

School of Medicine and Health Sciences

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History and Purpose

The School of Medicine and Health Sciences consists of medical, biomedical research and other health-related academic components that work together to address our purpose of educating and preparing North Dakota residents as physicians, medical scientists and other health professionals for service to the people of this region and the nation, and to advance medical and biomedical knowledge through research. These components include:

1. A statewide, four-year curriculum for medical students leading to the M.D. degree.
2. Postgraduate medical education (residency) programs of three to five years in duration leading to eligibility for board certification in family medicine, internal medicine, general surgery and psychiatry; a one-year transitional program is also offered.
3. A continuing medical education program to address the career-long need of physicians and other health care personnel for continued learning.
4. Graduate programs in the Department of Biomedical Sciences and Department of Pathology leading to the M.S. degree, Ph.D. degree and the combined M.D./Ph.D.
5. Postdoctoral research training opportunities in the laboratories of faculty principal investigators in multiple departments.
6. Graduate program leading to a doctoral degree in physical therapy.
7. Graduate programs leading to master's degrees in medical laboratory science, occupational therapy, physician assistant studies and public health.
8. Undergraduate programs leading to the following degrees: B.S. in athletic training; B.S. in medical laboratory science.
9. Undergraduate coursework in anatomy, biochemistry, microbiology, immunology, pharmacology and physiology.

Each program noted above is fully accredited by its accreditation agency.

The School of Medicine was established in 1905 and offered, until 1973, the first two years of medical education. Students transferred to other medical schools for the last two years of medical education to earn the M.D. (Doctor of Medicine) degree. During that time, the School established a strong reputation across the nation for the quality and professional attitude of its students, who were welcomed enthusiastically by other medical schools. In 1973, state legislative action approved a four-year curriculum and authorized the granting of the M.D. degree. This was accomplished in stages using a 2:1:1 plan by which students transferred to medical schools in Minnesota for their third year and returned to North Dakota to complete their final year before receiving the M.D. degree. In 1981 the third year was established in North Dakota, providing for a complete in-state medical education program.

The School also established a strong reputation during its early years, which continues today, for the quality of education and research in numerous scientific fields. The institution is nationally and internationally respected for its research in neurodegenerative disorders such as Parkinson's and Alzheimer's; cancer; epigenetics; infectious disease; aging; preventive medicine; drug addiction; alcoholism in women; rural health, and eating disorders.

The Physician Assistant Program, established as a certificate program in 1970, is administered by the Department of Physician Assistant Studies. In 2003, the Master of Physician Assistant Studies (MPAS) degree was initiated. In 1949, the medical technology program was initiated with a B.S. curriculum, adding an M.S. degree program in 1978. Medical technology is now known as medical laboratory science, and the programs are administered by the Department of Medical Laboratory Science. The occupational therapy program was initiated in 1956 as a part of the medical school. After being administratively located in the College of Human Development for a number of years, the department moved back into the medical school in 1995. The Master of Occupational Therapy (MOT) degree program was initiated in 2002. The physical therapy program

was initiated in 1968, and the master's degree in physical therapy was added in 1991. The doctoral program in physical therapy was initiated in 2002. The B.S. in Athletic Training degree was approved in September 1990 by the North Dakota Board of Higher Education and is administered by the Department of Sports Medicine. The Master of Public Health program was added in 2012.

In 1996, the name of the School of Medicine was changed to the School of Medicine and Health Sciences to reflect the importance of all components of the school in addressing its purpose. Departments included are biomedical sciences; family and community medicine; geriatrics; internal medicine; medical laboratory science; neurology; obstetrics and gynecology; occupational therapy; pathology; pediatrics; physical therapy; physician assistant studies; psychiatry and behavioral science; population health; radiology; sports medicine; and surgery. The statewide educational program of the school is coordinated through clinical campuses based at Bismarck, Fargo, Minot and Grand Forks.

Suggested Undergraduate Courses for Students Planning to Study Medicine

Four years of college preparation are recommended for students wishing to enter the medical education program of the University of North Dakota School of Medicine and Health Sciences, although a degree is not a requirement. The student is free to select a major in any area of interest, but coursework must include the following mandatory credits:

	Minimum Semester Hours
Chemistry, including laboratory	16
Inorganic and Qualitative Organic	8
Biology, including laboratory	8
Physics, including laboratory	8
Psychology/Sociology	3
Language Arts (English, Speech, etc.)	6
College Algebra or higher math	3

* A student may substitute a semester or quarter of biochemistry for the final semester/quarter of organic chemistry.

The University of North Dakota School of Medicine and Health Sciences recommends that students take elective courses that include subjects of liberal arts value such as humanities, economics, geography, history and philosophy so that the student's educational experience will be broad and well-rounded. Computer literacy also is highly recommended. Students are urged to see their advisers regularly.

