NOTICE OF EQUAL OPPORTUNITY
Thomas Jefferson University is committed to providing equal educational and employment opportunities for all persons without regard to race, color, national or ethnic origin, marital status, religion, sex, sexual orientation, gender identity, age, disability, veteran’s status or any other protected characteristic. The consideration of factors unrelated to a person’s ability, qualifications and performance is inconsistent with this policy. Any person having inquiries or complaints concerning Thomas Jefferson University’s compliance with Title VI, Title IX, the Age Discrimination Act of 1975, the Americans with Disabilities Act, or Section 504 of the Rehabilitation Act is directed to contact their Student Affairs Dean or Human Resources – Employee Relations, who have been designated by Thomas Jefferson University to coordinate the institution’s efforts to comply with the these laws. Any person may also contact the Assistant Secretary for Civil Rights, U.S. Department of Education, Washington, D.C. 20202, or the Director, U.S. Department of Education, Office for Civil Rights, Region Three, Philadelphia, Pennsylvania, regarding the University’s compliance with the equal opportunity laws.

Thomas Jefferson University reserves the right to amend any regulations, fees, conditions and courses described herein as circumstances may require without prior notice to persons who might thereby be affected. The provisions of this catalog are not and may not be regarded as contractual between the School and the students or its employees.

REQUIRED BACKGROUND CHECK
Students who are offered admission to Jefferson are required to pass a criminal background check and child abuse clearance. Some clinical sites may require students to be fingerprinted and/or drug tested. The Office of Admissions will provide you with the appropriate information to complete these requirements.

Clinical rotation and fieldwork sites that require a criminal background check, child abuse clearance and/or fingerprinting may deny a student’s participation in the clinical experience, rotation or fieldwork because of a felony or misdemeanor conviction or a record of child abuse. Clinical sites may also deny participation in clinical experiences for other reasons, including but not limited to failure of a required drug test, or inability to produce an appropriate health clearance. As participation in clinical experiences, rotations or fieldwork is a required part of the curriculum and a requirement for graduation, denial of participation by a clinical site may result in delay of graduation or the inability to graduate from the program.

Regardless of whether or not a student graduates from Jefferson, individuals who have been convicted of a felony or misdemeanor may be denied certification or licensure as a health professional. Information regarding individual eligibility may be obtained from the appropriate credentialing bodies.
Thomas Jefferson University
Jefferson School of Health Professions
2013-2014 Course Catalog

www.jefferson.edu/health_professions/
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ADDENDUM  
Please note changes made to the JSHP Student Catalog (December 2013)  
p. 55: insertion of “Credit Hour Assignment In Online Curricula”
The University
THOMAS JEFFERSON UNIVERSITY

Thomas Jefferson University is an independent, non-sectarian, urban university dedicated to the health sciences. On the graduate and undergraduate levels, the University is committed to: educating professionals who will form and lead the integrated healthcare delivery and research teams of tomorrow; discovering new knowledge that will define the future of clinical care through investigation from the laboratory to the bedside and into the community; and setting the standard for quality, compassionate, and efficient patient care for our community and for the nation.

Founded in 1824 as the Jefferson Medical College and granted an independent charter with full university rights and privileges in 1838, Thomas Jefferson University was established on July 1, 1969. Today, it encompasses the following: Jefferson Medical College, Jefferson Graduate School of Biomedical Sciences, Jefferson School of Health Professions, Jefferson School of Nursing, Jefferson School of Pharmacy and Jefferson School of Population Health. The University also has a strong collaborative relationship with Thomas Jefferson University Hospitals, which is part of the Jefferson Health System.

Thomas Jefferson University is part of the Delaware Health Science Alliance (DHSA), in partnership with University of Delaware, Nemours and Christiana Care Health System. The alliance enables partner organizations to collaborate and conduct cutting-edge biomedical research, to improve the health of Delawareans through access to services in the state and region, and to educate the next generation of health care professionals. In addition to this partnership, Jefferson has an academic affiliation with the University of Delaware for dual degree programs in pharmacy and occupational therapy.

At Thomas Jefferson University, the approach to the art and science of the healing professions is one that recognizes both the importance of tradition and the necessity for exploration and discovery. As a University, it continues to reflect the philosophies of its founders and their renowned followers in its present view of education, research and service. Its faculty is drawn from noted scientific investigators, clinicians and academicians who bring to the University the keenly felt sense of living, studying and working at one of the world’s great centers of medical excellence.

In the descriptive reviews that follow, students attending the Jefferson School of Health Professions will find a means for understanding the depth and the seriousness of the commitment of this institution, as well as a basis for motivation to continue the quality of excellence expected in this academic health center.

THOMAS JEFFERSON UNIVERSITY HOSPITALS AND JEFFERSON HEALTH SYSTEM

From the earliest days, clinical facilities have been the primary setting for the learning experience of Jefferson students. As an academic medical center, Thomas Jefferson University Hospitals and its ambulatory facilities have traditionally provided this clinical setting. Nursing and health profession students, medical students, technologists, scientists and resident and
attending physicians work together as a team to deliver a wide range of high quality healthcare services.

Thomas Jefferson University Hospitals, a member of the Jefferson Health System, delivers health services with special expertise in Cancer, GI /Transplant, Heart and Vascular, Musculoskeletal, Neuroscience and Women and Children at the following locations: in Center City Philadelphia, including Thomas Jefferson University Hospital and the Jefferson Hospital for Neuroscience; at Methodist Hospital in South Philadelphia; at Jefferson at the Navy Yard; at a large multi-specialty ambulatory practice - Jefferson HealthCARE Voorhees in South Jersey; at Jefferson Radiation Oncology sites and at clinical practices and physician offices throughout the Delaware Valley.

Jefferson is one of only a few hospitals in the United States that is both a Level I Regional Trauma Center and a federally designated regional Spinal Cord Injury Center (together with Magee Rehabilitation). The Jefferson Kimmel Cancer Center is a National Cancer Institute-designated clinical cancer center.

Jefferson has 969 licensed acute care beds. Each year more than 45,000 people are admitted as inpatients, more than 120,000 emergency patients are treated and more than 485,000 outpatients are seen at the various facilities. More than 7,000 physicians, nurses, technologists and supporting staff serve the needs of the people who come to Thomas Jefferson University Hospitals for their healthcare needs.

Jefferson continues to take pride in the high quality and variety of healthcare services provided to citizens of Philadelphia and the Delaware Valley, while offering rich and varied learning experiences for the students of the University. Thomas Jefferson University Hospitals is fully accredited by the Joint Commission and is licensed by the Department of Health of the Commonwealth of Pennsylvania and has been granted MAGNET recognition for nursing excellence from the American Nurses Credentialing Center.

**CAMPUS FACILITIES**
The University has always been in Center City Philadelphia, having been located at or near the corner of 11th and Walnut Streets since 1828. The Jefferson campus now occupies approximately 12 acres of Center City Philadelphia, bounded by Chestnut and Irving Streets to the north and south, and 9th and 11th Streets to the east and west. This address is within walking distance of a multitude of attractions, including historic points, cultural and recreational centers, sporting events, shopping areas and the Pennsylvania Convention Center.

**Jefferson Alumni Hall**
Jefferson Alumni Hall is a six-story multi-purpose building housing classrooms, basic science laboratories and the student commons. It also contains administrative offices for the Jefferson Graduate School of Biomedical Sciences, the Office of Student Affairs of Jefferson Medical College, basic science departments, and a learning resource center. In addition, the lower three
levels comprise the Jefferson-Independence Blue Cross Wellness Center, with the university Activities Office and recreational facilities. These facilities, which support co-curricular and recreational programs, include a fully equipped gymnasium, a weight room, a cardio room, an aerobics room, an indoor swimming pool, a sauna, a squash-racquetball court, a cafeteria, leisure lounges, and meeting and conference rooms.

**Academic & Instructional Support & Resources (AISR)**

AISR includes the Scott Memorial Library, AISR Education Services, AISR Learning Resources, and Medical Media Services. Scott Memorial Library is open and staffed 100 hours per week and the first and fourth floors provide 24-hour access to workstations and the Internet. The Library's collection is considered one of the finest in the region and reflects the University's interests in the life sciences, clinical care, patient education, and the history of the health sciences. The collection includes approximately 80,000 books and bound print journals; over 5,000 electronic journal subscriptions; 1,000 plus e-books; the University Archives; and significant holdings of rare books dating to the 15th century.

AISR Education Services provide faculty support in instructional design and educational technologies. Education Services staff provide workshops and online training materials for Jefferson’s academic resources in JEFFLINE, Pulse (the campus installation of the Blackboard learning management system), PowerPoint, and other popular applications. AISR Education Services develops educational software for use in Jefferson’s undergraduate, graduate, and CME activities.

The Learning Resources Division of AISR acquires and manages a wide variety of non-bibliographic educational resources. These include anatomical models, videos, human skeletons, etc. LR staff manages all of the computing labs, classrooms, and public access computers on campus. Many of these resources are integrated into the operations of the Scott Library building. In addition, a Learning Resources Center is located within Jefferson Alumni Hall which includes a suite for use of faculty and students to edit digital video and conduct both teleconferencing and webcasting. Laptop computers are also available for individual use, and there is a growing support base for mobile computing. Specialized software available on AISR-managed public computers includes: 3D anatomy visualization, SAS/SPSS, GIS applications as well as Microsoft Office Suite. Support staff is available to assist students and faculty in the use of all technologies.

Medical Media Services supports Jefferson’s audio and visual communication resources as well as design and production services for professional presentations, publications, and teaching. Specific groups support: scientific photography, graphics and medical illustration, electronic presentations, and audio and video production. Medical Media Services also provides support for audiovisual equipment services including videoconferencing and web conferencing.
The Edison Building houses the Admissions offices for the Jefferson Schools plus classrooms and campus administrative offices.

**Thomas Jefferson University Hospitals**

The Thomas Jefferson University Hospitals is a five-building complex comprised of the Thompson Building, Main Building, Foerderer Pavilion, Gibbon Building and 925 Chestnut, where emergency, in-patient and out-patient ancillary facilities and offices are centered. Thomas Jefferson University Hospitals is a part of the Jefferson Health System.

**Jefferson Medical College Building**

The Jefferson Medical College Building houses the administrative offices of Jefferson Medical College, clinical departments, laboratories and lecture rooms.

**Curtis Building**

The Curtis Building, which is connected to the Jefferson Medical College Building, houses lecture rooms, administrative offices, such as the Registrar and University Financial Aid, and research facilities.

**Bluemle Life Sciences Building**

The Bluemle Life Sciences Building is an 11-story medical research building at 10th and Locust Streets opened in July 1991. This facility houses the departments of biochemistry/molecular biology and microbiology/immunology. Included also are the Stein Center, Kimmel Cancer Center and Jefferson Institute for Molecular Medicine.

**Orlowitz Residence**

The Olowitz Residence is a 20-floor facility containing 237 apartments available to full-time students, residents and fellows. The offices of the Department of Housing and Residence Life and Philadelphia Management Company are also located here. All apartments are equipped with updated life safety features.

**Barringer Residence**

The Barringer Residence is a ten-story facility with 138 apartments occupied by Jefferson students, residents and fellows. It also has commercial tenants and a day-care center on the first floor. As in Olowitz, all apartments have updated life safety features.

**James R. Martin Residence**

The James R. Martin Residence is an eight-story residence hall for students enrolled in all programs of the University. The residence also accommodates short-term guests. The Martin Residence is currently undergoing a multi-year building renovation. Floors one through six have been recently renovated to include sprinkler systems and a new fire alarm system. The remaining floors will be renovated over the course of the next two years.
Dorrance H. Hamilton Building
Completed in the fall of 2007, the Dorrance H. Hamilton Building is a state-of-the-art education facility. Located in the center of campus behind the Scott Library, the building contains a 300-seat auditorium, small group classrooms, clinical skills assessment center, and simulation rooms, as well as several specialty and general classrooms. The building is designed to facilitate and allow students from the various schools to learn as interdisciplinary teams simulating the true clinical environment. The building opens onto a beautifully landscaped campus green.

Jefferson Health Professions Academic Building
The Jefferson Health Professions Academic Building opened in 2012, is home to Jefferson’s schools of Nursing, Pharmacy, Health Professions and Population Health. The 11-story high rise also contains administrative offices for the departments of Occupational Therapy, Physical Therapy and Radiologic Sciences and the Jefferson Clinical Neuroscience Center. Each school has now been consolidated into a central shared space, enhancing opportunities for collaboration and research.

COMMUTER SERVICES/MASS TRANSIT/PARKING
Commuter Services provides mass transit and parking information and savings on these services to eligible Jefferson students and employees. Benefits include maps and schedules of bus and rail line routes; discounts on SEPTA, New Jersey Transit and PATCO products; as well as discounts with selected local parking garages.
Mass transit items, provided at discount prices include:
- SEPTA Tokens (10-packs); Monthly Trans/Trail Passes (by mail); and 10-Trip Regional Rail Tickets.
- PATCO Freedom Pass
- NJ Transit One-way Tickets and Monthly Passes (by mail)
- Discounted Campus Area Parking: Restricted daily and limited monthly parking is available at several locations on or near campus.

Visit the Commuter Services Office or contact us at (215) 955-6417 to get more information about our monthly pass-buy-mail program.

The Commuter Services Office is located in the Jefferson Bookstore at 1009 Chestnut Street. The hours of operation are Monday through Friday from 7:00 a.m. to 5:30 p.m. and from 9:00 a.m. to 1:00 p.m. on Saturday. The store is closed on Sunday and all University holidays. For more information call (215) 955-6417 or visit Commuter Services online at www.jefferson.edu/cso.

LOCATION AND ACCESS
Local commuter transportation is comprehensive and makes all of Greater Philadelphia easily accessible. The proximity of the New Jersey shore and the Pennsylvania mountains offers year-
round recreational opportunities, and New York City and Washington, D.C. are just a few hours away.

DIVERSITY STATEMENT
Thomas Jefferson University has a long and proud history in contributing to the national healthcare workforce. It aspires to create a diverse and inclusive environment, knowing that the creative energy and innovative insights that result from diversity are vital for the intellectual rigor and social fabric of the University and is requisite for a highly effective healthcare workforce of the future. As a scholarly community, the University welcomes people of all racial, ethnic, cultural, socio-economic, national and international backgrounds, diversity of thought, pedagogy, religion, age, sexual orientation, gender/gender identity, political affiliation and disability.
Jefferson School of Health Professions
JANICE P. BURKE, PHD
Dean, Jefferson School of Health Professions
MESSAGE FROM THE DEAN
Since 1824, Jeffersonians have been leaders in education, research, healthcare delivery and community service. The faculty and administration of the Jefferson School of Health Professions are committed to working with you, our students, to continue this rich tradition.

At Jefferson we seek to be responsive to the changing needs of the healthcare system. The programs in the School continually make innovative curricular changes aimed at preparing you to function as an outstanding health professional in the dynamic environment of health care. As an integral part of a major academic health center, the School affords our students the opportunity to interact with other students in a wide range of health professions. An important characteristic of the training opportunities at Jefferson is that they mirror changes in today’s healthcare system with an emphasis on the interprofessional nature of health care practice. This allows us to focus on professionals working together, understanding one another’s contributions, and effectively communicating in order to provide the best possible care for patients. In addition to the interprofessional perspective, each program curriculum is based on a set of core competencies that your faculty, accreditation and professional organizations, and future employers believe are essential to effective practice. You will also find that the faculty has developed learning and training experiences that will insure that you have the knowledge, skills and experiences to prepare you to be an evidence-based practitioner.

The Vision Statement of the School commits to maintaining its status as a premier educational institution in the nation for the education, training and clinical preparation of outstanding health professionals. It can make this claim because it draws upon the rich resources within Thomas Jefferson University, Thomas Jefferson University Hospital and the Jefferson Health System. Further, it competes successfully at the national level as a research institution. This means that its faculty achieves superior quality scholarship in research and teaching, thereby providing the appropriate backdrop for excellent educational experiences for its students. For the students this means an educational credential that opens exceptional access to employment in the healthcare system, as evidenced by our graduates’ success rates on required licensure and registry examinations (consistently above the national average) and our high employment placement rates. Our programs are designed to give you the knowledge and skills necessary to enter or advance in the practice of health care, and to help you develop confidence in your professional roles, positive attitudes, critical thinking skills, problem-solving strategies, and sound professional ethic. We expect you to leave Jefferson School of Health Professions a proud and confident graduate who will bring credit to your profession and your alma mater.
JEFFERSON SCHOOL OF HEALTH PROFESSIONS
Historical Background

Education in the health-related fields has been part of the Jefferson tradition since the founding of Jefferson Medical College in 1824. Most of the early training programs began in response to the physician’s requirement for bedside assistance and evolved into courses for trainees who rendered service within departments of the hospital. Hospital training programs in nursing (established in 1891) and allied health (introduced in 1929) were integrated into a School of Allied Health Sciences in 1967.

In 1969, the College of Allied Health Sciences and the College of Graduate Studies were created and together with Jefferson Medical College, formed the academic divisions of Thomas Jefferson University. This was the first time that Jefferson provided undergraduate college education under its charter of 1838, which granted full university rights and privileges. In 1996, the University Board of Trustees approved renaming the College to the College of Health Professions and in 2002 to the Jefferson College of Health Professions (JCHP).

