs have worked in the medical field for at least one year before being admitted to a program.

Shadowing a physician or PA is not considered hands-on clinical experience, nor is administrative work. Many students acquire the necessary experience by working either as an EMT (emergency medical technician), CNA (clinical nurse assistant), medical scribe, or medical assistant. One can train as a CNA in only 200 hours (5 weeks) at a community colleges, and through the Red Cross. Basic EMT training is only 110 hours, and also is offered by most community colleges. An EMT course is offered through the Health and Exercise Science Department at Wake Forest.

**Graduate Record Exam (GRE):** The General test is required. Be sure to have your GRE scores sent directly to CASPA (as explained below. Each programs has its own CASPA code.

**Completion of courses:** Check with each school to see how many courses you can have in progress or not yet started by the application deadline. It varies by school. Some require that all prerequisite courses and patient care hours be completed before application.

**Application Process:**

For information on applying to physician assistant programs, visit <http://www.paeaonline.org/index.php?ht=d/sp/i/194/pid/194>.

Many programs participate in CASPA, an online application service developed by the Physician Assistant Education Association (PAEA). CASPA allows a student to apply to a number of programs through a single application form. The CASPA application needs to be filed at least four weeks before the program application deadline to allow time for processing. Be sure to check the application deadline for each program to which you plan to apply, since application dates vary by program. Some programs may request an additional, supplemental, application. START HERE: Everything you need to know about filling in the CASPA application, step by step! <https://portal.caspaonline.org/caspaHelpPages/about-caspaoverview/>

**Apply early! Most schools have rolling admissions. Application open in late April or early May.** The application is time consuming. Your letters will not be requested until you fill out the CASPA application.

Be sure to keep track of all of your hours volunteer and patient care hours. They want specifics!

CASPA, has a Facebook page. This page is designed to answer CASPA-related questions and provide application cycle information, general and specific, for all CASPA applicants. You can find it at [www.facebook.com/CASPAOnlineApp](http://www.facebook.com/CASPAOnlineApp) <<http://www.facebook.com/CASPAOnlineApp>>.

The Physician Assistant Education Association, PAEA, also has a Facebook page, <https://www.facebook.com/pages/PA-Focus/238250712898634>, or you can follow it on Twitter, <https://twitter.com/paeaonline> for the most up to date PAEA and PA news.

#### **Years of post-graduate education required:**

The average duration of a PA program is 27 months. This includes up to 12 months of pre-clinical classwork, followed by up to 15 months of clinical training.

## VETERINARY MEDICINE

### Choosing a major:

It is not important that you be a science major to attend veterinary school. It is critical, however, that you complete all prerequisite courses! You can take these courses as electives, while pursuing your longstanding interest in art, music, history... whatever it is that you love. If you choose to major in a discipline that you really enjoy, you will most likely do better academically, and enjoy your college experience more. If science is what you love, go for it. If you are not a science person, it is important that you do well in the required science courses.

### Course prerequisites

Prerequisites vary by program. Check individual programs to which you plan to apply. A list of prerequisites by school can be found at <http://www.aavmc.org/Students-Applicants-and-Advisors/Veterinary-Medical-College-Application-Service.aspx>

Below is a list of prerequisites *generally* required by most veterinary programs. But requirements vary widely by program, and you should check specific programs for additional requirements.

General biology/genetics/cell biology (BIO 114, 213 and 214)

General chemistry

Organic chemistry

Physics

Math and/or statistics

Microbiology

### Also required by some programs:

Nutrition

Communications

Additional science electives

### Possible course plans

Below are two possible course plans. Because there are so many requirements for veterinary school (more than medical school!) the preparation can be very intense. It is strongly recommended that you not take two lab science courses during your first semester unless you are a strong student in the sciences. It is important to start out strong academically, and often the first semester in college requires some adjustment of study habits. Some schools recommend not taking two lab sciences at the same time until the sophomore year. One way to

spread out the requirements is to take some of the prerequisite courses in summer school, at Wake Forest or elsewhere. But another way is to spread the requirements out over the full four years, and take a gap year to apply to veterinary school. (see the section on the Gap Year) That allows you to devote more time to the service and shadowing that you need to make you a competitive applicant, and also permits study abroad.

Remember, it does not good to rush through the prerequisites, only to find at the end of three years that your GPA is not competitive! It is very difficult to overcome a transcript full of C's and repeated courses.

