

PRE-HEALTH PROFESSIONS

Concordia College offers preprofessional education in each of the areas listed above. All the preprofessional health programs have similar basic requirements; therefore, students have the opportunity to explore multiple career options before making a final decision. Each program also provides the flexibility for taking courses other than those required for professional preparation, allowing students to receive a strong liberal arts training.

Schools in the health professions recommend a broad liberal arts undergraduate education for two reasons: Members of these professions must be able to relate well to people, to communicate effectively, and to understand human nature and social institutions. In addition, courses in professional schools concentrate on the biomedical sciences and leave little time or opportunity for study of other disciplines. Therefore, it is important for students to enter their chosen professional programs having already become thoughtful and informed through a liberal arts education. The professional schools accept applications from students without regard to major. Students should meet early with one of the health professions advisors to plan their programs because different schools, even for the same profession, often differ in specific requirements.

Common prerequisite courses for professional programs in the health sciences include:

- 8 credits in biology
- 16 credits in chemistry
- 4 to 8 credits in mathematics
- 8 credits in physics

A substantial number of courses in the humanities, behavioral and social sciences are also required. All programs (with only a few exceptions) expect applicants to have earned an undergraduate degree prior to entry. Note: College courses required by professional programs must be taken on an A/F letter-grade basis (i.e. not pass-fail), and many programs will not accept AP credits as fulfillment of the prerequisite courses.

College grades are important in determining students' acceptance into any professional school, but nearly all programs also require applicants to score well on standardized national exams. Development of superior communication and leadership skills is also important. Specific experiences related to future areas of study are important and are developed through Concordia's comprehensive volunteer and Cooperative Education programs. The Fargo-Moorhead area is a regional medical hub and provides valuable opportunities for Concordia students to enhance experiential connections to their preferred career areas. In many instances, the professional contact people are Concordia graduates.

In preparing applications for professional schools, students work through the College's Health Professions Advisory Committee (HPAC), beginning the application process about 18 months before the date of planned entry into their chosen professional program. The college offers support for each qualified student's application with an official Committee Evaluation completed by the HPAC. Dedicated and careful attention to the many details relative to preparation for, and application to these professional programs by Concordia's administration, faculty, staff and students has resulted in long-term acceptance rates that are usually twice the national average.

Pre-Professional Coursework

Athletic Training

Athletic training programs grant the master's degree in athletic training (AT). Although the required courses may vary by program, a bachelor's degree is required and most Concordia pre-AT students major in exercise science.

Most AT programs require the following college courses:

- 4 to 8 credits in human anatomy and physiology
- 4 credits in general physics
- 4 credits in general chemistry
- 4 credits in biomechanics
- 4 credits in physiology of exercise
- 1 credit in medical and scientific terminology
- 4 credits in nutrition

Note: Some programs may also require the Graduate Record Exam, a research-based position paper and a minimum of 50 hours of observation completed under the direct supervision of a BOC ATC in an athletic training room setting.

Advisor

Emily C. Huber-Johnson

Chiropractic

The chiropractic profession has become an increasingly important member of the team approach to healthcare delivery. Many major medical centers incorporate a doctor of chiropractic medicine into their teams of health professionals or make referrals to approved, independent chiropractic clinics.

Each year, Concordia students make application to, and are accepted by, colleges of chiropractic. Typical colleges of chiropractic medicine have a four-year curriculum leading to a doctor of chiropractic degree. The requirements of these programs are similar to those of all the other health professions listed on these pages, and include:

- 8 credits in general biology (usually more)
- 8 credits in general chemistry
- 4 to 8 credits in organic chemistry
- 4 credits in mathematics
- 8 credits in physics

Some programs accept applicants after three years of undergraduate education, but most give preference to those holding an undergraduate degree.

Students should work closely with advisors and the HPAC to develop their academic program and to efficiently complete applications to schools of chiropractic. Prechiropractic students will enhance their applications by obtaining significant observational experiences with a doctor of chiropractic medicine. Concordia's Cooperative Education in Chiropractic program provides these professional connections.

Advisor

Julie C. Rutherford

Dentistry

Dentistry ranks second to medicine in the number of Concordia students who enter professional schools each year. Concordia pre-dental students

work closely with faculty advisors and the HPAC to maximize successful applications.