Since 1969, growth and development have been goals of the Jefferson College of Health Professions. Major emphases have been on establishing and modifying degree programs and certificates to respond to changing healthcare requirements of society and advancing research and scholarly activity. In July 2006, the Board approved revisions to the Bylaws reorganizing the College into three Schools: the Jefferson School of Health Professions, the Jefferson School of Nursing, and a new Jefferson School of Pharmacy which accepted its first class in the Fall of 2008. The University reorganization on July 1, 2009 disbanded the Jefferson College of Health Professions as an organizational entity, and established the Jefferson Schools of Health Professions, Nursing, and Pharmacy, together with the newly created Jefferson School of Population Health, as freestanding academic units of Thomas Jefferson University.

The Jefferson School of Health Professions (JSHP) provides innovative academic programs to a highly qualified, culturally diverse student body with the goal of developing outstanding professionals and future leaders in health care. Through a broad array of undergraduate and graduate programs, the School is committed to the development of the healthcare team, leadership in interprofessional healthcare education, and the concept of lifelong learning. A shared goal of the educational programs is the generation of new healthcare knowledge through scholarship and applied, collaborative and interdisciplinary research. The School also addresses the needs of the community through service initiatives. Teaching, learning, scholarship, research, practice and community service are accomplished in a supportive environment that recognizes the distinct contributions of students, faculty, administration, staff, alumni and friends of Jefferson.

The Jefferson School of Health Professions offers undergraduate and graduate degree programs, and is comprised of six academic departments: Bioscience Technologies, Couple and Family Therapy, Occupational Therapy, Physical Therapy, Radiologic Sciences, and Professional
and Continuing Studies. A new Department of Physician Assistant Studies is being developed, and will admit its first class in Fall 2014.

Specialty tracks are offered in the Department of Bioscience Technologies (bachelor’s and master’s programs in biotechnology, cytotechnology, medical laboratory sciences) and the Department of Radiologic Sciences (bachelor’s programs in radiography, general sonography, cardiac sonography, invasive cardiovascular technology, computed tomography, magnetic resonance imaging, medical dosimetry, nuclear medicine, radiation therapy and vascular technology). An executive master’s program and a PET/CT certificate program for technologists credentialed in nuclear medicine are also offered in radiologic sciences. In the Department of Occupational Therapy, a combined bachelor’s and master’s program is offered, as well as entry-level master’s and clinical doctoral (OTD) programs. The Department of Physical Therapy offers a clinical doctorate (DPT). The Master’s in Family Therapy (MFT) is offered through the Department of Couple and Family Therapy. The Department of Professional and Continuing Studies offers a graduate certificate in healthcare education, bachelor’s degree program with majors in health services management and health services management information systems, and associate degrees in arts and sciences. The associate in science program includes majors in business, information systems, medical practice management, and emergency medical services.

The Jefferson School of Nursing (JSN) offers programs for both licensed RNs and non-nurses (prelicensure students) at the bachelor’s, master’s and doctoral levels. Accelerated options are available to qualified students who already hold a bachelor’s degree in a different discipline. In the master’s degree program, specialty tracks are available in adult gerontology-acute care advanced practice nurse, adult-gerontology-primary care advanced practice nurse, adult oncology advanced practice nurse, community systems administration, community systems administration/ family-individual across the lifespan nurse practitioner, community systems administration/nursing informatics, family-individual across the lifespan nurse practitioner, neonatal nurse practitioner, nurse anesthesia, nursing informatics, pediatric primary care nurse practitioner, women’s health-gender related nurse practitioner. A dual degree MSN/MPH is offered with the Jefferson School of Population Health. The post-master’s certificate is available in all programs. A minor in nursing education is also offered.

The Jefferson School of Pharmacy (JSP) offers a four-year doctoral degree program (PharmD), has two departments: Pharmacy Practice and Pharmaceutical Sciences.

The Jefferson School of Population Health (JSPH), established in July 2008, offers a PhD in Population Health Sciences, master’s degrees in public health, health policy, healthcare quality and safety, healthcare quality and safety management and applied health economics. Graduate certificates are available in several areas.

In 2012, the Jefferson College of Graduate Studies changed its name to Jefferson Graduate School of Biomedical Sciences (JGSBS). This school offers MS and PhD degree programs in the
biomedical sciences, graduate non-degree coursework and certificate programs, and an undergraduate postbaccalaureate pre-professional program.

Founded in 1824, Jefferson Medical College (JMC) has awarded more than 27,000 medical degrees and has more living graduates than any other medical school in the nation. It offers both undergrad medical education programs and innovative joint degree programs to more than 1,000 students each year. JMC is recognized for its balanced approach to medical education, and approximately one out of four to one out of five medical school applicants throughout the U.S. apply to Jefferson.

MISSION OF THE UNIVERSITY
Thomas Jefferson University is dedicated to the health sciences. We are committed to:
- Educating professionals in a variety of disciplines who will form and lead the integrated healthcare delivery and research teams of tomorrow
- Discovering new knowledge that will define the future of clinical care through investigation from the laboratory to the bedside, and into the community
- Setting the standard for quality, compassionate and efficient patient care for our community and for the nation.
- We accomplish our mission in partnership with Thomas Jefferson University Hospitals, our education and clinical care affiliate.

MISSION OF THE SCHOOL OF HEALTH PROFESSIONS
The Jefferson School of Health Professions is committed to educating health care professionals of the highest quality and ethical standards for contemporary practice in the global community. By promoting faculty excellence in teaching, research and service, we prepare caring professionals who are competent in the use of evidence based practice, critical in their thinking, committed to lifelong learning and prepared to be leaders in diverse health care settings. In keeping with the mission of the University and the future of health care delivery, the Jefferson School of Health Professions is committed to interdisciplinary education and technologies that draw upon the strengths of all disciplines.

VISION OF THE UNIVERSITY AND SCHOOL OF HEALTH PROFESSIONS
The Jefferson School of Health Professions shares the vision of Thomas Jefferson University, which is:
- To be among the premier educators of healthcare practitioners in the nation
- To define the future of clinical care
- To be a major center for patient-oriented research and clinical trials
- To be a knowledge leader in selected areas of basic research
JEFFERSON OFFICE OF INSTITUTIONAL RESEARCH
Formerly known as the Center for Collaborative Research, the Jefferson Office of Institutional Research (OIR) is under the direction of Dr. Carolyn Giordano. The Office houses the Longitudinal Study and other data related to the effective functioning of the Schools.

There are three major foci of the OIR: to conduct research for the advancement of science and the improvement of practice; to conduct institutional research to contribute to the improvement of the Schools of Health Professions, Nursing, Pharmacy and Population Health; and to engage in the training of new researchers. Other activities encompass efforts to improve the visibility of the Schools in the academic community through presentations at scientific meetings, keynote speeches, the publication of articles and books, and serving as consultants. The following sections describe the activities at the OIR in more depth.

The OIR has conducted numerous research projects funded by outside agencies. In the past, funding has been received from the U.S. Bureau of Health Professions to provide interdisciplinary training to students to allow them to work in underserved community settings such as homeless shelters and transitional housing sites. It has also been the recipient of federal grants to run research training institutes to help prepare novice allied health investigators from across the country to become more successful in conducting research and acquiring external funds. The Director of the OIR also serves as a consultant on federal grants conducted by other universities.

A major data component of the OIR is the Longitudinal Study, which has been conducted for more than 20 years. The Longitudinal Study consists of seven surveys each year. Students are surveyed upon matriculation, at the end of their first year, and upon graduation. Alumni are surveyed two, five, and 10 years after graduation. Finally, a survey is administered to employers of alumni two years after they have graduated. Data from these surveys are used to provide feedback to the academic and administrative units regarding student perceptions about the strengths and weaknesses of their operations. They are also used by faculty and administrators to conduct educational, market and manpower research. In addition, special addenda have been developed for each school and department for use in accreditation and self-study reports.

The institutional research function is carried out by accessing various databases containing academic, administrative, alumni and student information. The data are used to prepare necessary reports required by the federal government, accrediting agencies and/or University administration. Data are also collected on faculty satisfaction with various aspects of their experience in the University which helps in the identification of needed resources. Other studies requested by schools, departments and administrative units are conducted as needed.

JEFFERSON ELDER CARE
Jefferson Elder Care (JEC), an innovative program designed to bridge the research-practice gap, offers evidence-based clinical services in the home and professional training, consultation, and education to improve the daily lives of older adults and their families. JEC’s specialty clinical
services, which are reimbursed by Medicare Part B, and training programs are the product of 20 years of applied gerontological research conducted at the University and funded by the National Institutes of Health, Pennsylvania Department of Health, Alzheimer’s Association, Rosalynn Carter Institute/Johnson & Johnson Initiative, and Farber Family Foundation. The home-based service for individuals with neurocognitive disorders (Alzheimer’s disease and related dementias and Mild Cognitive Impairment) and their families provide a comprehensive plan of care to improve function and safety and help families manage daily care and the behavioral manifestations of Alzheimer’s disease and related dementias through its Skills2Care™ program. The home-based service for frail elders aging in place is designed to enhance successful aging at home for functionally vulnerable elderly who are cognitively intact. JEC provides certification training in the Skills2Care™ program to occupational therapists across the United States and internationally. Customized consulting services are provided to agencies with a focus on best practice in dementia care. In collaboration with the OTD educational program, JEC offers an Advanced Practice Certificate in Neurocognitive Disorders: Innovative Practice in Dementia Care, which includes the completion of four, three-credit courses that can be completed in 12 months:

- OT 778 Advanced Evidence-Based Practice
- OT 742 Neurocognitive Disorders: State of the Science in Alzheimer’s disease and Related Dementias
- OT 743 Advanced Concepts in Neurocognitive Disorders and Caregiving across Practice Contexts
- OT 744 Applying the Evidence: Treating Neurocognitive Disorders in Context

LEARNING RESOURCES CENTERS AND COMPUTERS
Learning Resources Centers (LRCs), computer classrooms, and public computers are available in the Scott Memorial Library, the Edison Building, and Jefferson Alumni Hall. Access to a variety of educational resources including videos, specialized software, anatomical models, and human skeletons is available in the LRCs. Scanners, PDA synchronizing workstations, and laptop computers with wireless capabilities are also available in the LRCs. Staff is available to assist students and faculty. The computer classrooms are located in the LRCs, and public computers are available throughout these buildings. For more information about the LRCs, and other academic resources, visit JEFFLINE on the web at http://jeffline.jefferson.edu/.

JEFFERSON SCHOOLS ACADEMIC TRANSFER AGREEMENTS
Prospective applicants to Jefferson may select any accredited college or university to complete their prerequisite course work. The following colleges have entered into academic transfer agreements with Jefferson. Each of these institutions has an advisor on its campus who is knowledgeable about Jefferson transfer policies.

- Arcadia University
- Atlantic Cape Community College

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Bloomsburg University
Bucks County Community College
Burlington County Community College
Cabrini College
Camden County College
Chestnut Hill College
Community College of Philadelphia
Cumberland County College
Delaware County Community College
Dixon School of Nursing at Abington Hospital
Elizabethtown College
Gloucester County College
Gordon College
Gwynedd-Mercy College
Harcum College
Immaculata University
Juniata College
Keystone College
LaSalle University
Lebanon Valley College
Luzerne Community College
Manor College
Mercer Community College
Messiah College
Middlesex County College
Montgomery County Community College
Moravian College
Muhlenberg College
Penn State Abington
Penn State Brandywine
Philadelphia University
Rider University
Roxborough School of Nursing
Saint Joseph's University
Shippensburg University
Susquehanna University
University of Delaware
University of the Sciences in Philadelphia
Valley Forge Military College
Villanova University

AEROSPACE STUDIES
AIR FORCE RESERVE OFFICER TRAINING CORPS (AFROTC)
Objectives
The AFROTC objectives are to:

- Recruit, select, and retain officer candidates until they are commissioned as second lieutenants in the U.S. Air Force;
- Provide college-level education that qualifies cadets for commissioning in the U.S. Air Force; and
- Develop each cadet’s sense of personal integrity, honor, and individual responsibility; enhance knowledge of how the U.S. Air Force serves the national interest; increase understanding of officer professionalism in the U.S. Air Force; and develop potential as a leader and manager.

Program
The Department of Aerospace Studies through Saint Joseph’s University offers Thomas Jefferson University students a three-year, and four-year curricula leading to a commission as a Second Lieutenant in the Air Force. In the four-year curriculum, a student takes the General Military Course (GMC) during the freshman and sophomore years, attends a four-week summer training program, and then takes the Professional Officer Course (POC) in the junior and senior years. A student is under no contractual obligation to the Air Force until entering the POC or accepting an Air Force scholarship. In the three-year curriculum, a student completes AER 101, AER 102, AER 201, and AER 202 during the sophomore year, and then enters the POC in the junior year. The subject matter of the freshman and sophomore years is developed from a historical perspective and focuses on the scope, structure, and history of military power with the emphasis on the development of air power and its relationship to current events. During the junior and senior years the curriculum concentrates on the concepts and practices of leadership and management, and the role of national security forces in contemporary American society.

In addition to the academic portion of the curricula, each student participates in a two-hour Leadership Laboratory (AER 251, 252, 351, or 352) each week. During this period the day-to-day skills and working environment of the Air Force are discussed and explained. The Leadership Lab utilizes a student organization designed for the practice of leadership and management techniques.

Air Force ROTC offers scholarships for two, three, and four years on a competitive basis to qualified applicants. All scholarships are applied to tuition and lab fees, and include a textbook allowance, plus a tax-free monthly stipend which varies from $250 to $400, depending on graduation date.
Minor In Aerospace Studies
A minor in Aerospace Studies is available to any student completing the courses of study listed below. Students must receive approval of the Professor of Aerospace Studies. Students desiring a minor in Aerospace Studies must declare this choice no later than the add/drop period of their seventh semester. Students successfully completing the following requirements will have a minor in Aerospace Studies transcribed on their student record:
AER 301-302 Air Force Leadership Studies
AER 401-402 National Security Affairs and Preparation for Active Duty
ENG Composition-oriented course

Curriculum

Freshmen Year (1 credit each course)
Foundation US Air Force I - AER 101
Foundation of US Air Force II - AER 102

Description: AS100 is a survey course designed to introduce students to the United States Air Force and encourage participation in Air Force Reserve Officer Training Corps. Featured topics include: overview of ROTC, special programs offered through ROTC, mission and organization of the Air Force, brief history of the Air Force, introduction to leadership and leadership related issues, Air Force Core Values, Air Force officer opportunities, and an introduction to communication studies. Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences.

Course Objectives: The AS100 student should know what AFROTC and the Air Force have to offer potential entrants, as well as the expectations the Air Force will set concerning core values and leadership. The student should also have a basic knowledge of what role the Air Force plays and how it is organized to support national objectives. The individual should demonstrate basic communicative skills.

Sophomore Year (1 credit each course)
Evolution USAF Aerospace Power I - AER 201
Evolution USAF Aerospace Power II - AER 202

Description: A course designed to examine general aspects of air and space power from a historical perspective. The course covers the period from the first balloons and dirigibles to the space-age systems of the Global War on Terror. Historical examples are provided to show the development of Air Force distinctive capabilities (previously referred to as core competencies), and missions (functions) to demonstrate the evolution of what has become today's USAF air and space power. Furthermore, the course examines several fundamental truths associated with war in the third dimension, e.g., principles of war and tenets of air and space power. As a whole, this course provides the students with a knowledge-level understanding for the general
employment of air and space power, from an institutional, doctrinal, and historical perspective. In addition, what the students learned about the Air Force Core Values in AS100 will be reinforced through the use of operational examples, and they will complete several writing and briefing assignments to meet Air Force communication skills requirements.

Course Objectives: The AS200 student should know the key terms and definitions used to describe air and space power. The individual should know the events, leaders, and technical developments that led to the evolution and employment of USAF air and space power. The individual should demonstrate basic verbal and written communication skills. The individual should know the Air Force Core Values and examples of their use throughout the evolution of USAF air and space power.

Junior Year (3 credit each course)
Air Force Leadership Studies I - AER 301
Air Force Leadership Studies II - AER 302

Description: AS300 is a study of leadership, management fundamentals, professional knowledge, Air Force personnel and evaluation systems, leadership ethics, and communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory Leadership Laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course.

Course Objectives: The AS300 cadet should comprehend selected individual leadership skills and personal strengths and weaknesses as applied in an Air Force environment. The individual should comprehend the responsibility and authority of an Air Force officer, the Air Force officer’s responsibilities in the counseling and feedback process, and the selected duties and responsibilities as a subordinate leader. The individual should comprehend and apply concepts of ethical behavior as well as comprehend the selected concepts, principles, and theories of quality in Air Force leadership and management. The individual should apply listening, speaking, and writing skills in Air Force-peculiar formats and situations with accuracy, clarity, and appropriate style.
Prerequisite: Successful completion of Air Force Field Training

Senior Year (3 credit each course)
National Security Affairs I - AER 401
National Security Affairs II - AER 402

Description: AS400 examines the national security process, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics of interest focus on the military as a profession, officer ship, military justice, civilian control of the military, preparation for active
duty, and current issues affecting military professionalism. Within this structure, continued emphasis is given to refining communication skills.

Course Objectives: The AS400 cadet should comprehend the basic elements of national security policy and process. The individual should comprehend the air and space power functions and competencies. Also, the individual should comprehend selected roles of the military in society and current issues affecting the military profession as well as selected provisions of the military justice system. The individual should comprehend the responsibility, authority, and functions of an Air Force commander. The individual should apply listening, speaking, and writing skills in Air Force-peculiar formats and situations with accuracy, clarity, and appropriate style. The individual should comprehend the factors, which facilitate a smooth transition from civilian to military life.

Prerequisite: Successful completion of Air Force Field Training

Leadership Lab
All four years (no credit pass/fail courses)
AS100 (Freshmen) Cadets:
Leadership Lab (LLAB) for the Initial Military Training (IMT) cadets is a recruiting and retention tool. It is an informative and motivational experience, one that inspires cadets to continue to pursue the AFROTC program and an Air Force commission. The focus is on activities that promote the Air Force way of life and help effectively recruit and retain qualified cadets.

