

HEALTHCARE SCIENCES

Physical & Occupational Therapy, Cytotechnology, Dental Hygiene, Health Information Management, Medical Laboratory Science, Respiratory Therapy, Health Education, Diagnostic Technology, and Nuclear Medicine

What can I do with these majors?

AREAS

EMPLOYERS

STRATEGIES/INFORMATION

PHYSICAL THERAPY

Physical therapy involves treatment of gross muscle groups for people disabled by illness, accident, or congenital issue. Physical therapy seeks to improve mobility, relieve pain, or minimize permanent physical disabilities.

Clinical practice:

- Acute care
- Rehab / Sub-acute care
- Extended care
- Wellness and prevention
- Sport and fitness

Management

Education

Research

Consultation

Specialties:

- Cardiovascular
- Electrophysiology
- Geriatrics
- Neurology
- Oncology
- Pediatrics
- Sports medicine
- Women's health

Hospitals

Outpatient clinics or private practice

Home healthcare agencies

Nursing and residential care facilities

Sports and fitness facilities

Rehabilitation centers

Physician offices, particularly orthopedic

Hospice programs

Universities and colleges

Federal and state government:

Department of Defense

Public Health Service

Veterans Health Administration

Indian Health Service

Develop strong interpersonal and communication skills, patience, and a desire to help individuals of all ages with disabilities. A positive attitude is important when working with patients.

Obtain knowledge of several basic sciences needed for pursuing additional training including anatomy, physiology, biology, chemistry, psychology, and physics.

Attain superior grades in pre-physical therapy course work due to intense competition for admittance to physical therapy programs.

Volunteer for a physical therapist in a hospital or clinic to gain experience and improve chances of acceptance into a program. Many programs require volunteer or related experiences for admission.

Understand the demands of physical therapy work such as dexterity and physical stamina.

Earn a degree or post bachelor certificate to become a physical therapy assistant or a doctorate in physical therapy (DPT) from a program accredited by the Council on Accreditation in Physical Therapy Education (CAPTE), as required for most states licensure.

Review states licensure requirements which will include passing the National Physical Therapy Examination.

Explore practice areas (consider one third of physical therapists work in hospitals and another third in physical therapy offices).

Consider completing a clinical residency after school to gain training and experience in a specialty. Fellowships in advanced clinical areas after residency are also available.

AREAS

OCCUPATIONAL THERAPY

Occupational therapy involves treatment of fine muscles groups for people who are unable to perform some everyday functions due to an accident, illness, or congenital issue.

Occupational therapy utilize activities with specific goals to enhance the quality of life and increase the independence of individuals.

Screening

Evaluation

Treatment:

Physical

Psychosocial

Vocational

Follow-up

Administration

Education

Research

Population specialties:

Geriatrics

Mental health

Pediatrics

Physical rehabilitation

Task specialties:

Driving

Eating

Low vision

Supportive environment changes

EMPLOYERS

Hospitals (including psychiatric and rehabilitative)

Out-patient rehabilitation facilities

Schools

Group or private practice

Nursing and residential care facilities

Adult daycare programs

Job training centers

Home healthcare agencies

Universities and colleges

Federal and state government:

Department of Defense

Public Health Service

Veterans Health Administration

Indian Health Service

STRATEGIES/INFORMATION

Build a solid foundation in physical, biological, and behavioral sciences.

Develop excellent communication skills which are important when interacting with patients and their families.

Develop and foster patience and a true interest in helping people with disabilities.

Learn to work well within a team. Many occupational therapists work with other professionals, including physicians, physical therapists, and social workers in the rehabilitation of patients.

Volunteer in an occupational therapy or gain experience in a healthcare setting to improve chances of program admittance.

Earn a degree or complete a post bachelor certification to become occupational therapy assistant or a master's (MOT, MA, MS) or doctoral (OTD) degree in occupational therapy from accredited by the Accreditation Council for Occupational Therapy Education (ACOTE).

NOTE: Review licensure requirements for states interested in living in as ACOTE is requiring all programs to transition to bachelor's degree for assistants and doctoral degree for therapists by 2027.

Review state licensure requirements which will include passing an exam given by the National Board for Certification in Occupational Therapy.