Application for admission to the School of Medicine and Health Sciences is made through the American Medical College Application Service (AMCAS). The deadline for the AMCAS application is October 15 with the expectation that the remainder of the application will be completed by November 1.

Undergraduate Programs

The following undergraduate degree programs in health sciences are administered by the School of Medicine and Health Sciences. See also the departmental listings.

Athletic Training

Students can pursue a Bachelor of Science degree in Athletic Training through the Department of Sports Medicine. This four-year degree is designed to prepare entry-level athletic training professionals. The academic program is accredited by CAATE. Graduates are eligible to take the national certification test administered by the Board of Certification, Inc. Successful completion of this test allows the graduate to be called a "certified athletic trainer." Application information and requirements are available from the Department of Sports Medicine.

Medical Laboratory Science (MLS)

The Department of Medical Laboratory Science offers a four-year academic program leading to the degree of Bachelor of Science in Medical Laboratory Science (formerly clinical laboratory science). The degree includes two years of pre-medical laboratory science education followed by two years of

professional coursework. Students who have previously earned a B.S or B.A. degree may earn an additional degree in medical laboratory science by completing a 4 + 1 curriculum option. Students may take much of the professional curriculum online through distance learning. Advancement from pre-medical laboratory science to the medical laboratory professional curriculum is based on a competitive application process. Application for advancement to the professional education component can be found online at <http://www.med.und.edu/mls>. The MLS program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Graduates of the program will be eligible to sit for a national board certification examination.

Medical Laboratory Science Categorical Certificate

The Department of Medical Laboratory Science offers an MLS Categorical Training Certificate which provides advanced skills to baccalaureate-prepared students to become eligible to work in a highly complex clinical laboratory and meet the requirements to take a national certification examination in a specific categorical area. The requirements for entrance include a baccalaureate degree from an accredited college or university and completion of 20 semester hours in biology, chemistry and/or medical sciences (in addition to or part of the baccalaureate degree). The categorical certificate program includes four "category" choices: Immunohematology, Clinical Chemistry/Urinalysis, Microbiology, or Hematology/Hemostasis. The curriculum consists of both lecture courses delivered over the Internet and laboratory experience-based courses. All coursework, whether lecture courses over the Internet or laboratory experience-based courses, are located at a clinical affiliation site.

Histotechnician Certificate Program

The Department of Medical Laboratory Science offers a Histotechnician Certificate Program. The certificate requires completion of prerequisite coursework before applications will be accepted. The curriculum consists of both lecture courses delivered over the Internet and laboratory experience-based courses. All coursework, whether lecture courses over the Internet or laboratory experience-based courses, are located at the clinical affiliation site. The Histotechnician Certificate Program is accredited by the National Accrediting Agency for Clinical Laboratory Science (NAACLS).

Graduate Programs

Ph.D., M.S. and joint M.D./Ph.D. programs are offered in biomedical sciences (Department of Biomedical Sciences) and clinical and translational sciences (Department of Pathology). Professional graduate programs are offered in occupational therapy, physical therapy, physician assistant studies, medical laboratory science, and public health. All of these programs are described in the School of Graduate Studies section of this catalog.

Medical Laboratory Science

The Department of Medical Laboratory Science offers a Master of Science degree program in Medical Laboratory Science. The degree is a non-thesis option that is offered primarily through online distance learning. It provides a broad medical science background as well as experiences in quality management and laboratory finance. The curriculum is designed to prepare students for careers as administrative laboratory directors, clinical laboratory consultants, technical supervisors or laboratory educators. For additional information, visit www.med.und.edu/mls.

Occupational Therapy

The Department of Occupational Therapy offers a five-year, entry-level Master of Occupational Therapy (MOT) degree. Occupational therapy as a profession is based on the belief that purposeful activity (occupation), including its interpersonal and environmental components, may be used to prevent and mediate dysfunction and elicit maximum adaptation. For information regarding the program, visit our website at: <http://www.ot.und.edu>.

The Occupational Therapy program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 4720 Montgomery Lane, Suite 200, Bethesda MD 20814-3449. ACOTE's telephone number c/o AOTA is (301) 652-AOTA and its web address is www.acoteonline.org (<http://www.acoteonline.org>). All basic professional programs must comply with the *Standards for an Accredited Educational Program for the Occupational*

Therapist, 2011. Graduates of the program will be able to sit for the national entry-level certification examination for the occupational therapist, administered by the National Board for Certification in Occupational Therapy, Inc. (NBCOT, 800 South Frederick Avenue, Suite 200, Gaithersburg, MD 20877-4150; phone 301-990-7979). After successful completion of this examination, the graduate will be an Occupational Therapist Registered (OTR). Most states require licensure in order to practice; state licenses may be based on the results of the NBCOT certification examination.