The purpose of the IMT LLAB is threefold. First, LLAB provides new cadets with basic skills and knowledge needed to be a functional member of the cadet wing. Second, LLAB provides the IMT cadet with information they can use to determine whether or not they wish to continue with the AFROTC program and subsequently pursue an Air Force commission. Third, LLAB provides IMT cadets with activities designed to build camaraderie and esprit de corps, as well as help them develop leadership, followership and teamwork skills.

AS200 (Sophomore) Cadets:
The Field Training Preparation (FTP) program provides training to ensure every cadet is mentally and physically prepared for the rigorous field training environment. In coordination with AFROTC/DOT (Field Training Staff), the FTP curriculum specifies a set of skills all cadets must learn prior to attending field training.

AS300 (Junior) Cadets:
LLAB provides intermediate cadet leaders (ICL), typically AS300 cadets, the opportunity to further develop the leadership and followership skills learned at field training. Every cadet position should provide the intermediate cadet leaders the opportunity to sharpen their planning, organizational, and communication skills, as well as their ability to effectively use resources to accomplish a mission in a constructive learning environment.

AS400 (Senior) Cadets:
LLAB for senior cadet leaders (SCL), typically AS400 cadets, provides precommissioning cadets with additional opportunities to develop leadership and supervisory capabilities and prepares them for their first active duty assignment. Like the ICL development program, there will be ample opportunity to develop and receive feedback on those leadership skills they will be expected to possess when they arrive at their first duty station. The SCL LLAB program is also designed to provide prospective officers with the basic active duty survival skills.

JEFFERSON SCHOOLS ALUMNI ASSOCIATION
The Jefferson Alumni Association supports Jefferson University by fostering lifelong engagement with alumni, students and faculty. Current students can read alumni and school news, and view alumni spotlights that profile graduates at connect.jefferson.edu in the online alumni communities for each school. You can follow us on twitter @JeffersonAlumni to receive news announcements. Students can also network and meet with alumni on campus when they participate in open houses, orientations and other student events.

Once you graduate you immediately become a member of the Jefferson Alumni Association. Visit connect.jefferson.edu to register for your online alumni community, and join our Thomas Jefferson University Alumni Office LinkedIn group. Learn about alumni resources like networking, educational or mentorship opportunities and career and library services. Once you register in your community you can login and use tools like updating contact information, class notes and a class directory. When you graduate you are invited to access benefits, attend events and expand your network to include the entire Jefferson alumni family.

ACCREDITATION
Thomas Jefferson University is fully accredited by:
  Middle States Commission on Higher Education
  3624 Market Street
  Philadelphia, PA 19104
  (267) 284–5000
  info@msche.org
  españolinfo@msche.org (Spanish)

In addition to full accreditation by the Middle States Commission on Higher Education, the following professional programs of the Jefferson School of Health Professions are approved by the appropriate accrediting agencies:

Bioscience Technologies Programs
Cytotechnology Program
  Commission on Accreditation of Allied Health Education Programs (CAAHEP), in collaboration with the Cytotechnology Programs Review Committee of the American Society of Cytopathology
Medical Laboratory Science Programs
National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
5600 North River Road, Suite 720
Rosemont, IL 60018-5119
(847) 939-3597
(773) 714-8880
(773) 714-8886 (FAX)
www.naacls.org

Occupational Therapy Programs
ACOTE
c/o American Occupational Therapy Association (AOTA)
4720 Montgomery Lane
PO Box 31220
Bethesda, MD 20824-1220 Professional and Continuing Studies
www.acoteonline.org
301-652-AOTA

Physical Therapy Program
Commission on Accreditation in Physical Therapy Education (CAPTE)
Department of Accreditation
American Physical Therapy Association
1111 North Fairfax Street
Alexandria, VA 22314-1488
(703) 706-3245
accreditation@apta.org

Radiologic Sciences Programs
General Sonography, Cardiac Sonography and Vascular Sonography Programs
Commission on Accreditation of Allied Health Educational Programs (CAAHEP), in collaboration with the Joint Review Committee on Education in Diagnostic Medical Sonography (JRCDMS)
CAAHEP
1361 Park Street
Clearwater, FL 33756  
(727) 210-2350  
(727) 210-2354 (fax)  
mail@caahep.org  
www.caahep.org

JRCDMS  
6021 University Boulevard, Suite500  
Ellicott City, MD 21043  
(443) 973-3251 (fax)  
jrcdms@intersocietal.org  
www.jrcdms.org

Magnetic Resonance Imaging, Medical Dosimetry, Radiography and Radiation Therapy Programs

Joint Review Committee on Education in Radiologic Technology (JRCERT)  
20 N. Wacker drive, Suite 2850  
Chicago, IL 60606-3182  
(312) 704-5300  
(312) 704-5304 (fax)  
mail@jrcert.org  
www.jrcert.org

Nuclear Medicine Program

Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT)  
2000 W. Danforth Rd., Suite 130 #201  
Edmond, OK 73003  
(405) 285-0546  
(405) 285-0579 (fax)  
jrcnmt@coxinet.net  
www.jrcnmt.org

Graduates are eligible to take the qualifying examinations of the state and/or national licensing or registry bodies and to become members of the appropriate professional organizations.

The other components of Thomas Jefferson University are also recognized by the various agencies and professional organizations representing their disciplines: Council of Graduate Schools (Jefferson College of Graduate Studies), American Medical Association and Association of American Medical Colleges (Jefferson Medical College). Thomas Jefferson University Hospital is recognized by the Joint Commission on Accreditation of Healthcare Organizations.
ADMISSION TO THE JEFFERSON SCHOOL OF HEALTH PROFESSIONS
The Jefferson School of Health Professions is pledged to consider all candidates for admission without regard to race, color, national and ethnic origin, religion, age, marital status, sex, sexual orientation, gender identity, age, disability, veteran’s status or any other protected characteristic..

ADMISSION REQUIREMENTS AND APPLICATION PROCEDURES – DEPARTMENT OF PROFESSIONAL AND CONTINUING STUDIES PROGRAMS
The Department of Professional and Continuing Studies offers Associate in Arts and Associate in Science degree and Bachelor of Science degree programs as well as five pre-baccalaureate certificate programs and a graduate certificate program. Information about these programs and specific procedures for application and admission may be found in the Professional and Continuing Studies chapter of this Catalog.

ADMISSION REQUIREMENTS – HEALTH PROFESSIONS PROGRAMS
The Jefferson School of Health Professions is a career-oriented, baccalaureate, graduate certificate, master’s, and doctoral degree institution that offers professional study mainly to students who have completed approximately two to four years of prerequisite coursework elsewhere.* Students enter after completing prerequisite coursework at an accredited college or university. Unless otherwise noted, specific college credits are required for admission. Specific programs and the courses required for admission are listed within the respective department chapters. Upon approval of the Dean, certain admission prerequisites may be deferred until after matriculation.

*Refer to “Transfer of Credits from Other Institutions” later in this section for specific details regarding the School of Health Professions on transfer credits

APPLICATION PROCEDURES – BACHELOR'S, GRADUATE CERTIFICATE, MASTER'S AND DOCTORAL DEGREE PROGRAMS
Jefferson practices a rolling admissions policy, i.e. as applications are completed, they are processed and candidates are notified of the Committee’s decision. Because priority is given to applications as they are completed, it is advantageous to file the application early.

The application process to Jefferson varies by program (PTCAS, OTCAS, AHCAS, UNICAS). Please review application instructions at www.jefferson.edu/health_professions/admissions/apply.cfm for information. An application is not complete until all required documents are on file; however, it is not necessary to delay an application until all course requirements are completed. In most instances, candidates submit their applications when at least 75% of the prerequisite requirements have been completed.
Those offered admission will be asked to submit an enrollment deposit of $300. The deposit is not refundable, but it is credited to the first academic term’s tuition.

The documents needed for an application to be processed vary by program. Please review the program specific information at www.jefferson.edu/health_professions/admissions/apply.cfm

An updated college transcript of courses and grades must be submitted upon completion of the semester that was in progress when the application for admission was submitted.

Interviews: Interviews may be required for admission for academically eligible students. The Admissions Office will initiate the interview appointment after the candidate’s credentials have been received and reviewed. Eligible candidates will be contacted by email for an interview.

**SELECTION**
The responsibility for determining the admission of candidates is vested in the Committee on Admissions. Criteria for selection include the strength of the academic record (with particular emphasis on performance in science and other related courses), work and/or volunteer experience, test scores if applicable and recommendations. Personal characteristics are important, particularly the ability to function in a healthcare setting.

**SPECIAL NOTE REGARDING ELIGIBILITY FOR CERTIFICATION OR LICENSURE, CRIMINAL BACKGROUND AND CHILD ABUSE CLEARANCES**
Students who are offered admission to Jefferson are required to pass a criminal background check and child abuse clearance. Some clinical sites may require students to be fingerprinted and/or drug tested. The Office of Admissions will provide you with the appropriate information to complete these requirements.

Clinical rotation and fieldwork sites that require a criminal background check, child abuse clearance and/or fingerprinting may deny a student’s participation in the clinical experience, rotation or fieldwork because of a felony or misdemeanor conviction or a record of child abuse. Clinical sites may also deny participation in clinical experiences for other reasons, including but not limited to failure of a required drug test, or inability to produce an appropriate health clearance. As participation in clinical experiences, rotations or fieldwork is a required part of the curriculum and a requirement for graduation, denial of participation by a clinical site may result in delay of graduation or the inability to graduate from the program.

Regardless of whether or not a student graduates from Jefferson, individuals who have been convicted of a felony or misdemeanor may be denied certification or licensure as a health professional. Information regarding individual eligibility may be obtained from the appropriate credentialing bodies.
ADMISSION OF HIGH SCHOOL STUDENTS (PACE)
Plan a College Education (PACE) is an advanced, early admission program for academically talented high school seniors who are strongly motivated toward the health professions (Biotechnology, cytotechnology, medical technology, occupational therapy and radiologic sciences) and attending the Jefferson School of Health Professions.

The PACE program is designed to guarantee prospective students admission to the professional program of their choice. It also eliminates the anxiety about admissibility prior to completion of the required two years of college-level coursework. Students in the PACE program must maintain a specified grade point average while completing the prerequisite courses.

Candidates interested in the PACE program are encouraged to apply early in their senior year. Those students qualified for admission will be accepted into the class entering two years later with full junior status. The guarantee of admission is based on successful completion of a specific number of credits in the liberal arts and sciences to be completed at any accredited college or university. A list of these courses will be included with the letter of acceptance.

Because the PACE program is competitive and only a select number of applicants will be chosen, those not offered admission are encouraged to apply as transfer students at a later date.

Academic counseling is available for all prospective candidates and may be arranged by contacting the Office of Admissions and Enrollment Management.

To qualify for the PACE program, candidates should adhere to a college preparatory curriculum and should complete a minimum of three years of math and three years of science.

Candidates should have a working knowledge of their proposed profession. They may achieve this by volunteering in or observing a clinical setting. A specific number of hours may be required. Please see specific department guidelines. Some of these requirements may be waived under special conditions or circumstances. Applicants must submit, along with the PACE application, an official copy of their high school transcript, SAT results, two letters of recommendation and a personal essay. Upon receipt of this information, candidates who are competitive for admission will be invited for an interview.

3+ PROGRAMS
Students have the opportunity to earn their baccalaureate, masters and doctoral degrees through the 3+ programs. For all 3+ programs, the first three years of coursework is completed at a partner institution and the remaining coursework is finished at Jefferson School of Health Professions. For the 3+1 programs, the baccalaureate degree will be awarded after the successful completion of the first year at Jefferson School of Health Professions. For most of the 3+2 programs, students will receive the baccalaureate degree after the completion of one year at Jefferson School of Health Professions and the master’s degree will be awarded after the
second year. For the 3+3 programs, students will receive their baccalaureate after the completion of one year at Jefferson School of Health Professions and doctoral degree after three years. All graduate degrees will be awarded after successful completion of the program at Jefferson.

The following 3+ programs are offered:

- 3+1 Radiologic Sciences Program for Advanced Placement BS/BS with Immaculata University
- 3+1 Program for Bachelor of Science in Biotechnology
- 3+1 Program for Bachelor of Science in Medical Laboratory Science
- 3+1 Program for Bachelor of Science in Cytotechnology
- 3+2 Entry Level BS/MS in Biotechnology, Medical Laboratory Science & Cytotechnology (Students in these programs earn the BS and MS at the completion of the two-year program.)
- 3+2 Program for Master of Occupational Therapy
- 3+3 Program for Doctorate of Physical Therapy

There are two paths for admission: students who enter the program as freshman, and current partner school students who enter the program after completing the required amount of credits.

For a list of partner schools and additional program details, please visit http://www.jefferson.edu/admissions-schools/admissions/apply/partner_schools.html

ADMISSION OF VETERANS
Veterans are admitted under the same general requirements as non-veterans. Career counseling services are available. Questions regarding the credentials of veterans should be discussed with the Office of Admissions.

NON-MATRICULATED STUDENTS
At the discretion of the respective academic departments, students who have not been admitted to a degree or certificate program of the Jefferson School of Health Professions may register for courses as non-matriculated students. Should they subsequently wish to pursue a degree, the academic credits they have earned will be counted toward their degree requirements, if applicable. Non-matriculated students who wish to be considered as degree candidates in the health professions programs must apply for admission through the Office of Admissions and Enrollment Management. Non-matriculated students are not eligible for financial aid.

ADMISSION OF NON-U.S. CITIZENS
Students from outside the United States are welcome to apply for admission to all Jefferson School of Health Professions programs. All academic credentials from foreign universities must
be submitted to World Education Services (or comparable agency) for a course-by-course evaluation. The cost of evaluation is the responsibility of the applicant. Three to four weeks should be allowed for processing the evaluation. A 10-day special rush order may be processed for an additional fee. To request an application for the evaluation, students may write:

World Education Services
P.O. Box 745 Old Chelsea Station
New York, NY 10113-0745
(212) 966-6311
www.wes.org

- All international students and U.S. permanent residents must demonstrate English language proficiency as one of the conditions for admission to TJU. TJU will accept any one of the following items to satisfy the proficiency requirement:
  - Internet-based Test of English as a Foreign Language (TOEFL) with an overall score of at least 87 and individual section scores as follows: Writing – 21, Speaking – 23, Reading – 21 and Listening – 22. Follow the instructions in the application section in regard to submission of TOEFL scores. TOEFL code = 2903
- Associate degree or higher from an accredited U.S. college or university.
- At least 60 college credits earned from no more than three (3) U.S. colleges or universities
- U.S. national or state licensure or certification in a nursing or allied health field.*
- Score of 508 or higher on the Critical Reading (formerly Verbal) section for the SAT for applicants entering Jefferson directly from high school.
- Citizenship from a country where English is an official language: Follow this link for the country list.
  *Certain certification may not be sufficient to demonstrate proficiency.

For more information regarding the TOEFL exam, please contact:

The College Board
P.O. Box 592
Princeton, NJ 08540
(609) 862-6601
www.ets.org/toefl/

Because the Jefferson School of Health Professions does not have financial aid funds available for non-resident aliens, candidates must file an affidavit of financial support, certifying that they have sufficient funds to cover the costs of attending the School.

Thomas Jefferson University is authorized under federal law to enroll nonimmigrant alien students.

Restrictions for online programs (including OTD programs)
• International students who are in the U.S. in F or J status are restricted to taking one
  online course per term per federal regulations.
• International students in F or J status may not enroll as part-time students.
• The OTD is online and is available to international students as long as they are abroad.

REAPPLYING TO THE JEFFERSON SCHOOL OF HEALTH PROFESSIONS
Students who have been denied admission to the Jefferson School of Health Professions or who
have withdrawn their application may reapply within one year for a new term. Students who
wish to reapply must submit a new application (as per the above-referenced application
instructions) and any corresponding fees. Students must be able to provide additional
documentation, which may include new transcripts, recommendation letters and personal
statement, in support of their candidacy to the Committee on Admissions.

RE-ADMISSION OF FORMER STUDENTS
Students withdrawn or dismissed from the School of Health Professions or an academic
department of the School may, within two (2) years of the dismissal or withdrawal, re-apply
directly to that department by submitting a written request directly to the Program Director,
Department Chair or School Dean as appropriate. All others wishing to continue their studies
must reapply through the Office of Admission.

TRANSFER OF CREDIT FROM OTHER INSTITUTIONS
Transfer credit will be granted for all course work completed at a college or university
accredited by organizations recognized by the U.S. Department of Education in which a grade of
C or better has been achieved and that meets specific program requirements of the School.
(Pass-Fail courses and grades of C- are not acceptable for transfer credit.) The grades earned in
courses accepted for transfer credit are not computed in the student’s grade point average at
Jefferson.

Science courses that were completed 10 or more years prior to enrollment in the School will
not be accepted for transfer credit without additional validation. Validation methods may
include challenge or proficiency examinations or documentation of appropriate knowledge-
based currency as determined by the specific health professions department.

The course and credit evaluation for students applying to the undergraduate health professions
programs is the responsibility of the Office of Admissions in conjunction with the Associate
Registrar, Undergraduate Programs and in consultation with the appropriate program heads.
Transfer of credit for upper-division professional courses requires approval of the appropriate
program head as well as the Associate Registrar. Students wishing to transfer credits for
programs in the Jefferson School of Health Profession’s Department of Professional and
Continuing Studies should consult that section of that school’s catalog for procedures.
Official transcripts of credit earned at other colleges and universities must be submitted with the application for admission. A copy of the academic credit evaluation will be issued to the applicant upon acceptance. Once enrolled in the School, students must submit updated official transcripts to the University Office of the Registrar.