#### Hardcore option (plan A)

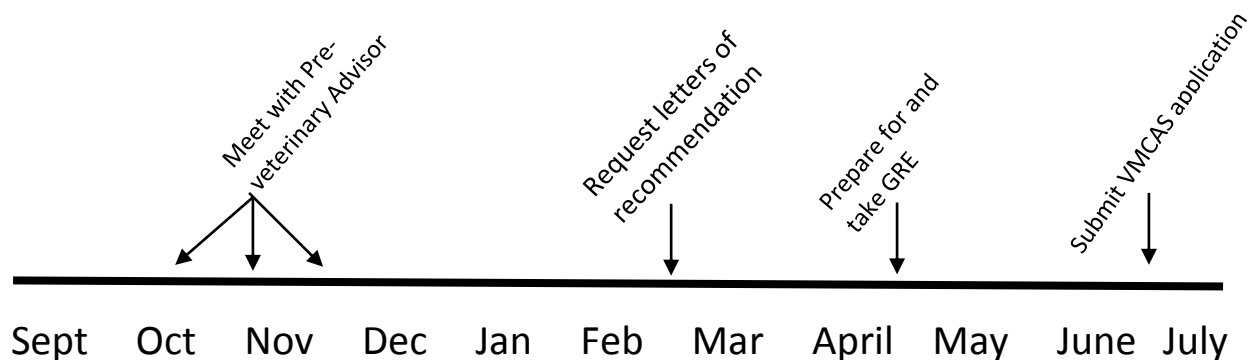
Fall year 1	Spring year 1	Fall year 2	Spring year 2	Fall year 3	Spring year 3	Summer Year 3	Fall year 4	Spring Year 4
CHM 111/L	CHM 122/L	CHM 223/L	CHM 280/L	PHY 113/L	PHY 114/L	Complete application Take GRE	Complete divisionals and major	Complete divisionals and major
MTH 111	BIO 114/L	*BIO 213/L	*BIO 214/L	Micro-biology	Biochem Statistics			

#### More reasonable plan (Plan B)

Fall year 1	Spring year 1	Fall year 2	Spring year 2	Fall year 3	Spring year 3	Fall year 4	Spring year 4	Right after graduation
CHM 111/L	CHM 122/L	CHM 223/L	CHM 280/L	Study abroad?	Biochem	PHY 113/L	PHY 114/L	Complete application
Math 111	Statistics	Bio 114	*Bio 213		*Bio 214	Micro-biology	Prepare for and take GRE	Take GRE

\*Bio 213 and 214 can be taken in any order

#### Timeline



## Shadowing and Experience

One of the things that Veterinary Schools will look for is evidence that you know what it means to be a vet. You can get this experience in two ways, first by shadowing veterinarian and second, by doing volunteer work which involves work with animals.

Finding a veterinarian to shadow is generally not difficult. Prepare a cover letter and resume, and drop it off at the veterinarian's office. Follow up with a phone call. You will find most veterinarians are eager to help. If it is possible, shadow more than one veterinarian. How many hours should you shadow? A minimum of 50 hours; more is better. Establishing a good relationship with a veterinary can be very useful as a strong letter of recommendation from a vet can be very beneficial.

There are many relevant volunteer opportunities at your local animal shelter, pet adoption agency (ARF in Winston-Salem), or even at an aquarium, if possible.

## Application process

The Graduate Record Examination (GRE) is required by most veterinary schools, and some also require the Biology GRE. Some schools will accept the Medical College Admission Test (MCAT). It is best to take the GRE in early spring, so that you can take it a second time if necessary. If you plan on taking the advanced Biology GRE, allow ample time to prepare. How do you know whether you need to retake the test? The average GRE score for students admitted to veterinary school is around the 75<sup>th</sup> percentile.

Application to Veterinary School is not subject to the Health Professions Committee process. No Health Professions Committee letter is required.

Start with a visit to the American Veterinary Medical Association (AVMA) site *Veterinary School Admission 101*: <https://www.avma.org/public/Careers/Pages/vet-school-admission-101.aspx>

Application to veterinary school is done through a centralized application service, VMCAS, which is run by the American Association of Veterinary Medical Colleges (AAVMC). Applications open in May, and are due in September. But it requires some time to fill out, so start early. It is best to apply as early as possible, since transcripts and letters must be verified by VMCAS and this can take some time.. For more information on VMCAS, see:

<http://www.aavmc.org/Students-Applicants-and-Advisors/Veterinary-Medical-College-Application-Service.aspx>