Passing the board exam will allow you to become Occupational Therapists Registered (OTR).

Consider a research-focused doctoral degree and/or gain some practice experience if interested in

AREAS

CYTOTECHNOLOGY

Cytotechnologists are highly skilled laboratory professionals who study the patterns of disease progression found in human cells. They detect subtle changes and clues within cells. With expert eyes, the cytotechnologist looks for the smallest abnormalities in color, shape, and size that may indicate clinically significant conditions. This profession provides the potential to help save lives by discovering disease early and uncovering information that informs effective treatment.

Screening and diagnosis:

- Cancer
- Pre-cancerous abnormalities
- Benign tumors or growths
- Infectious organisms and inflammatory conditions

Evaluation of Tissue:

- Bladder
- Body cavities
- Bone and soft tissue
- Breast
- Central nervous system
- Female reproductive tract
- Gastrointestinal tract
- Liver
- Lung
- Lymph nodes
- Pancreas
- Salivary glands
- Thyroid

Technological equipment operation:

- Light microscopes
- Biomedical instrumentation
- Laboratory information systems

Molecular diagnostic testing

EMPLOYERS

Hospital and private laboratories
Federal and state government laboratories
Public health facilities
Research and biotechnology industry
Healthcare administrative departments
Educational institutions

STRATEGIES/INFORMATION

Earn a Bachelor or Master of Science in Cytotechnology from a program accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP).
Prepare for and pass the certification examination given by the American Society for Clinical Pathology's Board of Certification.
Supplement curriculum with courses in biology that emphasize body structure, development, tissue organization, and function. Recommended courses include histology, cellular biology, and genetics. Additional recommendations may include other biological sciences such as zoology or ecology.
Become comfortable with applied learning techniques. Most programs utilize a combination of training activities such as microscopic evaluation, laboratory skills development, case presentations, research, community health projects, and supervised clinical laboratory site experiences.
Develop problem solving as well as effective written and verbal communication skills.
Display personal characteristics such as accuracy, responsibility, and motivation. Become comfortable making important decisions.
Plan to learn new technology and techniques to stay abreast of developments in the field.
Specialty certifications exist for those who want supervisory or other advanced positions.

AREAS

DENTAL HYGIENE

Dental hygienists help people of all ages maintain optimal oral health by working with dentists to prevent and treat tooth decay, periodontal disease, oral cancer, and other conditions that affect oral function.

Specific areas of activity for dental hygienists include:

- Gathering data for a dental diagnosis
- Recording medical and dental histories
- Screening and charting oral structures and conditions
- Exposing and processing oral radiographs
- Dietary analysis
- Providing oral disease prevention information and instruction
- Monitoring oral health status of individuals
- Providing therapeutic services
- Removing calculus and plaque from the teeth
- Applying fluoride and dental sealants to the teeth

EMPLOYERS

Private dental offices and dental clinics
Federal, state, and local health departments or associated institutions
Hospitals and nursing homes
School districts or departments of education
Private business/industry
Correctional facilities
Private and public centers for pediatric, geriatric, and other individuals or groups with special needs
Managed care organizations

STRATEGIES/INFORMATION

An associate's or bachelor's degree is required to enter the field in nearly all states.
A passing score on the Dental Hygiene National Board Examination and state or regional clinical examination is also required for licensure as a Registered Dental Hygienist (RDH).
The scope of practice for dental hygienists is determined by individual states.
Opportunities for practice are available throughout the world, particularly with the military, the US government, and US owned corporations.
A master's degree in dental hygiene is available at some institutions.
Dental hygienists with bachelor's or master's degrees may work in teaching, research, or administrative positions.
Develop strong interpersonal and communication skills and an attention to detail.

HEALTH INFORMATION MANAGEMENT AND HEALTH INFORMATICS

HIM and informatics professionals play critical roles in maintaining, collecting, and analyzing the data that doctors, nurses, and other healthcare providers rely on in the delivery of quality healthcare.