To be considered for transfer of credit, course work taken at another institution while a student is enrolled in an undergraduate degree or certificate program must have prior written approval of the department chair or school dean in conjunction with the Associate Registrar. Approval forms may be obtained in the University Office of the Registrar. Students are responsible for seeing that an official transcript is forwarded to the Registrar’s Office upon completion of the course.

To maintain full-time status, students who receive transfer credit for required curricular courses must register for at least twelve semester credits per semester for undergraduate students and nine semester credits for graduate students.

**CREDIT BY EXAMINATION**
Students who have received college credits at their previous institutions on the basis of the College Board Advanced Placement (AP) Examinations may transfer these credits to the School of Health Professions based on the requirements established by each program/department. Credit may be awarded for acceptable scores on the General and Subject Examinations of the College Level Examination Program (CLEP) based on the requirements established by each program/department. Information on acceptable scores may be found in the Academic Regulations chapter of this Catalog. Additional information on CLEP tests can be obtained by contacting the Office of Admissions and Enrollment Management.

Students who have been admitted to the Jefferson School of Health Professions may also be awarded credit for previous study or experiences that can be validated through challenge examinations administered through various departments of the School.

**PHYSICAL EXAMINATION**
All students accepted into the health professions programs are required to submit medical records to University Health Services prior to enrollment. Instructions on how to complete and submit these items can be found on the Admissions website here: [www.jefferson.edu/admissions-schools/admissions/new_students.html](http://www.jefferson.edu/admissions-schools/admissions/new_students.html)

All necessary examinations and reports must be completed and sent to the Director of University Health Services at least one month prior to enrollment as per the instructions noted above. Pre-existent problems are subject to evaluation by the Director of University Health Services, and these must be corrected and/or controlled at the applicant’s expense.
HOUSING
The Thomas Jefferson University Housing Office serves students wishing to reside on or off campus. For further information, see the Student Services section of this catalog.

VISITS TO THE CAMPUS
The Office of Admissions and Enrollment Management welcomes visits from interested students and their families. Information sessions are conducted on a regular basis for each of the health professions programs. In order to provide the services usually requested by visitors, appointments should be made at least one week in advance. Office hours are from 9:00 a.m. to 5:00 p.m., Monday through Friday. Campus visits can be arranged by creating a profile on explore.jefferson.edu

On-campus information sessions regarding the health professions programs are regularly scheduled throughout the year. Dates and times are available from the Office of Admissions and Enrollment Management: http://www.jefferson.edu/visiting.cfm or at explore.jefferson.edu

INQUIRIES
Individuals may receive further information about the programs of the School of Health Professions by creating a customized profile at explore.jefferson.edu

Office of Admissions and Enrollment Management
Jefferson School of Health Professions
Thomas Jefferson University
130 S. 9th Street, Suite 100
Philadelphia, PA 19107-5233
(215) 503-8890 or Toll Free 1-877-JEFF-247

Request information online at:
explore.jefferson.edu
E-mail: JSHPAdmissions@jefferson.edu
Website: www.jefferson.edu/health_professions

Professional and Continuing Studies Programs:
E-mail: generalstudies@jefferson.edu
Website:
www.jefferson.edu/health_professions/departments/professional_studies.html
Financial Aid
FINANCIAL AID GENERAL INFORMATION

Jefferson recognizes that a major concern of many students is the financing of their education and attempts to help those students with demonstrated financial need to meet the cost of their education.

Although every attempt is made to assist students, it is the Jefferson’s philosophy that the primary responsibility for the cost of college education rests with students and their families. Because education is an investment that yields lifelong dividends, both students and their families should be prepared to contribute and to provide financial support. Financial aid is intended to supplement the best efforts of the students and their families.

FINANCIAL AID PROCESS

Financial aid is available to qualified students who are matriculated in degree and post-baccalaureate certificate programs. Financial aid awards are based on each student’s financial need, enrollment status, housing status, level of program funding and maintenance of satisfactory academic progress. A student’s financial need is computed as the cost of education minus the expected family contribution as determined through the Federal Methodology.

The Free Application for Federal Student Aid (FAFSA) is used to determine financial need. These forms are confidential statements of income and assets for both students and families. The information is analyzed to determine the financial strength of the applicant in terms of income, assets, liabilities, size of family, number of family members in post-secondary education, age of parents, etc. The aim is to make the expectations for the family contribution as equitable as possible for each applicant.

Jefferson assumes that the first financial aid resource that all students should consider is the Federal Direct Stafford Loan. If, after obtaining the Federal Direct Stafford Loan, need still exists, the University Office of Financial Aid will assist the student in determining the appropriate combination of loans, grants and work study to make a Jefferson education possible. Institutional funding is limited and is not guaranteed to any student.

Students will be notified of their specific eligibility for aid through a financial aid award. Notification of aid awards usually begins four to five months prior to the start of the academic term. Awards may not be determined unless a financial aid file is complete and all student and parent information has been verified. All financial aid notifications will be sent to the student’s Jefferson email account.

If a student demonstrates financial need, but is ineligible for federal grants or loans due to default on a prior educational loan and/or negative credit rating, Thomas Jefferson University will not commit institutional funds to remedy the default or negative credit status, or to compensate for the ineligibility for federal funds. The student is ultimately responsible for resolving all problems involving loan delinquencies, defaults, and/or any other circumstances that would result in the student being ineligible to borrow through any loan program.
STUDENT EXPENSE BUDGET

A student’s budget is divided into two categories – direct and indirect costs. Direct costs are paid directly to Jefferson and are standard for each student. Indirect costs vary from student to student, depending on factors such as academic major, personal life-style and distance from home to campus. Student expense budget will vary my major and academic level. Please check with the Financial Aid Office for your exact costs.

Jefferson School Of Health Professions 2013-2014

Estimated Dependent Undergraduate Student Expense Budget

Full-time Budget – Health Professions Programs

<table>
<thead>
<tr>
<th></th>
<th>Resident</th>
<th>Commuter</th>
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<tbody>
<tr>
<td>Tuition/ fees</td>
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<td>*</td>
</tr>
<tr>
<td>Room (Martin Residence)</td>
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<tr>
<td>Total Direct Costs</td>
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</tr>
</tbody>
</table>

(plus tuition charge) (plus tuition charges)

Indirect Cost** (9 Month Budget)

<table>
<thead>
<tr>
<th></th>
<th>Resident</th>
<th>Commuter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board</td>
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<td>$3,195</td>
</tr>
<tr>
<td>Books and Supplies</td>
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<tr>
<td>Transportation</td>
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<tr>
<td>Total Indirect Costs</td>
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<td>$7,759</td>
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<tr>
<td>Total Direct and Indirect Costs</td>
<td>$13,335 (plus tuition charges)</td>
<td>$7,759 (plus tuition charges)</td>
</tr>
</tbody>
</table>

* For the most recent tuition/fee information, visit [www.jefferson.edu/registrar/tuition.cfm](http://www.jefferson.edu/registrar/tuition.cfm)

** The indirect costs are prorated according to the period of enrollment.

Estimated Independent Student Expense Budget

Full-time Budget – Health Professions Programs – 9-month

<table>
<thead>
<tr>
<th></th>
<th>On/Off campus</th>
<th>Commuter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition/fees</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Room and Board</td>
<td>$13,950</td>
<td>$3,195</td>
</tr>
<tr>
<td>Books and Supplies</td>
<td>1,495</td>
<td>1,495</td>
</tr>
<tr>
<td>Transportation</td>
<td>1,719</td>
<td>1,944</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1,125</td>
<td>1,125</td>
</tr>
<tr>
<td>Total Indirect Costs</td>
<td>$18,289</td>
<td>$7,759</td>
</tr>
</tbody>
</table>

(plus tuition charges) (plus tuition charges)

* For the most recent tuition/fee information, visit [www.jefferson.edu/registrar/tuition.cfm](http://www.jefferson.edu/registrar/tuition.cfm)

** The indirect costs are prorated according to the period of enrollment.
APPLICATION PROCEDURE
Any student who is concerned about the ability to meet educational expenses at Thomas Jefferson University should apply for aid. Eligibility for assistance varies from program to program. Families may be eligible for some sources of aid that they may not have anticipated. To avoid possible delays in receiving an award, students are urged to comply with all application deadlines. Students should adhere to financial aid application deadlines even if an admissions decision has not been made.

Jefferson expects all aid applicants to file the following documents before the financial aid deadline:
- Free Application for Federal Student Aid (FAFSA) – using IRS Data Retrieval Transfer process
- Educational Plan (part time students and/or those charged per credit only)

The *Financing Your Education Financial Aid Guide* can be found on the Publications menu on the Financial Aid Office webpage at www.jefferson.edu/financial_aid. The *Guide* is accompanied by important information about applying for financial aid. Accepted students will be permitted to apply for financial aid online. An informational email is sent to all accepted students starting in December/January with Banner Web online application instructions. It is important for students to begin and complete the application process in a timely manner. An application may not be reviewed until all information is received.

Students must be matriculated in a degree or eligible post-baccalaureate certificate program on at least a half-time basis to be eligible for financial aid. The amount of aid a student may receive is determined by the number of credits attempted and the tuition costs.

### Baccalaureate and Certificate Programs

<table>
<thead>
<tr>
<th>Status</th>
<th>Credits Required per Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>12 credits or more per semester</td>
</tr>
<tr>
<td>Three-quarter</td>
<td>9 credits or more per semester</td>
</tr>
<tr>
<td>Half-time</td>
<td>6 credits or more per semester</td>
</tr>
</tbody>
</table>

### Graduate Programs

<table>
<thead>
<tr>
<th>Status</th>
<th>Credits Required per Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>9 credits or more per semester</td>
</tr>
<tr>
<td>Half-time</td>
<td>5 credits or more per semester</td>
</tr>
</tbody>
</table>

Students seeking to qualify as self-supporting or independent must meet strict Federal requirements. Consult the University Office of Financial Aid before filing as an independent student to ensure proper completion of the forms.

Specific information regarding disbursement of funds and other award-related information is contained in the Financial Aid Handbook. Students may access the online Financial Aid Handbook at www.jefferson.edu/financial_aid.
RENEWAL OF AID
Students must apply each year for financial assistance. Renewal of aid is not automatic. Financial need is determined each year based on changes of family circumstances as well as Jefferson’s fees and funding levels. Because federal, state or institutional policies may change each year, students who did not receive aid in previous years are still encouraged to apply for aid the following year. A change in circumstances may enable the returning student to qualify for assistance.

FINANCIAL AID DEADLINE
The priority deadline for completing a financial aid file is April 1 for all new students (except those beginning a program of study in January) and on or about March 15 for all returning students. The deadline for students beginning their program of study in January is August 1. Applications completed after the deadline will be considered if funds are available. Students should complete the necessary forms as soon as they are available in order to meet all deadlines. (Please Note: The needs analysis forms may require two to three weeks for processing by the processor.)

AID PROGRAMS
Financial aid awards usually consist of a “package” of three basic types of financial assistance: non-repayable gift or grant assistance, student loans and student employment. Financial assistance comes from three major sources: federal, state and Jefferson-administered programs. The major programs are described below:

Federal Sources of Aid
Federal Pell Grant: The Federal Pell Grant program is designed to provide assistance to undergraduate students pursuing their first undergraduate degree. Federal Pell Grants are intended to be the foundation of a financial aid package and may be combined with other forms of aid in order to meet the costs of education. The amount of the Federal Pell Grant is determined on the basis of the financial resources of the student and family, the student’s enrollment status and the cost of education. Awards for the 2013-2014 academic year may range up to a maximum of $5645 for a 9-month enrollment period.

Federal Supplemental Educational Opportunity Grant (SEOG): This program provides grant assistance for Pell-eligible undergraduate students with exceptional financial need. The amount of assistance a student can receive depends on need, the availability of Federal SEOG funds and the amount of other aid a student receives. Recipients are selected by the University Office of Financial Aid in accordance with Department of Education guidelines.

Federal Work Study Program (FWS): This program provides funding for jobs for undergraduate and graduate students who have financial need and want to earn funds to cover a part of their educational expenses. Employment opportunities are provided on campus. Jefferson also offers
opportunities in community service as part of the FWS program. The FWS award a student receives depends on need, availability of FWS funds and the amount of aid received from other programs. The administration of this program is in accordance with the guidelines published by the Department of Education.

**Federal Direct Loan Program**
- Federal Subsidized Stafford Loan
- Federal Unsubsidized Stafford Loan
- Federal PLUS Loan
- Federal Graduate PLUS Loan

This federal program provides long-term, low-interest student loans available directly through the federal government only. These loans are available to matriculated students enrolled in an institution of higher learning on at least a half-time basis. Students should go to the Financial Aid Office website [www.jefferson.edu/financial_aid](http://www.jefferson.edu/financial_aid) or to the federal website [http://studentloans.gov](http://studentloans.gov) for more information. For loans first disbursed on or after July 1, 2006, the interest rate is fixed at 6.8 percent. Repayment of these loans begins six months after the student ceases to be enrolled on at least a half-time basis, graduation, or withdrawal from school. A four-to-six week processing period should be anticipated for all Federal Direct Stafford Loan applications.

**Annual Maximum Federal Direct Subsidized Stafford Loan**

Third and fourth year undergraduates may apply for a maximum of $5,500. The total Federal Direct Subsidized Stafford Loan aggregate limit for undergraduates is $23,000 and $65,500 for graduate or professional students. Due to Federal Budget Control Act of 2011, graduate students are no longer eligible to borrow the subsidized Federal Direct Stafford Loan, beginning with the 2012-2013 year.

**Annual Maximum Federal Direct Unsubsidized Stafford Loan**

Third and fourth year independent undergraduates may apply for up to $12,500 a year with at least $7,000 from the unsubsidized program. Dependent undergraduate students may apply for $2000 in the Federal Direct Unsubsidized Stafford Loan. Graduate students may apply for up to $20,500 a year.

Students must demonstrate financial need to qualify for a Federal Direct Subsidized Stafford Loan. For periods of enrollment beginning on or after October 1, 1992, students who do not demonstrate financial need may qualify for an unsubsidized Federal Stafford Loan. The Federal government pays the interest on a subsidized Federal Stafford Loan while the student is enrolled. However, interest accrues to the student’s loan account on an unsubsidized Federal Stafford Loan starting from the date the funds are disbursed. Payment of principal and accrued interest may be postponed until six months after the student ceases to be enrolled on at least a half-time basis, graduation, or other cessation of enrollment.
Federal Direct PLUS Loan Program (Parent Loan)
The Federal Direct PLUS loan program makes credit-based loans available to pay for the costs of study at post-secondary schools. Under the Federal Direct PLUS program, parents are eligible to borrow on behalf of dependent undergraduate students. Loan funds may be used only to pay for students’ educational costs.

Parents of dependent undergraduate students are eligible to borrow up to the student’s annual estimated cost of attendance minus the estimated annual financial assistance.

The interest rate for Federal Direct PLUS loans disbursed on or after July 1, 2010 is 7.9%. This is a fixed interest rate.

Federal Graduate PLUS Loan Program (for graduate students only)
The Federal Graduate PLUS loan program makes loans available to pay for the costs of study at post-secondary schools. Under the Federal Graduate PLUS program, graduate students are eligible to borrow this credit-based loan on their own merit. Loan funds may be used only to pay for students’ educational costs. If eligible, students may borrow up to the student’s annual estimated cost of attendance minus the estimated annual financial assistance.

The interest rate for Federal Graduate PLUS loans disbursed on or after July 1, 2010 is 7.9%. This is a fixed interest rate.

Federal Perkins Loan
This program provides a 5% interest loan to undergraduate and graduate students who demonstrate financial need. Depending on when the student applies, the student’s level of need and the school’s funding level, undergraduates may be awarded up to $5500 per year and graduate students may be awarded up to $8000 per year. The loans are interest-free while the student is enrolled on at least a half-time basis. The maximum repayment period of 10 years, begins nine months after the student ceases to be enrolled on at least a half-time basis. Under certain federally approved circumstances, borrowers may defer loan repayment and/or have a portion of their loans cancelled. Borrowers should note both deferment and cancellation provisions when negotiating the loan. Recipients are selected by the University Office of Financial Aid in accordance with guidelines published by the Department of Education.

State Sources of Aid
State Grants: All students are required to apply to their state grant program to determine any eligibility they may have for state funds. Applications for state grants are made by completing the Free Application for Federal Student Aid (FAFSA) by the deadline specified by their state.

Pennsylvania Residents
The Pennsylvania Higher Education Assistance Agency (PHEAA) administers the state sponsored program that provides funds for full-time and some part-time undergraduate students who are
Pennsylvania residents and demonstrate financial need as determined by PHEAA. Awards for the 2012-2013 academic year ranged up to a maximum of $4,120. The deadline for filing is May 1.

Pennsylvania residents may obtain additional information about the Pennsylvania state grant by contacting the PHEAA Grant Division at (800) 233-0557 or by accessing their web page at www.pheaa.org.

New Jersey Residents
New Jersey residents may obtain grant funds to attend colleges in Pennsylvania on a very limited basis. New Jersey residents should contact their state agency for further information regarding their eligibility.

Higher Education Student Assistance Authority (HESAA)
PO Box 545
Trenton, NJ 08625
(800) 792-8670 www.hesaa.org

Other States
Students from other states may obtain state grant assistance to attend a college outside their state of legal residence on a limited basis. Non-Pennsylvania residents should contact their state agency for further information regarding their eligibility.