A satellite professional-level MOT program, also accredited by ACOTE, is available at Casper College, Casper, WY. Tuition and other information regarding the program are available by contacting the Occupational Therapy Department at Casper College, Casper, WY; telephone 307-268-2613.

Physical Therapy

The physical therapy curriculum is accredited by the Commission on Accreditation of Physical Therapy Education (CAPTE). The six-and-one-half-year program leads to the degree of Doctor of Physical Therapy.

Students eligible to apply for the professional program must complete an application through PTCAS, <http://www.ptcas.org/home.aspx>, and submit a UND School of Graduate Studies, <http://graduateschool.und.edu/my-gradspace.cfm>, application form. Applications are available online starting in **July through December 15**.

Physician Assistant Program

The Department of Physician Assistant Studies offers a Master of Physician Assistant Studies. This 24-month graduate program is accredited by the Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA). Admission is determined on the basis of defined health care experience and coursework requirements. A minimum of a baccalaureate degree is required. Graduates are eligible to take the national certification test administered by the National Commission on Certification of Physician Assistants, Inc. (NCCPA). For additional information, or to begin the application process, go to our website at: <http://www.med.und.edu/physician-assistant/index.cfm>.

Public Health

Established in 2012, the Master of Public Health (MPH) program offers a 42-credit, accredited degree, which can be earned through full or part-time study. The educational priority of the MPH program is preparing students to respond to the growing demand for public health professionals who can transform data into information for decision-making. The size of health data is growing exponentially, and the skills to 'mine' big data are exceptionally valued by public and private health agencies, as well as healthcare provider and payer organizations. Therefore, both MPH specializations – Population Health Analytics and Health Management & Policy – emphasize analytics. Special features include an emphasis on faculty-student research collaboration; application of system dynamics to public health; and opportunities for experiential learning with UND's nationally recognized wellness initiatives and Grand Fork's many public and private organizations working collaboratively to improve health in the community. Residents of states in the Western Interstate Commission for Higher Education (WICHE) Region receive in-state tuition, and the program is designated as STEM. The MPH program was accredited by the Council on Education for Public Health (CEPH) in 2016. Admissions and program information can be found at: <http://www.med.und.edu/master-of-public-health/>.

Other Activities

Laboratory Education from North Dakota

Laboratory Education from North Dakota (LEND), a program in the Department of Medical Laboratory Science, provides distance learning opportunities for laboratory professionals to earn continuing education units (CEUs). The Internet is used to deliver the courses and programs, with presentations and case studies available 24 hours a day, 7 days a week.

Indians Into Medicine (INMED) Program

The INMED Program was adopted in 1973 to serve American Indians who are enrolled members of federally recognized tribes. Through a comprehensive recruitment program, INMED seeks to identify and encourage students with

an aptitude for and an interest in health careers. This recruitment begins as early as the middle school level. The program is committed to preparing professionals in all related health care fields. Each year the School of Medicine and Health Sciences allocates places in its first-year medical, physical therapy and occupational therapy classes to qualified American Indian students.

Facilities

The School of Medicine and Health Sciences has facilities in Grand Forks (the administrative center of the school), Bismarck, Fargo and Minot. These regional campuses include family medicine centers (in Bismarck and Minot), library facilities, campus offices and a branch of the Center for Rural Health (in Minot). Affiliations with private and public hospitals in the regional campus cities, but also in less populated cities throughout the state, provide the clinical base for the study of medicine and the other health sciences. In Grand Forks, the new School of Medicine and Health Sciences building is located to the north of the old St. Michael's hospital, which served as the medical school for many years. The new building was fully occupied in 2016 and houses all biomedical, clinical and health science departments, the Health Sciences Library, modern research laboratories, classrooms, small group rooms, conference rooms and offices. At the heart of the educational space is the simulation center with multiple simulated hospital and clinic rooms, a skills lab and a simulated surgical suite. Students study and work in the simulation center to improve their clinical reasoning and teamwork skills. A state-of-the-art human anatomy laboratory is located on the fourth floor of the modern research wing. Large, open collaborative spaces are present throughout the building. A key design feature of the building is the eight learning communities designed to foster interprofessional collaboration among students from the diversity of disciplines represented by the school's educational programs. The School of Medicine and Health Sciences campus in Grand Forks also includes the Biomedical Research Facility, an ultra-modern animal facility completed in 2000 and the Neuroscience Research Facility opened in 2004, which houses laboratories for research investigations into neurodegenerative diseases, such as Parkinson's and Alzheimer's, as well as drug addiction. In Minot, the UND Center for Family Medicine moved into a new building in the northwest area of the city in 2005; it also houses the Northwest Campus office and a branch of the Center for Rural Health. In Bismarck, the UND Center for Family Medicine moved into a new building in 2012; it also houses the southwest campus office.