- Patient health information management
Operations/Medical records administration
Health information technology/infrastructure
Computer information systems management
Revenue cycle management/billing and coding
Personnel and budget administration
Quality management and improvement
Risk management and compliance
Privacy and security
Utilization review

Hospitals
Physician offices and clinics
Long-term care facilities
Rehabilitation centers
Insurance companies
Government agencies
Home care providers
Behavioral health facilities
Information systems vendors
Pharmaceutical companies
Research facilities
Consulting firms
Educational institutions

Earn a bachelor's or master's degree in Health Information Management or Health Informatics from a program accredited by the Commission on Accreditation of Health Informatics and Information Management Education (CAHIIM).
A passing score on a national examination is required for certification as a Registered Health Information Administrator (RHIA).
Visit a health information management department in a hospital to better understand the role of health information managers.
Research career opportunities through The American Health Information Management Association and The American College of Medical Informatics.

AREAS

EMPLOYERS

STRATEGIES/INFORMATION

HEALTH INFORMATICS CONTINUED

Health informatics specialties include:

- Clinical
- Clinical research
- Consumer health
- Dental
- Mental health
- Nursing
- Pharmacy
- Primary care
- Public health
- Telemedicine and mobile computing
- Translational bioinformatics
- Veterinary

Develop strong oral and written communication skills, interpersonal skills, orientation to detail, flexibility, and advanced technology skills. Federal legislation regarding Electronic Health Records (EHRs) has transformed this field in recent years.

MEDICAL LABORATORY SCIENCE

Clinical laboratory scientists, also known as medical technologists, work together with other members of the healthcare team to perform and supervise laboratory analyses on blood, body fluids, and tissue. They also provide data to detect, diagnose, and monitor disease. Medical technologists use medical equipment such as microscopes, computers, and other highly technical instruments to assist them in their work.

Hospital and private laboratories
Public health laboratories
Biotechnology industry
Pharmaceutical and chemical companies
Research and forensic laboratories
Veterinary clinics
Transplant and blood donor centers
Fertility clinics
Universities and colleges

Hematology
Immunohematology (blood banking)
Microbiology
Clinical chemistry
Immunology
Urinalysis
Mycology
Parasitology
Histocompatibility
Molecular diagnostics
Laboratory product development and sales

Earn a bachelor's degree in clinical lab science or medical technology from a program accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).
Be prepared to participate in supervised clinical experiences.
Many states require a license to practice. Obtain licensure by passing a certification exam given by the American Society for Clinical Pathology Board of Certification.
Attain good grades in pre-medical technology course work, including biology, anatomy, physiology, and general chemistry, and organic chemistry.
Develop manual dexterity, fine motor skills, and an attention to detail. Be willing to work in a fast-paced environment.
Visit a clinical laboratory. Talk with practitioners to gain critical knowledge of the profession.

AREAS	EMPLOYERS	STRATEGIES/INFORMATION
<u>RESPIRATORY THERAPY</u> Respiratory therapy involves the treatment of respiratory issues. A respiratory therapist works alongside physicians and other health-care providers to help diagnose, treat, and manage conditions that affect lung functioning. Patient assessment Diagnostic testing Treatment: Ventilator management Oxygen therapy Airway clearance Sleep disorders Breathing exercises and rehabilitation Specialties: Long-term care Neonatal-pediatrics Surface and air transport for emergency transports Pulmonary rehab Polysomnography Critical care Home care Pulmonary diagnostics Education Case management	Hospitals: Emergency rooms Critical care units Neonatal intensive care units Emergency transports Operating rooms Nursing care facilities Physicians' offices Asthma education programs Smoking cessation programs Sleep laboratories	Earn an associate's or bachelor's degree in respiratory therapy from an accredited program. Strong interpersonal skills, attention-to-detail, and problem-solving skills will help you excel in respiratory therapy work. Respiratory therapy programs typically include courses in human anatomy and physiology as well as therapeutic and diagnostic procedures and testing. Accredited programs give students opportunities to gain supervised, practical experience in treating patients. Licensure in respiratory therapy is required, and this process varies state by state. Contact a state's health board to confirm their specific requirements for licensure. Most respiratory therapists will also have a Certified Respiratory Therapist (CRT) credential, and some specialties/jobs in this field may also require the advanced level Registered Respiratory Therapist (RRT) credential as well. Plan on getting the RRT credential if wanting advancement into managerial positions. Degrees in business administration or public health helps set you up for advancement as well. An advanced degree is often required for advancement in education roles. Some respiratory therapy specialties require additional credentials, e.g., Neonatal-Pediatric Specialist (NPS), Asthma Educator-Certified (AE-C), Certified Case Manager (CCM), or Registered Pulmonary Function Technologist (RPFT) credentials.