Jefferson Sources of Aid
Thomas Jefferson University Grants and Loans: Grants and low interest loans are available to students who exhibit financial need and potential for academic achievement. Application for these funds is made by completing the Financial Aid Application process outlined previously in this section. Funding is limited and awarded on a first come - first served basis.

Additional Sources of Aid
The University also administers a variety of private scholarship and loan programs for students who demonstrate financial need and/or meet the guidelines set forth by the benefactor. Students who complete the required TJU financial aid application process will be considered for the programs for which they meet the eligibility criteria. The number of recipients and the amount awarded will be determined by the level of available funding. The list of sources includes:

- Thomas Jefferson University Alumni Scholarship – provides grant assistance to financially needy students in all programs of study
- Dean’s Scholarship Program – provides $5,000 - $7,500 scholarship assistance for outstanding academic performance and potential for excellence in a health profession. Selection will be made by the Dean’s Scholarship Committee upon admission.
- Development Office Loan – provides loan assistance to financially needy students in all programs of study
• William Randolph Hearst Scholarship for Minority Students* – awarded to a minority student who exhibits high academic achievement and demonstrates financial need. Sponsored by the Hearst Foundation
• Hamilton-New Jersey Student Aid Fund – provides scholarship and/or loan assistance to needy students in all programs of study. Preference is given to New Jersey residents
• Mrs. Samuel M.V. Hamilton Student Aid Fund – provides scholarship and/or loan assistance to a needy student. A New Jersey resident from any program of study is eligible for consideration
• James M. Large Fund – Low interest loan support for financially disadvantaged students
• McGovern Fund – provides assistance to financially needy students in all programs of study
• Medical Technology Loan – provides low interest loans to junior or senior students enrolled in the Medical Technology Program. Students must also demonstrate financial need to qualify for the loan.
• Stanley & Audrey Merves Scholarship – provides grant assistance to students enrolled in any program. The recipients must be able to demonstrate need and high scholastic ability and be a resident of Philadelphia, Montgomery, Bucks or Chester County.
• Isabel Miley McAlister Occupational Therapy Scholarship – provides assistance to financially needy Occupational Therapy students
• Fox Scholarship for the Advancement of Geriatric Physical Therapy*
• Fox Scholarship for the Advancement of Geriatric Occupational Therapy in Memory of Margaret Sood*
• PNC Bank Loan Fund – provides loan assistance to financially needy students in all programs of study
• Christopher Rivera Scholarship
• Samuel and Lois Wolf Scholarship – provides assistance to financially needy students in all programs of study
• Achieve Physical Therapy and Fitness Scholarship* – Provides assistance to a DPT student with need, academic merit and community involvement
• Ethel Beard Burstein Scholarship Fund* – provides assistance to financially needy Occupational Therapy students from Philadelphia who plan to work as a Registered Occupational Therapist in a clinical setting for at least two years following graduation
• Joseph J. Darby Memorial Scholarship Fund - scholarship assistance for a student in Radiologic Sciences

*Denotes that a specific application and/or additional requirements are necessary for those funds. Contact the University Office of Financial Aid for details.

OTHER POSSIBILITIES
In addition to programs of aid previously described, financial assistance may be obtained from a wide variety of sources. Since application procedures and requirements differ greatly, it is not possible to provide specific information. In general, the student seeking potential sources of aid
should refer to: 1) the University Office of Financial Aid webpage; 2) library publications; 3) parents’ employers or labor unions; 4) fraternal, social, religious or professional organizations; 5) major organizations utilizing the skills of the field for which the student is preparing and 6) the Worldwide Web.

Students should investigate all sources of financial aid for which they may be eligible. The University Office of Financial Aid will provide assistance in completing any of these applications.

The Office of Financial Aid webpage also includes information on outside scholarship programs. Students may view this information under the Financial Aid Programs menu at www.jefferson.edu/financial_aid.

SATISFACTORY ACADEMIC PROGRESS POLICY FEDERAL TITLE IV PROGRAMS
The Satisfactory Academic Progress Policy may be found in the Jefferson School of Health Professions Student Handbook.

FINANCIAL AID REFUND
The financial aid refund policy may be found in the Jefferson School of Health Professions Student Handbook.

INQUIRIES
Students who have additional questions or problems or who wish to schedule an appointment with a financial aid officer can write or call:
   University Office of Financial Aid
   Thomas Jefferson University
   Suite 115, Curtis Building
   1015 Walnut Street
   Philadelphia, PA 19107
   (215) 955-2867
   Financial.aid@jefferson.edu
   www.jefferson.edu/financial_aid

Office hours are 8:30 a.m. to 5:00 p.m., Monday through Friday.

Thomas Jefferson University reserves the right to amend any information herein without prior notice to persons who might thereby be affected. Financial aid programs described herein are subject to change without notice due to federal, state, local or institutional regulations or funding.
Tuition and Fees
TUITION AND FEES
2013-2014 Tuition and related fees for the various programs in the School may be found at the Tuition and Fee website at: [www.jefferson.edu/registrar/tuition/](http://www.jefferson.edu/registrar/tuition/).

APPLICATION FEES
The online Jefferson application fee for all undergraduate and graduate health professions can vary according to the CAS system to which the student has applied and to the number of schools chosen. In addition to the application fees in the CAS systems students must also complete a Jefferson supplemental application with a corresponding $25 fee.

ENROLLMENT DEPOSIT
Upon acceptance to a health professions program, students are required to submit a non-refundable deposit of $300 to reserve a place in the entering class. Deposit payments will be credited to the student’s account and will be forfeited in the event of failure to enroll in the School at the scheduled date.

TUITION AND FEES FOR FULL-TIME STUDENTS
Students enrolled on a full-time basis in the health professions programs (12 or more semester credits in undergraduate programs, 9 or more in graduate programs) are billed the prevailing tuition and fees.

Tuition is billed semi-annually, prior to the beginning of the fall and spring semesters. Except for the conditions noted below, this covers the tuition charges for all required courses in the full-time curriculum. This may include courses that are scheduled during one or more summer sessions.

Additional Tuition Charges Beyond the Full-Time Tuition
In addition to payment of tuition, full-time students are responsible for additional tuition charges on a per-credit basis under the following circumstances:

- Students whose registration exceeds the maximum number of credits allowable in their curriculum (specified in the course curriculum for a given term or semester, as outlined in this Catalog).
- Students who choose to take one or more courses when they are not required to do so by their curriculum, for example, during a summer session. This includes enrolling in an elective course, a prerequisite course required for admission or in a required course that is taken out of the sequence prescribed in the curriculum.

Approval from the respective department chair and the Chair of the Department of Professional and Continuing Studies may be required before registering for any Professional and Continuing Studies courses that are not part of a regularly scheduled academic program.
All deposit payments, advance payments, loans, grants or scholarships awarded will be credited to the student’s account. All loan arrangements, including completion and submission of signed documents, must be completed before credit for such awards will be granted.

**PART-TIME STUDENT TUITION AND FEES**
Students enrolled on a part-time basis (fewer than 12 semester credits in undergraduate programs and 9 semester credits in graduate programs) in special programs or individual courses are billed based on the total credits for which they have registered as specified on the tuition and fee website. All tuition and fees charged are due and payable at the date of registration.

Various services are included in the tuition for full-time students; however, for students enrolled on a basis other than full-time, these services are only available upon payment of the appropriate fees. For example, to have access to the Jefferson – Independence Blue Cross Wellness Center, part-time students are required to pay a Membership Fee. Family memberships are also available to students’ spouses, domestic partners and children. For more information, visit the Activities Office or call (215) 503-7743.

**CHALLENGE EXAMINATION FEE**
Fees for optional challenge examinations that are not a part of the standard curricula will be charged in addition to the prevailing tuition. Those that are taken in lieu of completing a prescribed course are not charged in addition to tuition. Challenge examinations are offered at the rate of $50 per credit.

**OTHER EXPENSES**
Students will be advised of requirements for uniforms, equipment and other necessary expenditures for classroom and clinical experiences by the respective departments, as appropriate. Students must pay for other miscellaneous expenses such as bookstore bills, library fines and housing rentals.

Official transcripts are available by visiting “Ordering Transcripts” website at [www.jefferson.edu/registrar/transcripts.cfm](http://www.jefferson.edu/registrar/transcripts.cfm).

Lockers are available for student use throughout the academic year during rental periods which run for three-month each; both half and full size lockers are available for a fee. Lockers are assigned by the Thomas Jefferson University Activities Office located in Room B67, Jefferson Alumni Hall.

The University is not responsible for the loss or damage of personal property. The University reserves the right to deny grades, transcripts, promotions and diplomas to students who have not fully satisfied all financial obligations to the University.
JEFFERSON EMPLOYEE TUITION ASSISTANCE
With its tuition assistance programs, Jefferson recognizes the importance of providing its employees with the opportunity for self-development through continuing education. We believe that continued self-development will enable employees to fulfill Jefferson’s requirement for a highly skilled, professional workforce.

View details about the tuition assistance program in the TJU Employee Handbook, You and Jefferson, found on the Human Resources website at [www.jefferson.edu/human_resources](http://www.jefferson.edu/human_resources)

BILLING
Invoices for tuition and fees are listed on Banner Web and emailed to your Jefferson email account prior to each academic term, and payment of all outstanding fees is payable on dates specified. Balances that remain outstanding beyond the due date are subject to a late payment penalty of $25 per month.

Below is a list of payment options for your eBill:

- Online - Jefferson partners with TouchNet to provide a secure, 24/7 environment for online services including eBill, ePayment and eRefunds
  - Electronic check
  - Visa/MasterCard
- Check - payable to Thomas Jefferson University
  - Mail to address on eBill with remittance stub
  - In person
- Cash
  - In person
- Wire Transfer
  - Contact Student Accounts for banking information
- Tuition Management Systems installment plan
- Jefferson Employee Tuition Reimbursement
  - Submit Jefferson Tuition Assistance Application to Human Resources each semester no later than tuition invoice due date
- Third-party Reimbursement
  - Submit letter from employer on company letterhead noting student’s name, amount to be reimbursed, statement noting payment directly to Thomas Jefferson University within three weeks of final exam
  - Submit reimbursement request to Student Accounts no later than tuition invoice due date

Students who do not satisfy their obligations in full will be refused registration and class attendance.
LATE REGISTRATION
Late registration for classes may be permitted as space and other circumstances warrant. Registration made after the conclusion of the official registration period will require payment of a late registration fee of $25.

CHANGES OF SCHEDULE: DROPPING AND ADDING COURSES
Students who wish to revise their schedules after registration must complete a Drop/Add Form and return it with the appropriate signatures to the University Office of the Registrar by the deadline published in the Academic Calendar of the College. During the fall and spring semesters, the Drop/Add period is two weeks. In accelerated terms like the summer sessions, it is proportionately less.

Prior to changing their schedules, students receiving financial assistance should consult with the University Office of Financial Aid to determine what effect the change may have on their eligibility for aid or deferments on payment of student loans.

Students who are matriculated in a baccalaureate degree or post-baccalaureate certificate program are not permitted to drop all courses in a term without obtaining an approved Leave of Absence or withdrawing from the College or School, and they will be subject to the refund policy as described below.

Students who stop attending classes without filing the required Course Drop form will be responsible for the full payment of tuition and will receive a grade of F for the course. Verbal notification to the course instructor does not constitute an official course drop.

COURSE WITHDRAWAL
Following the conclusion of the Drop/Add period, a student who wishes to withdraw from a course must obtain the appropriate form from the University Office of the Registrar and secure the appropriate signatures. A student who is authorized to withdraw from a class prior to the date published in the Academic Calendar will receive a grade of W. A student who withdraws from the class after the date published in the Academic Calendar will receive a grade of WP (Withdrew Passing) or WF (Withdrew Failing), depending upon the level of work at the time of withdrawal.

Prior to withdrawing from courses and/or the School, students receiving financial assistance should consult with the University Office of Financial Aid to determine what effect the change may have on their eligibility for aid or deferments on payment of student loans.

Students who stop attending classes without filing the required Course Withdrawal form will be responsible for the full payment of tuition and will receive a grade of F for the course. Verbal notification to the course instructor does not constitute an official course withdrawal.
REFUND POLICY
A student who withdraws or takes a leave of absence may be eligible for a pro-rated tuition refund. The refund is based on the number of weeks the student was in attendance during the prevailing term covered by the tuition payment period. A student who is dismissed or suspended because of a violation in School and/or University policy is not eligible for a refund.

Full-time students: TJU maintains two tuition payment periods within each academic year for full-time programs. For tuition payment periods covering multiple sessions (i.e. Physical Therapy), the prevailing session is the first session included in that tuition payment period.

Part-time students: Students are billed on a per credit basis. The tuition refund period is based on the schedule of classes for that session as indicated below.

The Effective Date is the date in which the student ceased to be enrolled and is evidenced by the signature date of the academic department. The Effective Date will determine the percentage of tuition for which the student is obligated and is calculated according to the following schedule:

<table>
<thead>
<tr>
<th>Full Time Students- Effective Date</th>
<th>Applicable Refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>First and second week of classes of prevailing term</td>
<td>100%</td>
</tr>
<tr>
<td>Third and fourth week of classes of prevailing term</td>
<td>50%</td>
</tr>
<tr>
<td>Fifth and sixth week of classes of prevailing term</td>
<td>25%</td>
</tr>
<tr>
<td>Seventh week (and thereafter) of classes of prevailing term</td>
<td>0%</td>
</tr>
</tbody>
</table>

For summer and other accelerated sessions, the percentage of refund is pro-rated proportionately according to the length of the academic term.

<table>
<thead>
<tr>
<th>Summer &amp; Accelerated Sessions- Effective Date</th>
<th>Applicable Refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 7 days</td>
<td>100%</td>
</tr>
<tr>
<td>Second week</td>
<td>50%</td>
</tr>
<tr>
<td>Third week</td>
<td>25%</td>
</tr>
<tr>
<td>Fourth week</td>
<td>0%</td>
</tr>
</tbody>
</table>

A class week is defined as the seven-day period beginning on the first day of class of an academic term as indicated on the University Academic calendar; it is not the first day of attendance by a student.

To be granted a withdrawal or leave of absence, a student must follow the required procedure as defined in the Academic Regulations section of the JSHP Course Catalog, and must have fully satisfied all financial obligations to the University.
Students who receive Jefferson Employee Tuition Assistance are subject to the terms defined in that policy. This includes full payment of all tuition and fees for any course from which the student withdraws or fails to earn a final grade of C or better.
Academic Regulations
ACADEMIC REGULATIONS

REGISTRATION POLICIES AND PROCEDURES
Students are responsible for becoming familiar with and observing the academic regulations and requirements of the School in all matters of course registration, changes in registration (dropping and adding courses), transfer of credit, withdrawal from courses and/or from the School, and other pertinent regulations for individual programs of study that may affect academic progress and eligibility to graduate.

Prior to each registration period, students are provided with detailed instructions and materials for registration. With the assistance and guidance of their faculty advisors, students matriculated in degree or certificate programs must register for classes according to the schedule as published in the Academic Calendar. Any registration made after the conclusion of the official registration period will require payment of a late registration fee of $25.

Completion of registration in accordance with instructions issued by the University Office of the Registrar is a prerequisite to class attendance. A student is not considered registered for class until all appropriate scheduling processes have been completed and all tuition and fees have been paid, on or before the payment date for each academic term and all Jefferson School of Health Professions matriculation requirements have been satisfied.

ACADEMIC CREDIT
Academic credits are awarded on the semester-hour basis. The primary calendar consists of two 15-week semesters, including final examinations, as well as multiple summer sessions of variable length. On this calendar, a lecture course normally meets for the equivalent of one 55-minute class period per credit hour each week. While the distribution of time varies from course to course, a three-credit lecture course typically meets for the equivalent of three 55-minute periods each week. A one-credit laboratory meets for the equivalent of at least two 55-minute periods per week, and a one-credit clinical or practicum course meets for the equivalent of at least three 55-minute periods per week. Courses offered on an accelerated schedule will vary from this format.

CREDIT HOUR ASSIGNMENT IN ONLINE CURRICULA
The number of credit hours for courses that meet face-to-face with an instructor is defined by the number of hours spent in classroom; credit hours in synchronous and asynchronous online environments are recorded in the same manner as for traditional classes in the Jefferson School of Health Professions (JSHP).

The definition of credit hours in combined synchronous and asynchronous learning environments in for fully online programs in JSHP with no corresponding traditional courses is based on the following guidelines:
1. The course syllabus provides clear documentation that includes the course objectives, the course topics, and the stated expectations for readings, projects, and other assignments, as well as the stated learning outcomes.

2. In developing and planning courses for the synchronous and asynchronous learning environment in JSHP programs, faculty estimate the time a typical student would take interacting with the course content. Content is documented in each course syllabus. Hours for completing assignments, readings, and working on projects, are considered within the credit hour requirements for the course. This is consistent with the American Public University’s (2012) model for calculating total contact hours in online coursework as inclusive of both in-class and homework projects.

3. Faculty determine class attendance by the evaluation of student participation in scheduled online discussions, required interaction with the faculty, as well as interaction with peers, and the timely submission of class assignments rather than simply by the number of logins provided in the statistics measured by the course management system. The quality and quantity of work demonstrated the rigor and time on task assignments is equal to that which would be required if a traditional course delivery format were used. However, all current JSHP courses that are part of all-online curricula were developed specifically for the online format (not using traditional face to face classes as a model or starting point), and no “parallel offerings” (MSCHE, 2009, p. 58) exist. Thus, it is not necessary (or possible) to compare traditional and online formats side by side as it is with other TJU programs such as the JSN program.