Most dental schools require the following college science background courses:

- at least 8 credits in biology
- 4 credits in microbiology
- 8 credits in general chemistry
- 8 credits in organic chemistry
- 4 credits in biochemistry
- 4 credits in mathematics
- 8 credits in physics

Because most dental schools expect applicants to have completed a bachelor's degree before entering their programs, other required college courses also serve to satisfy Concordia's graduation requirements.

Dental schools do not mandate a specific academic major but most Concordia pre dental students major in either biology or chemistry. All schools require the Dental Admissions Test, which is generally taken sometime in the junior year.

Predental students establish close connections with area dentists through Concordia's Cooperative Education in Dentistry program. Mentored by experienced practitioners in nearly all specialties of dentistry, students emerge from this program with strong experiential bases for their motivation for a career in dentistry.

Advisors

Julie C. Rutherford

Dr. Joel T. Kangas, DDS, Fargo, N.D., externship supervisor

Dr. Erik P. Skatvold, DDS, Skatvold Family Dentistry PC, Moorhead, externship supervisor

Medicine

Each year, more Concordia students are accepted to schools of medicine than to any other health professions programs listed in this section. Early interaction with Concordia premedical advisors facilitates the overall process of presenting a successful application.

Virtually all medical schools require the following courses:

- 8 credits in biology (additional courses are often recommended)
- 8 credits in general chemistry
- 8 credits in organic chemistry
- 4 or 8 credits in biochemistry
- 4 or 8 credits in mathematics
- 8 credits in physics
- 4 or 8 credits in a behavioral science

Medical schools expect applicants to have satisfied all of the general requirements leading to an undergraduate Bachelor of Arts degree. Medical schools do not specify preferred major areas of study; Concordia students accepted by medical schools have majored in a variety of disciplines.

All medical colleges require that students take the Medical College Admission Test (MCAT) prior to submitting an application. The MCAT is given in April and August of each year and is taken when all of the above listed science courses have been completed.

Premedical students work closely with the HPAC to prepare comprehensive and strong applications in a timely manner. Successful applicants have good GPAs, strong MCAT scores, a variety of volunteer and work experiences, and supportive Committee Evaluations. Students are strongly advised to complete Concordia's Cooperative Education in Medicine program. Development of good communication and leadership skills, along with a thoughtful and informed liberal arts background, are major assets.

Concordia also offers a **Postbaccalaureate Premedical Program**. This intensive one-year program is designed for highly motivated individuals with excellent academic records, who have earned a bachelor's degree from a regionally accredited four-year institution, but lack most or all of the prerequisite science courses needed for admission to medical school. The nine courses (36 credits) required for the Postbacc Premed program allows students to complete in 12 months the necessary science foundation to achieve strong MCAT scores and fulfill the course requirements for medical school admission. The Health Professions Advisory Committee works with Postbacc students throughout the duration of the program and subsequent medical school application process.

Advisors

Julie C. Rutherford

Occupational Therapy

Because schools of occupational therapy vary in their requirements, interested students should consult with the program advisor as soon as possible. The science requirements for these programs are less extensive than those for the other health professions covered in the catalog.

A variety of undergraduate majors are good preparation for OT programs including psychology, social work and exercise science; however, most Concordia students have majored in psychology. Liberal arts courses and courses in art and music are highly advised.

Most OT programs require the following college courses:

- 8 credits in general biology
- 8 credits in anatomy and physiology
- 8 credits in general chemistry
- 4 credits in mathematics
- 8 credits in physics
- 8 or 12 credits in psychology

Most OT programs value prior experience in the field, which most students obtain through Concordia's Cooperative Education in Occupational Therapy program.

Advisors

Emily C. Huber-Johnson

Julie C. Rutherford

Optometry

Optometry schools are four-year professional schools leading to the Doctor of Optometry degree. As such they consider for acceptance students that have completed the undergraduate Bachelor of Arts degree.

Required college courses for these programs include:

- 8 credits in general biology
- 8 credits in anatomy and physiology (for some programs)

- 8 credits in general chemistry
- 8 credits in organic chemistry
- 4 credits in biochemistry
- 4 or 8 credits in mathematics
- 8 credits in physics

A variety of other courses are recommended depending on the specific school. In general, the courses required for graduation from Concordia are also acceptable to schools of optometry. Pre-optometry students work closely with the HPAC as they prepare for a successful application.