AREAS	EMPLOYERS	STRATEGIES/INFORMATION
<u>HEALTH EDUCATION</u> Health education focuses on teaching people about behaviors that promote wellness. This could include educating individuals, communities, or even healthcare workers. Assessment of individual and community health needs Developing: - Programs and events - Materials on various health topics Program / Educational materials evaluation Advocacy for improving health resources and policies	Government programs Hospitals Community health programs Insurance companies	Earn a bachelor's degree in health education, health promotion, public health, or another health-related major. Employers tend to prefer applicants with some form of health education certification. Consider different certifications you could pursue to make you a stronger job applicant and open up more advancement opportunities. Build skills in providing instruction, program development, event planning, program evaluation, statistics and data analysis, and communication.
<u>DIAGNOSTIC TECHNOLOGY</u> Diagnostic technology involves administering various diagnostic imaging examinations, e.g., x-rays, magnetic resonance imagings (MRIs), mammograms, computed tomography (CT), electrocardiogram (EKG), and ultrasounds, in order to help physicians diagnose and ultimately treat a variety of medical conditions. Diagnostic imaging examinations Specialties: - Sonography - Radiography - Magnetic resonance imaging (MRIs) - Mammography - Computed tomography (CT) imaging - Cardiography or electrocardiogram (EKG)	Hospitals Physicians' offices Medical and diagnostic laboratories Outpatient care centers	Earn an associate's or bachelor's degree or complete a vocational or certificate program in an accredited program in sonography, radiography, or cardiovascular technology. Even if a state doesn't require certification or licensure in your intended diagnostic technologist field, most employers prefer applicants who have earned a certification in their field. Many diagnostic technologist fields require basic life support (BLS) or cardiopulmonary resuscitation (CPR) certifications, and employers prefer applicants who have these certifications. Coursework for this career path include human anatomy and physiology and medical terminology. Depending on your specialty, you may also need coursework in patient care, pathology, radiation physics and protection, image evaluation, and applied sciences. Build skills in communication, operating complex machinery and computerized instruments, and practice tasks that require attention to detail.

AREAS

NUCLEAR MEDICINE TECHNOLOGY

Nuclear medicine is a highly specialized field that involves preparing and administering radioactive chemical compounds (radiopharmaceuticals) and performing imaging procedures using radiation-detecting equipment. Nuclear Medicine Technologists process data and provide images, analysis, and patient information to physicians who make diagnoses.

Diagnosis and Treatment (some applications):

- Neurology
- Oncology
- Orthopedic
- Renal
- Cardiac
- Pulmonary

Specialties:

- Nuclear cardiology
- Positron emission tomography (PET)

Clinical research

Education

Administration

Training

Sales

EMPLOYERS

Community hospitals
Teaching hospitals
Medical centers
Public health institutions
Research institutes
Outpatient imaging facilities
Medical and diagnostic laboratories
Physician offices
Private clinics
Commercial radiopharmaceutical suppliers
Nuclear imaging equipment manufacturers

STRATEGIES/INFORMATION

Secure a strong foundation in science and mathematics, along with interests in computer technology and medicine.

Develop strong interpersonal skills, as nuclear medicine technologists work directly with patients interviewing and providing instruction.

Conduct informational interviews or shadowing experiences with professionals, and plan to tour nuclear medicine facilities to confirm interest in the field.

Seek volunteer experience in a clinical setting, nuclear medicine if possible.

Earn a degree from a program accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT).

Seek certification through one of two national accrediting agencies: Nuclear Medicine Technology Certification Board (NMTCB) or The American Registry of Radiologic Technologists (ARRT); certification requirements vary by state and employer.

Consider specializing further in nuclear cardiology or positron emission tomography (PET).

Approximately two-thirds of Nuclear Medicine Technologists work in hospitals. Professionals may be on call in some hospital settings.

Part-time or shift work may be available.

GENERAL INFORMATION

See also What Can I Do With a Major in Medicine?