4. Courses developed specifically for online delivery must be approved through the Curriculum Committee process (JSHP Educational Philosophy and Policy) in the same way as new traditional campus-based courses.

5. The process and procedures for offering online courses are the same as all other JSHP courses, including registration requirements and regulations (e.g., drop-add period, withdrawal procedures) and educational policy including the JSHP grading system and use of recommended syllabus elements from by the JSHP Committee on Educational Philosophy and Policy.

References

FULL-TIME STUDENT STATUS
Undergraduate students must take a minimum of 12 credits per semester to be considered full-time. To maintain full-time student status in a graduate program, students must enroll for at least nine credits per semester.

TRANSFER CREDIT
See the Admissions section of this Catalog for details about Transfer Credit.

CREDIT BY EXAMINATION
Academic credit may be awarded on the basis of acceptable scores in the following testing programs according to norms established by the University and according to the requirements established by each program/department: the Advanced Placement Program (AP) and the College Level Examination Program (CLEP) sponsored by the College Board. Students who have received college credits at their previous institutions on the basis of the College Board AP Examinations may transfer these credits to the School according to the requirements established by each program/department.

Credits will be awarded only for examinations that meet the minimum score requirement and which are applicable to the degree/certificate requirements of the student’s program of study and meet the requirements established by each program/department. Prior to taking a CLEP Examination, students should consult with the Office of Admissions (for health professions programs) or the Chair of the Department of Professional and Continuing Studies in Jefferson School of Health Professions to confirm applicability of the test to the degree/certificate program requirements. No credit will be awarded for examinations that duplicate content of courses for which credit has already been earned.

Credits Awarded for CLEP Examinations
Computer Based Testing (CBT)* and Paper and Pencil Testing

<table>
<thead>
<tr>
<th>Business</th>
<th>Minimum Score</th>
<th>Semester Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting, Principles of</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>Business Law, Introductory</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>Information Systems and Computer Applications</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>Management, Principles of</td>
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<td>3</td>
</tr>
<tr>
<td>Marketing, Principles of</td>
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<table>
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<td>Analyzing &amp; Interpreting Literature</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>English Composition (with or without Essay)</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>English Literature</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>Freshman College Composition</td>
<td>50</td>
<td>6</td>
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<td>--------------------------------</td>
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<td>French Language, Level 2</td>
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<tr>
<td>German Language, Level 1</td>
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<tr>
<td>German Language, Level 2</td>
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<td>6</td>
</tr>
<tr>
<td>Spanish Language, Level 1</td>
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<tr>
<td>Spanish Language, Level 2</td>
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<table>
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<th><strong>History and Social Sciences</strong></th>
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<tr>
<td>American Government</td>
<td>50</td>
<td>3</td>
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<tr>
<td>Educational Psychology, Introduction to</td>
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</tr>
<tr>
<td>History of the United States I: Early Colonization to 1877</td>
<td>50</td>
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</tr>
<tr>
<td>History of the United States II: 1865 to Present</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>Human Growth and Development</td>
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<td>3</td>
</tr>
<tr>
<td>Macroeconomics, Principles of</td>
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<tr>
<td>Microeconomics, Principles of</td>
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<td>3</td>
</tr>
<tr>
<td>Psychology, Introductory</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences and History</td>
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<tr>
<td>Sociology, Introductory</td>
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</tr>
<tr>
<td>Western Civilization I: Ancient Near East to 1648</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization II: 1648 to Present</td>
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<table>
<thead>
<tr>
<th><strong>Science and Mathematics</strong></th>
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<tbody>
<tr>
<td>Biology</td>
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<tr>
<td>Precalculus</td>
<td>50</td>
<td>3</td>
</tr>
</tbody>
</table>

* CLEP Examinations are now offered in computer-based format only.
** May be used to fulfill general college mathematics requirement only. Credit for algebra and trigonometry available only through the subject examinations.
# No credit awarded for native speakers of the Foreign Language.
After matriculation in the College, students may not receive credit for a CLEP test without the advance written approval of the academic department chair or school dean.

**CHALLENGE EXAMINATIONS**

Students may earn academic credit for any undergraduate course for which a challenge examination is available based on the requirements established by each program/department. Each academic department/school determines the courses for which challenge examinations may be made available and schedules the examinations. A challenge examination is equivalent to a comprehensive test of the subject matter covered in a semester-long course.

Eligibility requirements and registration procedures may be found in the Student Handbook.

**AUDITING**

An undergraduate student may audit a course with the written permission of the instructor. The student must register for the course during the registration period and pay the regular course fee. The registration for any course may not be changed from audit to credit or vice versa after the first week of class. Space permitting, senior citizens 65 years of age or older may audit courses offered through the Department of Professional and Continuing Studies for a fee of $50 per course. Senior citizen auditors are responsible for all applicable course expenses, including laboratory or technology fees, books and supplies.

**INDEPENDENT STUDY**

Upon completion of one academic term, students in good standing who achieve a minimum grade point average of 2.00 in undergraduate programs or 3.00 in graduate programs may be eligible to enroll in an independent study course (listed under course descriptions as Course Number X99). Independent study provides students with the opportunity to explore under faculty supervision an area or topic not included in the formal curriculum, with emphasis on individual study and research.

Eligible students must obtain faculty sponsorship. Objectives, settings, implementation strategies, preceptorship and evaluation criteria are the responsibility of the student and departmental faculty. A course approval form, available in the University Office of the Registrar or academic unit’s offices, signed by the faculty advisor and the department chair or school dean, must be submitted at the time of registration for the semester in which the independent study course will be taken.

Students may earn a maximum of six semester credits through independent study during their entire program. The number of credits that may be earned in a given term is determined by each department but may not exceed four semester credits. The minimum qualifying grade point average and the number of students permitted to enroll in independent study in a given term are subject to departmental restrictions.
REPEATED COURSES
With the approval of the department chair or school dean, students may repeat a course in which they received a grade lower than C-, or courses from which they had withdrawn. Students are responsible for paying tuition for repeated courses. When a course is repeated, the initial credits attempted, credits earned and quality points are excluded from the calculation of the grade point average. The initial course grade remains on the transcript in all cases.

Generally, neither employee tuition benefits nor financial aid will cover the cost of a repeated course.

CHANGES OF SCHEDULE: DROPPING AND ADDING COURSES
Students who wish to revise their schedules after registration must complete a Drop/Add Form and return it with the appropriate signatures to the University Office of the Registrar by the deadline published in the Academic Calendar. During the fall and spring semesters, the Drop/Add period is two weeks. In accelerated terms such as the summer sessions, it is proportionately less.

Prior to changing their schedules, students receiving financial assistance should consult with the University Office of Financial Aid to determine what effect the change may have on their eligibility for aid or deferments on payment of student loans.

Students who are matriculated in a baccalaureate degree or post-baccalaureate certificate program are not permitted to drop all courses in a term without obtaining an approved Leave of Absence or withdrawing from the School, and they will be subject to the refund policy as described below.

Students, in consultation with their advisors, are responsible for making certain that any changes in schedule will fulfill requirements for the degree.

Students who stop attending classes without filing the required Course Drop form will be responsible for the full payment of tuition and will receive a grade of F for the course. Verbal notification to the course instructor does not constitute an official course drop.

COURSE WITHDRAWAL
A student who wishes to withdraw from a course must obtain the appropriate form from the University Office of the Registrar and secure the appropriate signatures. A student who is authorized to withdraw from a class prior to the date published in the Academic Calendar will receive a grade of W.

A student who withdraws from the class after the date published in the Academic Calendar will receive a grade of WP (Withdrawn-Passing) or WF (Withdrawn-Failing), depending upon the level of work at the time of withdrawal. No credits or quality points are given for either grade;
however, the grade of WF is included in the calculation of the student’s grade point average as a course failure. In order to receive credit for a course from which a student has withdrawn the student must re-register for the course in a subsequent term.

Students should also see the Refund Policy governing course withdrawal and/or the Employee Tuition Assistance Policy located in the Tuition and Fees section of this Catalog.

Students who stop attending classes without filing the required Course Withdrawal form will be responsible for the full payment of tuition and will receive a grade of F for the course. Verbal notification to the course instructor does not constitute an official course withdrawal.

**ATTENDANCE REGULATIONS**
Attendance is expected in all classes for which a student is registered. The instructor, in conjunction with the academic department, determines attendance requirements for each course. These requirements and the objectives and the anticipated outcomes of the course shall be clearly outlined by the instructor at the beginning of each course. STUDENTS WHO HAVE AN OUTSTANDING TUITION BALANCE ARE NOT PERMITTED TO ATTEND CLASSES.

**HONOR CODE**
The Thomas Jefferson University Honor Code was implemented in fall 2007. New students are asked to read, sign and return the document to the Office of Student Life. The complete text of the Honor Code is available at [www.jefferson.edu/schools_honor.html](http://www.jefferson.edu/schools_honor.html)

**CODE OF CONDUCT**
All students of Thomas Jefferson University are expected to comport themselves with respect for fellow students, faculty and employees of the University. Further, they are expected to uphold the high standards of conduct within the health professions. Specific policies relating to student conduct may be found in the Student Handbook.

**EXAMINATIONS**
Final examinations are held at the end of each academic term, within a period specified by the Academic Calendar. All students are required to take them. In addition, mid-term examinations, quizzes, special papers and so forth are given at the discretion of the instructor.

The final grade given by the instructor at the end of the term will be the grade for the course.

**GRADING SYSTEM AND GRADE REPORTING**
At the close of an academic term, each instructor assigns a letter grade indicating the quality of a student’s work in the course.
Following is a description of the grading system. Note that the minimal grade required for satisfactory performance in a given course is determined by the academic regulations governing the particular program (e.g., undergraduate vs. graduate). Students should consult the appropriate section in this catalog for specific criteria and policies governing progression in the program.

Grades included in the Numeric Quality Grade Point Average (GPA) Calculation Range Points
At the close of an academic term, each instructor assigns a letter grade indicating the quality of a student’s work in the course.

Following is a description of the grading system, including the quality points assigned for use in the calculation of the grade point average (GPA). Note that the minimal grade required for satisfactory performance in a given course and for progression in the program are determined by the academic policies governing the particular program. For example, in some programs the minimal passing course grade is a C or C-. Depending on the program, failure to achieve the minimal passing grade may result in dismissal or academic probation with the requirement of repeating the course.

Students should consult the appropriate section in the catalog for specific criteria and policies governing progression in the academic program in which they are enrolled. Additionally, some academic units publish detailed special program requirements in a supplemental department/school student handbook. In such cases, provisions of the department/school handbook will govern. A copy of the handbook is posted in the respective academic unit’s section on the School’s website.

<table>
<thead>
<tr>
<th>GRADE</th>
<th>Quality Points</th>
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</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.0</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>A‐</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B‐</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
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<tr>
<td>C‐</td>
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</tr>
<tr>
<td>D+</td>
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</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>D‐</td>
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</tr>
<tr>
<td>F</td>
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<tr>
<td>WF*</td>
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### GRADES NOT CALCULATED IN THE GRADE POINT AVERAGE (GPA)

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<thead>
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<th>Grade</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>AU</td>
<td>Audit</td>
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<tr>
<td>CR</td>
<td>Credit</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
</tr>
<tr>
<td>IP</td>
<td>In Progress</td>
</tr>
<tr>
<td>N</td>
<td>No Credit</td>
</tr>
<tr>
<td>NC</td>
<td>No Credit</td>
</tr>
<tr>
<td>P</td>
<td>Pass</td>
</tr>
<tr>
<td>T</td>
<td>Transfer Credit</td>
</tr>
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<td>UP</td>
<td>Unsatisfactory Progress</td>
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<tr>
<td>W</td>
<td>Withdrawal</td>
</tr>
<tr>
<td>WP</td>
<td>Withdrawed Passing</td>
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</table>

### Grade Point Average Calculation

The grade point average (GPA) is computed in the following manner:

- Multiply the number of Quality Points (QP) for each grade by the Credit Hour value assigned to each course attempted.
Divide the sum of these products by the total number of credits attempted.
The cumulative GPA is based on the grades earned in all courses taken at Jefferson except for the following circumstances:

**Repeated Courses**
With the approval of the department chair or school dean, a student may repeat a course and have the initial credits attempted, credits earned and quality points excluded from the GPA. The original course grade remains on the transcript in all cases.

**Admission to a Second Program**
A graduate of one program of the University who is admitted to a second program has a cumulative GPA for the second program computed only on the grades earned in courses taken after the completion of the first program.

**Change of Grade Reporting**
To change a grade, the instructor must complete and submit a change of grade report, which may be obtained in the University Office of the Registrar or in the academic unit’s office. For grade changes other than that of I (Incomplete) or correction of a miscalculated grade, the instructor must submit for the approval by the school dean the reason for the change together with the signed endorsement of the department chair or program director.

**GRADE APPEAL**
Students who have reason to believe that a grade has been inappropriately assigned may request a review of the grade in accordance with the provisions of the Grade Appeal Protocol, which is published in the Student Handbook.

Students who plan to appeal a grade are encouraged to contact the Office of Student Life for assistance and to obtain the required form to file an appeal.

**Appeal Process for Dismissal Due to Unsafe Clinical Performance**
The process for appealing a departmental decision to dismiss due to unsafe clinical performance may be found in the Student Handbook.

Students who plan to appeal a dismissal are encouraged to contact the Assistant Vice President for Student Life for assistance and to obtain the required form to file an appeal.

**ACADEMIC STANDING**
To be considered in good academic standing, the student must maintain a minimum cumulative grade point average of 2.00 in undergraduate programs and 3.00 in graduate programs, and satisfy the special program requirements of the academic department or school.
HONORS
Dean’s List (Undergraduate Programs)
At the end of each academic term, recognition on the Dean’s List for Distinguished Academic Achievement is awarded to those students matriculated in undergraduate programs with at least 12 credit hours per semester who have achieved a minimum grade point average of at least 3.50 for the term.

Students enrolled in part-time degree programs offered through the Department of Professional and Continuing Studies in Jefferson School of Health Professions are eligible for inclusion on the Dean’s List for Distinguished Academic Achievement if they complete a minimum of 12 credits within a twelve month period (September 1 to August 31) and have a GPA of 3.50 or higher for that period. The Dean’s List for matriculated part-time students is determined once a year in September.

Academic Honors at Graduation (Undergraduate Programs)
To graduate with honors from the School, a student enrolled in undergraduate programs must:
- complete a minimum of 60 credits in a bachelor’s degree program or 30 credits in an associate degree program
- earn at least 50% of these credits in graded courses (non-Pass/Fail)
- achieve a cumulative grade point average as follows:
  - Cum Laude 3.50
  - Magna Cum Laude 3.70
  - Summa Cum Laude 3.85

The GPA is calculated on grades earned in Jefferson courses only. Transfer courses are not included.

GRADUATION
A student must complete the specific total credits and course requirements in the major program of study and achieve a cumulative grade point average of at least 2.00 in undergraduate programs or 3.00 in graduate programs on all attempted work to qualify for graduation from the University.

Application for Graduation
Commencement Exercises are held once each year, following the conclusion of the spring semester. Students who expect to meet the requirements for graduation in a given year must file an online application as instructed by the University Office of the Registrar no later than the deadline published in the Academic Calendar.

A student who applies for graduation and then fails to qualify must reapply, indicating the revised date of the completion of graduation requirements. Students completing at the end of the prior Fall Semester, end of Spring Semester, or who are expected to complete by the end of
the Summer Semester immediately following Commencement, may participate in the current year’s graduation ceremony.

A student who does not qualify for graduation in time for Commencement Exercises may participate in the next academic year’s graduation program.

**ACADEMIC PROBATION AND DISMISSAL**
Students who do not maintain a minimum 2.00 cumulative grade point average in undergraduate programs or a 3.00 cumulative grade point average in graduate programs will be placed on School academic probation for one semester. If a student is enrolled in courses totaling fewer than 12 undergraduate credits or nine graduate credits during the subsequent semester, the probationary period will be extended to two semesters.

At the end of the probationary period:
- The student achieves the minimum cumulative grade point average and is reinstated in good standing, or
- The student fails to achieve the minimum grade point average at the end of the probationary period and is dismissed from the School for academic underachievement, or
- In extraordinary cases, where the student has made significant progress toward achieving the minimum grade point average, the Department Chair may recommend granting one additional probationary semester. If, at the conclusion of the extended probationary semester, the cumulative grade point average is still below the minimum (2.00 in undergraduate programs, 3.00 in graduate programs), the student is dismissed for academic underachievement.

Actions related to the academic probation and dismissal must be reviewed by both the Committee on Student Affairs and the Office of the Dean before action can be taken. The Committee on Student Affairs is comprised of faculty and student representatives from the School.

Students matriculated in the degree programs offered through the Department of Professional and Continuing Studies in the Jefferson School of Health Professions should consult the policy governing academic probation and suspension found in the Department of Professional and Continuing Studies section of this catalog.

Students who fail to meet school or departmental regulations pertaining to academic standing will be placed on school or departmental academic probation or be dismissed and are subject to the policies regarding progression within their respective school/departments to regain or retain student status. School/departmental regulations and actions regarding academic probation and dismissal require the review of the appropriate faculty committee within the respective schools.
Any student dismissed from or required to withdraw from a school or a department because of academic underachievement, and subsequently readmitted to a school or department, must achieve a semester grade point average of 2.00 in undergraduate programs or 3.00 in graduate programs for the semester in which he or she was readmitted. If the student fails to do so, he or she will be dismissed. Furthermore, if such a student has a cumulative grade point average of less than the minimum stipulated at the end of the semester in which he or she was readmitted, he or she must raise the cumulative grade point average to the minimum by the end of the following semester or be dismissed. Any student who is readmitted with special student status may be exempted from the guidelines in this paragraph; that student will be held responsible for meeting the criteria of academic performance established with the department that awards the special student status.