Colleges of optometry require applicants to take the Optometric Admissions Test (OAT). Generally, the OAT is taken when the student has completed the required science courses.

Successful applicants commonly have volunteer and work experience in the field. Participation in Concordia's Cooperative Education in Optometry program increases the likelihood of acceptance by professional programs.

Advisor

Julie C. Rutherford

Pharmacy

A four-year program (from the time of acceptance into the program), the Doctor of Pharmacy (Pharm.D.) is the degree that prepares students to practice pharmacy in the United States. Although a bachelor's degree is not required for entry into many Pharm.D. programs, over the years a number of Concordia students have opted for this preprofessional concentration.

Courses required before attempting application to colleges of pharmacy include:

- 4 or 8 credits in general biology
- 4 credits in microbiology
- 8 credits in anatomy and physiology
- 4 credits in mathematics (calculus)
- 4 credits in general chemistry
- 4 credits in organic chemistry
- 4 credits in physics
- 4 credits in English
- 4 credits in economics
- 8 credits in behavioral sciences

Besides the courses listed above, most pharmacy schools require applicants to complete about 30 additional semester-hours of credit.

Students interested in pharmacy should meet early with the advisor for this program. Because Pharm.D. programs typically require individual letters of evaluation (rather than a Committee Evaluation) as part of the application, students generally do not work through the HPAC. This option is available to Concordia students, however, if desired.

Advisors

Julie R. Mach
Julie C. Rutherford

Physical Therapy

Professional programs in physical therapy (PT) grant the master's degree (M.P.T.) or doctoral degree (D.P.T.) in physical therapy. Required courses for these two programs vary, though the bachelor's degree is required

by most PT programs. These programs do not require a particular undergraduate major, but most Concordia pre-PT students major in biology, psychology or exercise science.

Most PT programs require the following college courses:

- 8 credits in general biology
- 8 credits in anatomy and physiology
- 8 credits in general chemistry
- 4 credits in mathematics
- 8 credits in physics
- 8 or 12 credits in psychology

Most of the additional courses that are required for a degree from Concordia are also highly recommended by PT schools. Most PT programs require the Graduate Record Exam.

Concordia pre-PT students work closely with the HPAC to achieve a successful application. Experience in the field is often an important prerequisite. Concordia students obtain such experiences through a combination of volunteer and work experiences, and participating in the Cooperative Education in Physical Therapy program.

Advisors

Emily C. Huber-Johnson
Julie C. Rutherford

Physician Assistant

The demand for physician assistants (PAs) continues to expand. Professional programs leading to the master's degrees for PAs are increasing in number. In recent years, Concordia graduates have been accepted to PA programs and are now serving in the profession.

PA schools require many of the same courses required by other health professions programs and include the following:

- 8 credits in general biology
- 8 credits in anatomy/physiology
- 8 credits in general chemistry
- 8 credits in organic chemistry
- 4 credits in biochemistry
- 8 to 12 credits in psychology
- 2 credits in medical and scientific terminology
- 4 credits in microbiology
- 4 credits in statistics

Individual PA programs have a number of other courses that are either required or recommended, most of which also satisfy the general requirements for graduation from Concordia College. Many programs require the Graduate Record Exam.

Students should consult with faculty advisors early to plan their programs. They also have opportunity to work through the HPAC to maximize their potential for a successful application. Successful applicants to PA programs accumulate many hours of observation and medically related work experiences. Concordia's Cooperative Education in Medicine program is designed to help students achieve these goals.

Advisor

Julie C. Rutherford

Veterinary Medicine

Veterinary medical schools share similar requirements with other health sciences professional schools. Individual schools, however, have greater variance in their requirements; therefore, it is essential that interested students consult early with pre-vet advisors.

Typically, veterinary medical schools require the following:

- 8 credits in general biology
- additional courses such as anatomy/physiology, microbiology and genetics
- 8 credits in general chemistry
- 8 credits in organic chemistry
- 4 credits in biochemistry
- 8 credits in physics
- 4 or 8 credits in mathematics

Veterinary schools require the Graduate Record Exam.

All veterinary medical schools expect applicants to present extensive experiences working with animals. Concordia's Cooperative Education in Veterinary Medicine program provides excellent exposure to both small animal and large animal veterinary medicine.

Advisors

John A. Flaspohler

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