**CLINICAL PROBATION AND DISMISSAL**
Because patient well-being is a major concern of the University, it is necessary that certain actions be taken when a student’s clinical practice poses a potential threat to patient health, welfare or safety. Therefore, students are subject to the school/department’s specific regulations governing clinical practice and may be placed on probation by the school/department and/or recommended for dismissal from the school/department for unsafe clinical behavior as defined by the school/department. The specific regulations are contained in a school/departmental handbook or similar publication and are distributed to students at the beginning of the academic year.

School/departmental recommendations for clinical dismissals are subject to the approval of the appropriate faculty committee within the respective schools.

Students who wish to appeal a decision of clinical dismissal may do so by following the provisions of the Grade Appeal Protocol.

**SPECIAL STUDENT STATUS**
Students may be accorded special student status under the provisions of some schools/departments. This status may be granted only with permission of the school dean/department chair and the Office of the Dean for those students who, due to unusual circumstances, are unable to meet the prescribed requirements of a program. Under these circumstances, a written agreement is developed outlining the provisions of the program. Specific regulations may be modified or waived to permit these students to achieve the goals of that program, provided that the affected regulations are cited in the agreement.

**LEAVE OF ABSENCE**
When personal circumstances make a temporary absence from the academic program advisable and when an intent to return is evident, a leave of absence may be granted to students matriculated in a degree or post-baccalaureate certificate program who file the Student Status Change Form available in the University Office of the Registrar. Permission of
the School Dean, Department Chair or Program Director is required. Normally, a leave will be granted for a period from one semester to a full academic year. Students who are subject to dismissal for academic or disciplinary reasons are not eligible for a leave of absence. A student who has been placed on academic probation and is subsequently granted a leave must satisfy the terms of the probation upon returning.

If a leave is granted during an academic term, the same procedures and policies pertaining to grading of individual course withdrawals will be in effect.

Students who fail to return to the program at the end of the approved leave will have their status changed from leave of absence to withdrawal, and they will have to apply for readmission in order to return.

Students considering a leave should first consult with their academic advisor and other appropriate advisors regarding possible effects on their progress toward the degree, financial aid and tuition charges. A leave of absence should be arranged in advance, and the student should follow the same procedure in effect for withdrawal from the School. Students who have borrowed federal, institutional or private loans are required to complete a federally mandated Exit Interview counseling session. Besides being a federal requirement, it is a very helpful counseling process to ensure that students know the facts and repayment strategies that apply to student loans and to safeguard loans from becoming delinquent during a leave of absence, withdrawal or any other period of non-enrollment or drop in credits to below a half-time status level.

**MEDICAL LEAVE**
For medical leaves of absence, student must proceed through University Health Services, which will notify the office of the Dean of its recommendation regarding a medical leave. No medical leaves will be reviewed or received without the endorsement of the Director of University Health Services, or other physicians designated by the Director of University Health Services.

Medical leaves will be for a period of up to one year. A leave of more than one year’s duration will be granted only under the most extraordinary circumstances and only after review by the Office of the Dean. Prior to reentry, which may be applied for prior to the one year anniversary, appropriate medical screening will be arranged by the Director of University Health Services with consultation, if necessary, to provide assurance of the student’s fitness to return to class.

**WITHDRAWAL FROM THE SCHOOL**
A student may initiate withdrawal from the School by due notice if not subject to dismissal because of failure or disciplinary action. If a withdrawal is initiated, the same procedures and policies pertaining to grading of individual course withdrawals will be in effect.
In order to withdraw, the student must obtain a Student Status Change Form in the University Office of the Registrar. The date on which the form is filed, and not the date of the last class attendance, is considered the official day of withdrawal.

A student matriculated in a degree or post-baccalaureate certificate program who fails to enroll for more than two consecutive semesters without having been granted a leave of absence will be given an administrative withdrawal.

A student who withdraws voluntarily or who is administratively withdrawn from the School must reapply to the Office of Admissions to re-enroll. If readmitted, the student is subject to the academic and curricular requirements in place at the time of readmission.

**RE-ADMISSION OF FORMER STUDENTS**

Students withdrawn or dismissed from the school or an academic department may, within two years of the dismissal or withdrawal, re-apply directly to the academic unit by submitting a written request directly to the school dean or department chair. All others wishing to continue their studies must reapply through the Office of Admissions.

**TRANSCRIPTS**

Thomas Jefferson University has authorized the National Student Clearinghouse to provide transcript ordering privileges via the Web, using any major credit card. To order a transcript, please access: [http://www.jefferson.edu/registrar/transcripts.cfm](http://www.jefferson.edu/registrar/transcripts.cfm). Official transcript requests carry a processing charge of $5 per copy for currently enrolled students and $10 per copy for alumni and former students. Although transcripts are normally processed within five working days, students should allow for a processing time of 10 working days, particularly during peak periods such as registration, drop-add, grade reporting and commencement. The University reserves the right to deny transcript requests of students who have not fully satisfied all financial obligations to the University.

**SOCIAL MEDIA POLICY**

Social media websites are used increasingly by University departments, students and employees, and these communications tools have the potential to create a significant impact on professional and organizational reputations. In light of this, it is important that you are familiar with the University’s Social Media Policy, which is printed below:

**Purpose and Policy**

Thomas Jefferson University and its affiliated entities (“Jefferson”) respects the rights of its students, faculty, staff, employees, contractors, consultants, temporary employees, guests, volunteers and other members of the Jefferson community (“Jefferson Users”) to use social networking sites (e.g., Face Book, My Space, and You Tube), personal Web sites, Weblogs, and Wikis such as Wikipedia and any other site where text can be posted (“Social Media”).
Use of Jefferson owned or provided computer hardware, software and other equipment which support and facilitate voice mail, electronic mail and access to the Internet (“Electronic Communications”) are the property of Jefferson. Accordingly, Jefferson Users must adhere to the Electronic Communications and Information Policy, Number 102.27, when using Electronic Communications to post text on social networking sites.

If a Jefferson User chooses to identify himself or herself as an employee/student/faculty/guest/volunteer/temporary employee/or other member of the Jefferson community when using Social Media for personal use, others may view the Jefferson User as a representative or spokesperson of Jefferson. In light of this possibility, Jefferson recommends that Jefferson Users not refer to Jefferson.

If the use of Social Media by a Jefferson User relates to the business/mission of Jefferson, this Policy requires the Jefferson User to observe the following guidelines.

- To create Social Media related to the business/mission of Jefferson, please obtain prior written approval from your Dean, JUP Executive Director, Hospital Senior Vice President, or Kimmel Cancer Center Director. Please be aware that this type of Social Media is not an open forum and postings must be related to Jefferson’s mission. Assign one or more administrator(s) who are the only person(s) in charge of reviewing and approving content to be posted to the Social Media. To obtain approval for use of the Jefferson name or logo on Social Media, follow the Trademark Policy and include the name(s) of the administrator(s) for the Social Media on the Trademark Request Form.
- Jefferson Users should be respectful in all communications related to or referencing Jefferson and its community. Be clear in any references to Jefferson that you are speaking for yourself and not on behalf of Jefferson, unless it is Jefferson created Social Media
- If not otherwise publicly available, obtain the prior written approval of others of whom you wish to cite, reference and/or post a picture.
- Jefferson Users should discuss internal matters directly with a manager, Human Resources, or through other appropriate, internal channels, such as the University Ombudsman, or Office of Student Affairs.
- Remember that all Jefferson Policies apply to the use of Social Media. Jefferson Users should review the appropriate Code of Conduct, Student Handbook, Operating Policy, Hospital Procedure and/or School/College Bylaw to ensure the use of Social Media is compliant.
- Remember that all applicable federal, state or local laws, such as (but not limited to) patient privacy laws or copyright laws, apply to the use of Social Media.
- Jefferson Users may not post or disclose confidential or other proprietary information of Jefferson.
- Jefferson Users who are contacted by a Social Media page/channel/site for comments or authorization to use Jefferson owned or controlled material, must: (i) contact Public Relations at 5-6300, (ii) follow Public Relations’ policies and (iii) secure the necessary
approvals for comments and/or authorization to use Jefferson owned or controlled material.

**Enforcement**
Any Jefferson User found to have violated this Policy may be subject to appropriate disciplinary action, up to and including dismissal.

**Modification of Policy**
Jefferson reserves the right to revise this Policy at any time.

**Interpretation and Administration**
The Office of University Counsel shall be responsible for the interpretation of this Policy and the Office of the University President and the Office of the Director of Communications shall be responsible for the administration of this Policy.

**STUDENT IDENTIFICATION CARDS**
Photo identification cards, which are issued to all students, must be carried at all times on campus and in hospital facilities. Students will be notified of a date and time to have their identification cards made. Each student must present a valid government-issued photo ID (i.e. passport, driver’s license, military ID, etc.), for photo verification purposes at the time that they have their picture taken.

The initial ID card is provided at no charge. A replacement fee of $15 will be charged for any card that replaces the initial card. If a student’s identification card is lost or damaged, replacement cards can be obtained from the Photo ID Center located in the Jefferson Bookstore at 1009 Chestnut Street. The Photo ID Center is open during store hours from 7:00 am to 5:30 pm Monday through Friday and from 9:00 am to 1:00 pm on Saturday. For more information call (215) 955-7942.

**STUDENT DIRECTORY**
For the sole convenience of the University community, a student directory is available on the University website: http://pulse.jefferson.edu. The directory includes local and home addresses, telephone numbers and photographs of all students registered as of the fall academic term.

Students wanting directory information withheld should notify the University Office of the Registrar in writing within two weeks of each year’s initial academic enrollment.

**CHANGE OF INFORMATION**
Any change of student information with regard to name, address, marital status, etc., should be reported immediately to the University Office of the Registrar. In order for the institution to mail pertinent information to students, the most current address must be available. Other
information, such as course schedules and final grades are available on the BANNER Student Website.

Students may update their mailing addresses and telephone numbers directly on the website by visiting https://banner.jefferson.edu. To change a name on a student’s academic record, the University Office of the Registrar must have proper documentation, such as a copy of a marriage certificate or a court order.

CONFIDENTIALITY OF STUDENT RECORDS
Student records are held by the University in joint agreement with the student and the University for the benefit of the student. In such an agreement, the student’s records are the property of the University but may be released upon the written request of the student. The records of the student are held in trust by the University and are maintained in a confidential manner.

THE FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT
The Family Educational Rights and Privacy Act of 1974 (more commonly known as “FERPA”) is a federal law that affords students certain rights with respect to their education records. These rights include:

1. The right to inspect and review the student’s education records within 45 days of the day the University receives a request for access. Students must submit to the University Director of Student Records a written request that identifies the record(s) they wish to inspect. The University Director of Student Records will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University Director of Student Records to whom the request was submitted, the student shall be advised of the correct official to whom the request should be addressed.

2. The right to request the amendment of the student’s education records that the student believes are inaccurate or misleading. Students may ask the University to amend a record that they believe is inaccurate or misleading. A written request must be made to the University official responsible for the record clearly identifying the part of the record they want changed, and specifying why it is inaccurate or misleading.

If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of the right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. The right to consent to disclosures of personally identifiable information contained in the student’s education records, except to the extent that FERPA authorizes disclosure without consent.
One of the exceptions that permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the University in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the University has contracted (such as an attorney, auditor or collection or servicing agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks.

A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.

Upon request, the University, at its discretion, may disclose education records without consent to officials of another school in which a student seeks or intends to enroll.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by Thomas Jefferson University to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is:

   Family Policy Compliance Office
   U.S. Department of Education
   400 Maryland Avenue, SW
   Washington, DC, 20202-4605

The University, at its discretion, may provide directory (public) information in accordance with the provisions of the Act to include: the student’s name, address, telephone listing, date and place of birth, major field of study, academic schedule, participation in officially recognized activities and sports, dates of attendance, degrees and awards received, identification photo, University e-mail address, campus key and previous educational institutions attended by the student. Students wanting directory information withheld should notify the University Director of Student Records in writing within two weeks of each year’s initial academic enrollment.

Revisions and clarifications will be published as experience with the law and the University’s policy warrant.
STUDENT SERVICES
Student programs at Jefferson offer a variety of educational, recreational and social experiences to involve the entire student body. Programs during the academic year include events to accommodate diverse student interests through balance and variety, providing opportunities for personally meaningful social learning situations and allowing for flexibility in student programming. The programs are planned and implemented by students, together with administration and faculty. Programs are generated by many sources: student organizations; committees of the college and schools; and students, faculty, administration and alumni.

ORIENTATION PROGRAMS AND WELCOME DAY
The Office of Student Life is responsible for coordinating the orientation of incoming students. Completion of the University Orientation program is mandatory. The in-person University Orientation program consists of the following elements: academic department/program information, campus safety and security, Jefferson policies and the Honor Code, overview of Jefferson, purchasing of uniforms and required supplies, taking picture for Jefferson ID badge, university services presentation, and a wellness component including presentations on stress management and drug and alcohol use. Students also have the opportunity to meet with representatives from various University offices. In order to better meet the needs of some of our special populations, we have established an online orientation that provides comparable information and training to what students would experience in-person.

Welcome Day (Department/Program Orientation) typically takes place the day before the start of the fall semester. This program is coordinated through the individual academic areas. The presentations given at Welcome Day will build upon the knowledge students have already gained through attending the University Orientation program. This second component to students' overall orientation to Thomas Jefferson University is designed to provide the means for a successful start to our students' educational endeavors.

PERSONAL COUNSELING
There are many concerns that may lead a student to seek counseling including stress, anxiety, depressed mood, relationship problems, and academic issues. The Student Personal Counseling Center (SPCC) offers crisis consultation, individual counseling, couples counseling, group therapy, wellness programming and psychiatric consultation for students. The SPCC staff encourages students to come in and talk even if they are not sure that counseling is what they need.

All Thomas Jefferson University students are eligible for three visits without charge at the SPCC. Some students may resolve their concerns during the initial three sessions and decide that no further sessions are required. Some students decide to see a SPCC counselor on an ongoing basis. For students who desire or need ongoing support, SPCC counselors are in network with a limited number of insurance providers.
Students interested in making an appointment should call the SPCC at (215) 503-2817 or dial 5-HELP from a campus phone to leave a confidential voicemail with their name and contact number. A SPCC counselor will conduct a brief and confidential telephone screen to gather some basic information that will allow for a timely matching of services, based upon a student’s individual needs. All information shared during counseling is confidential. No one outside the SPCC may have access to the specifics of counseling sessions without the prior written permission of the student, except in situations where there is a threat or danger to life.

Urgent Situations: SPCC counselors and psychiatrists are available for in-person crisis intervention weekdays between 9:00 a.m. and 5:00 p.m.. After hours, all students experiencing an emergency should call 911 or go to the nearest emergency room. On-campus students should go to the Thomas Jefferson University Hospital Emergency Room, located in the Main Hospital Building at 10th and Sansom (215) 955-6060 and ask to speak to the Psychiatry Resident On-Call. Dr. Nobleza is also available after hours for urgent phone consultations for students by calling the SPCC phone number at (215) 503-2817 and then dialing ‘1’ and then ‘0.’

**ACADEMIC SUPPORT SERVICES**

Academic Support Services offers services free of charge to matriculated students of the Jefferson Schools. One-on-one consultations, as well as workshops, are available on such topics as study strategies, test-taking, time management, textbook reading and other academic skills. Academic Support Services also provides students with assistance with many aspects of writing, including APA and AMA formatting.

**Student Health Services**

Location and Hours

University Health Services (UHS) is open to all students enrolled at Thomas Jefferson University. UHS is located in Suite 205, 833 Chestnut Street. The hours of operation are Monday through Friday 7:30 a.m. until 4:00 p.m. It is closed for a staff meeting on Thursdays only from 12 noon until 1:00 p.m. During evenings and weekends, students should report to the Emergency Department if an urgent medical problem arises. Any charges incurred by such visits will be billed to the student’s insurance. The UHS Website may be accessed at [www.jeffersonhospital.org/uhs](http://www.jeffersonhospital.org/uhs).

**Staff**

The UHS medical staff consists of two nurse practitioners, a physician and three nurses. The secretarial staff is available to assist with immunization records and health information. UHS coordinates psychiatric care through the Student Personal Counseling Center. See below for details about psychiatric services.
Immunization Requirements
UHS is required to comply with the infection control policies of the Hospital Infection Control Committee and the Commonwealth of Pennsylvania. UHS has developed a tier system that outlines requirements for each school. Depending on tier placement, students may be required to complete a student health form prior to attending the university. This consists of a medical history and up-to-date immunizations for measles, mumps, rubella, varicella (chicken pox), Tdap (tetanus, diphtheria, acellular pertussis), and hepatitis B. A physical exam performed by the student’s physician no longer than one year prior to enrollment is mandatory for some students. For a list of requirements for your program, please refer to the UHS website at www.jeffersonhospital.org/uhs and view the Student Tab.

Services and Costs
Episodic Care
General medical problems may be addressed at UHS on a walk-in basis. Walk-in hours are Monday through Friday 7:30 a.m. – 11:00 a.m. and 1:00 p.m. – 3:30 p.m.

Evaluation of Potentially Infectious Illnesses
Students with potentially infectious illnesses should report to UHS for an evaluation prior to reporting to their clinical rotations. Questions regarding any exposures to illnesses, i.e. varicella (chicken pox or shingles), influenza, tuberculosis, viral conjunctivitis, may be addressed by calling (215) 955-6835 or by visiting UHS. Fitness for duty will be determined with the guidance of the Hospital Infection Control Policy.

Annual Tuberculosis Screening
All students are required under the Hospital Infection Control Policy to undergo annual screening. UHS uses both the tuberculosis skin test and the interferon gamma release assay (IGRA) as the screening methods of choice when screening for tuberculosis. Annual screening is provided free of charge for all enrolled students. As of January 1, 2014, all incoming students will be required to provide documentation of an IGRA rather than the two step PPD.

Hepatitis B Vaccine
Completion of the three-dose series followed by a reactive antibody titer to document immunity is required.

Flu Vaccination
Each fall, UHS offers the flu vaccination free of charge to all Jefferson students. Influenza vaccination is mandatory for all students. Further information may be obtained by contacting UHS or visiting the UHS website at www.jeffersonhospital.org/uhs.

Occupational Exposure to Blood and Body Fluids
Students who are exposed to patients’ blood or body fluids during the course of their clinical rotations should report to UHS as soon as possible after the exposure. If the exposure occurs
after normal working hours, the student should report to Jefferson’s Emergency Department. UHS follows the Public Health Service’s Guidelines for Exposure to HIV, Hepatitis C and Hepatitis B. If a student is on a rotation outside of Jefferson, he/she is advised to contact UHS for direction. Students unable to return to UHS or to Jefferson’s Emergency Department should be seen in the closest emergency department. Care for this visit is charged to the student’s insurance. Further information regarding Jefferson’s exposure protocol may be viewed on the UHS Website: [www.jeffersonhospital.org/uhs](http://www.jeffersonhospital.org/uhs) or by visiting the “Needlesticks” website found on the TJUH intranet under the UHS website link.

**Confidentiality of Medical Records**

All health services records, including psychiatric visits, are strictly confidential. Records are not available to any person other than the UHS healthcare provider without the student’s written permission. For questions or appointments, call (215) 955-6835.

**STUDENT HEALTH INSURANCE**

Jefferson requires all matriculated students to have health insurance, and to complete the enrollment/waiver process for each academic year (September 1st through August 31st). If you have health insurance through another provider, it must meet our minimum requirements to qualify for a waiver. If you do not have coverage through another provider that meets the minimum requirements, then you must enroll in the school-sponsored Student Health Insurance Plan. Once enrolled, the plan will be in effect for the entire academic year. You may only terminate the insurance coverage if you have a qualifying life change event.

**PLEASE NOTE: Failure to successfully complete the enrollment/waiver process by the first day of the fall* semester will result in the following:**

1. An administrative fee in the amount of $150 will be charged to the student’s tuition account.
2. An insurance hold (HI) will be placed on the student’s Banner account (for new students, this hold will have already been placed on your account when you were accepted).
3. The student will **not** be permitted to attend classes or clinicals.

*For new students beginning their program during the spring, summer, or pre-fall semester, the deadline to complete the health insurance requirement is the first day of that semester.*

Upon satisfactorily completing the health insurance requirement, the insurance hold will be removed from the student’s Banner account. The administrative fee will NOT be removed from the student’s tuition account; the student is responsible for paying that fee in full through the Tuition Office.

**For additional information on the health insurance requirement please visit:** [www.jefferson.edu/academic-affairs/schools/student-life/health-dental-insurance/matriculation-requirement.html](http://www.jefferson.edu/academic-affairs/schools/student-life/health-dental-insurance/matriculation-requirement.html)
THE ACTIVITIES OFFICE
The Thomas Jefferson University Activities Office coordinates social, cultural, and recreational programs for the entire Jefferson community. Students are encouraged to participate in many events occurring regularly throughout the year, including movie nights, entertainment programs, and co-curricular programs and workshops. The Activities Office also offers a variety of ticket sales to professional sporting events, amusement parks, museums, performing arts and cultural attractions, which are available for purchase at the Jefferson Bookstore. The Activities Office is located in Room B-67 Jefferson Alumni Hall.

The Activities Office provides administrative services to student organizations. Staff members assist students in the establishment of a new organization; provide resources and advice regarding event planning and budget management; and maintain files of each student group’s bylaws, constitution and contact information. A Jefferson Student Leadership Manual is available which provides student groups with basic leadership skills, campus resource information, and University policies. In addition, the Activities Office publishes the annual Student Organization Directory which includes descriptions of more than 100 campus organizations and groups.

Jefferson-Independence Blue Cross Wellness Center
The Activities Office is responsible for managing the Jefferson-Independence Blue Cross Wellness Center, Jefferson’s multipurpose fitness and recreation facility and its many programs and services. Located in the lower levels of Jefferson Alumni Hall, the facility offers members the use of cardio and weight training areas, swimming pool, gymnasium, racquetball court, two group exercise studios, massage and Reiki studio, dry heat sauna and men’s and women’s locker rooms. Recreational programs and services including group exercise classes, fitness testing and exercise prescriptions, personal fitness training, massage therapy, intramural sports leagues, and co-curricular courses such as dance lessons, SCUBA certification, and swim lessons, are also available.

The Jeff-IBC Wellness Center membership fee for all full-time Jefferson students is included in the Comprehensive Student Fee paid at registration. Family memberships are available to students’ spouses, domestic partners and children. For more information, visit the Activities Office located in Room B-67 Jefferson Alumni Hall or call (215) 503-7743.

Advisory Committees
Two Advisory Committees work with the Activities Office and Jeff-IBC Wellness Center staff to recommend program and service offerings and to govern the facility. The Activities Office Advisory Committee serves to recommend and plan events, programs, co-curricular classes and ticket sales for the Jefferson campus community. The Committee also reviews and approves proposals for new student organizations from all academic divisions and provides financial assistance to student organizations through an annual budget process. The Wellness Center Advisory Committee serves to recommend policies for governing the fitness and recreation
facility, to recommend recreational and wellness programming, and to recommend fees to support activities and programs that are funded by Wellness Center memberships.

Student representatives from each academic division serve on the Committees. Anyone interested in serving on a Committee or needing additional information may contact the Activities Office.

**HONORS AND AWARDS**

**The Achievement Award for Student Life**
This award is made annually to the graduating student who has made an outstanding contribution to School and University student life.

**The Alumni Special Achievement Award**
This award recognizes a graduate who has made a significant contribution to his or her profession in the areas of education, research or community service that reflects favorably on Thomas Jefferson University as that person’s alma mater. The award is offered to honor significant professional achievement over time.

**The Alumni Emerging Leader Award**
This award recognizes a graduate who, early in his or her career but at least five years following graduation, has made significant contributions in research, leadership in professional organizations, community service, or any other significant professional accomplishment.

**The Alumni Distinguished Service Award**
The Alumni Distinguished Service Award is given to a graduate who has made an exceptional contribution of time, resources and expertise to advance the mission of the School and/or University.

**Alpha Eta Society - The National Honor Society for Health Professionals**
The Alpha Eta Society is a nationally recognized honor society for health professionals. The purpose of the Alpha Eta Society is to recognize significant academic achievement, leadership, and contributions to the allied health professions.

Each year, qualified students are invited to submit applications for membership in the Thomas Jefferson University Chapter of the Alpha Eta Society. Eligible students include those who have complied with the following conditions. They shall:

- be enrolled in their last year of matriculation in a degree or post-baccalaureate or higher certificate program in a health field.
- have achieved a minimum cumulative grade point average of 3.50 in a baccalaureate degree/post-baccalaureate certificate program or 3.80 in a graduate-level program.
- submit a resume and a written statement that clearly demonstrates a capacity for leadership and achievement in their chosen health field.
• submit one letter of recommendation from a faculty member in support of their eligibility for membership.

CAREER DEVELOPMENT CENTER
The Career Development Center assists students and alumni in identifying and preparing for professional opportunities relative to their abilities, interests and goals. By developing solid resumes and cover letters, effective interviewing skills, and job search strategies, students are able to present themselves professionally for positions in their desired fields. Assistance is offered through one-on-one, group and classroom formats.

The Career Resource Library offers valuable career-related resources. These include employer directories, salary information, literature on graduate school exploration and preparation and books on interviewing, dressing for success, networking, negotiating employment offers, and other topics. There is also an employer database in the Center’s on-line career management system, Symplicity. Other services include career planning workshops, career counseling, mock interviews and on-campus career fairs.

The Career Development Center sponsors several events throughout the academic year. The Fall and Spring on-campus career fairs bring local and national employers together with students and alumni to discuss career opportunities. The Etiquette Dinner, presented in collaboration with the Thomas Jefferson University Activities Office, demonstrates proper business etiquette and attire.

All students are encouraged to utilize the job-search assistance provided by the Career Development Center. Alumni use the services of the Center as they continue to develop and redefine their professional goals.

Placement rates for students remain strong, as indicated in the following table:

| Placement Rates for the Jefferson School of Health Professions, Classes of 2009, 2010 and 2011.* |
|-----------------|--------|--------|--------|
|                 | 2009   | 2010   | 2011   |
| Bioscience Technologies | 78%    | 89%    | 94%    |
| Couple and Family Therapy | 67%    | 100%   | 90%    |
| Occupational Therapy    | 98%    | 100%   | 100%   |
| Physical Therapy        | 100%   | 100%   | 100%   |
| Radiologic Sciences     | 82%    | 93%    | 83%    |
| Overall Placement       | 88%    | 94%    | 92%    |

*Placement rates are based on those students who responded to Part II of the Jefferson Office of Institutional Research Longitudinal Study. Placement is defined as being employed full- or
part-time or being enrolled in continuing education as one’s reported primary post-graduation activity. Data for the Class of 2012 will be posted when available.

Graduates of most of the academic programs are required to take a national registry or state licensing examination, allowing them to become registered to practice in their specific fields. Jefferson graduates consistently perform well on their registry or licensing examinations as indicated in the table below.

RESULTS ON REQUIRED NATIONAL REGISTRY OR STATE LICENSING EXAMINATIONS FOR THE CLASSES OF 2009, 2010 AND 2011

<table>
<thead>
<tr>
<th>Program</th>
<th>Class of 2009</th>
<th>Class of 2010</th>
<th>Class of 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. Took Exam</td>
<td>No. Passed Exam</td>
<td>% Passed Exam</td>
</tr>
<tr>
<td>Cardiac Sonography</td>
<td>6</td>
<td>5</td>
<td>83%</td>
</tr>
<tr>
<td>Computed Tomography</td>
<td>3</td>
<td>3</td>
<td>100%</td>
</tr>
<tr>
<td>Cytotechnology</td>
<td>8</td>
<td>8</td>
<td>100%</td>
</tr>
<tr>
<td>General Sonography</td>
<td>20</td>
<td>14</td>
<td>70%</td>
</tr>
<tr>
<td>Invasive CVT</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Medical Dosimetry</td>
<td>4</td>
<td>3</td>
<td>75%</td>
</tr>
<tr>
<td>Medical Lab. Science</td>
<td>8</td>
<td>8</td>
<td>100%</td>
</tr>
<tr>
<td>MRI</td>
<td>16</td>
<td>15</td>
<td>94%</td>
</tr>
<tr>
<td>Nuclear Medicine</td>
<td>12</td>
<td>12</td>
<td>100%</td>
</tr>
<tr>
<td>Occupational Therapy*</td>
<td>39</td>
<td>29</td>
<td>74%</td>
</tr>
<tr>
<td>Physical Therapy+</td>
<td>29</td>
<td>29</td>
<td>100%</td>
</tr>
<tr>
<td>Radiation Therapy</td>
<td>14</td>
<td>13</td>
<td>93%</td>
</tr>
<tr>
<td>Radiography</td>
<td>10</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>Vascular Sonography</td>
<td>4</td>
<td>3</td>
<td>75%</td>
</tr>
<tr>
<td>TOTALS</td>
<td>173</td>
<td>152</td>
<td>88%</td>
</tr>
</tbody>
</table>

* OT students graduate in December and therefore are counted in the following year’s “First Time Test Takers.”
+ Pass rates refer to first-time test takers.

HOUSING
The University Department of Housing and Residence Life (DHRL) provides permanent on-campus housing and a welcoming community environment for Thomas Jefferson University students and post-doctoral fellows. Space is also reserved in the Martin Residence Hall for short-term accommodations available to visiting students, residents and patient families. The Department of Housing and Residence Life assists interested new students with apartments and room assignments. This includes notifying students of housing assignments, assisting throughout the assignment process, and serving as a liaison between the residents and facilities services once students are on campus.
To minimize the time spent finding accommodations in the Philadelphia area, students are encouraged to visit the Housing Office:

Department of Housing and Residence Life
1000 Walnut Street, Suite 103
Philadelphia, PA 19107-5518
Telephone: (215) 955-8913
Email: university.housing@jefferson.edu
www.jefferson.edu/housing

On-Campus Housing
The on-campus residential facilities are conveniently located within walking distance of Philadelphia’s shopping, cultural and recreational activities.

Application
An on-campus housing assignment is guaranteed to eligible first-year students who apply and are accepted to the university prior to May 31. Students are invited to apply for a residence hall space prior to acceptance to the School. Applications may be obtained by contacting the Housing Office by phone or email. Applications can also be downloaded from the website. Application packets are also mailed to accepted students.

Orlowitz Residence
The Olowitz Residence is a 20-story apartment facility located on the southwest corner of Tenth and Walnut Streets in the Jefferson complex. The building is adjacent to the Scott Memorial Library and the Sidney and Ethal Lubert Plaza. This facility has 237 apartments, of which 170 have one bedroom, 56 have two bedrooms and 11 have three bedrooms.

Barringer Residence
The Barringer Residence is a 10-story apartment facility located on the southeast corner of Tenth and Walnut Streets. This facility has 138 apartments. Twelve are efficiency apartments, 54 have one bedroom, 63 have two bedrooms and nine have three bedrooms.

The Barringer and Olowitz apartment-style residences are managed by Philadelphia Management Company (PMC). PMC has representatives on site at 1000 Walnut Street, Suite 103. Barringer and Olowitz Residence Hall apartments include upgraded life-safety systems. All Barringer and Olowitz apartments have wall-to-wall carpeting, air conditioning, kitchen appliances and cable TV availability. Telephone and cable TV service can be installed by individual arrangement. Electricity is billed separately. Storage lockers and laundry facilities are located in each basement. A social lounge with a large screen cable TV and a small fitness room is available for tenant use by reservation. The Olowitz lounge has an adjoining outdoor courtyard. Both buildings offer 24-hour desk and emergency maintenance coverage.
Martin Residence
The Martin Residence is an eight-story residential building located at 201 South 11th Street. It is adjacent to the Scott Memorial Library, next to the Dorrance H. Hamilton Building and the Sidney and Ethal Lubert Plaza.

The building is a community-style residence hall that includes recently renovated furnished rooms and can accommodate approximately 150 students. Depending on occupancy needs, the building may accommodate both co-ed and single-sex floors in double - or single-occupancy rooms. Each furnished, air-conditioned room is equipped with a Microfridge(microwave/refrigerator/freezer). Common bath and shower accommodations are available on each floor. Each floor has a snack kitchen for limited food preparation that contains a stove top, refrigerator/freezer, and a microwave.

The Martin Residence provides a study solarium, recreation lounge with a large screen cable TV and vending areas. Like Barringer and Orlowitz, Martin has 24-hour desk coverage and emergency maintenance service.

Residence Life Program
The Residence Life program is available in all three residential facilities. The staff consists of one full-time, live-in professional and 12 student Resident Assistant (RA) advisors. The staff provides social, educational and recreational programming and support services. The RA Staff function as a liaison between students and housing management.

Off-Campus Housing Services
The Housing Office provides an off-campus information service including a list of local apartment facilities. Students should begin the search for off-campus housing in June. This will provide enough time to identify the various accommodations available.

Jefferson students interested in off-campus accommodations can request information by contacting the Housing Coordinator at (215) 955-8913. Information is also available at http://www.jefferson.edu/housing/options/off_campus.html

UNIVERSITY BOOKSTORE
The Jefferson Medical and Health Science Bookstore, located at 1009 Chestnut Street, is a full service campus bookstore operated for the benefit of students, faculty, and employees. The Bookstore offers a 10% discount off the publisher’s list price of all books. Bookstore services include special orders for all books in print as well as specialty merchandise for student organization activities. Commuter Services and the Photo ID Center are also located within the Bookstore. Activities Office discount ticket sales are available for purchase at the Jefferson Bookstore.
The Jefferson Medical and Health Science Bookstore offers a wide range of online services at www.jefferson.edu/bookstore. A 10% discount is available off most online book purchases. The Bookstore website also offers book buyback and textbook rental. Academic supplies, technology products, apparel, and graduation and recognition items are also available for online purchase.

The “Course Book Lookup” option, located under the “Current Students” link, provides information, including ISBN, pricing and availability about required and recommended books at the time of class registration.

Finally, students are encouraged to share their Bookstore experience and suggestions by completing a Customer Survey found on the Bookstore website.

The store is open from 7:00 a.m. to 5:30 p.m. Monday to Friday and from 9:00 a.m. to 1:00 p.m. on Saturday. The store is closed on Sunday and all University holidays. For more information call (215) 955-7922. Visit us at www.jefferson.edu/bookstore.

The Jefferson Bookstore Advisory Committee serves to advise the University Bookstore and to foster communication between the bookstore management and the campus community. The Committee meets on a monthly basis to discuss such topics as product mix, marketing/promotion, customer service, policies and procedures and textbook adoption.

PHOTO ID CENTER
A photo identification card is issued to students in each College and School. Identification cards must be carried at all times on campus. Students will be notified of a date and time to have their identification cards made.

The initial ID card is provided at no charge. A fee of $15 will be charged to replace a lost or damaged identification card. Replacement ID cards can be obtained from the Photo ID Center located in the Jefferson Bookstore at 1009 Chestnut Street. The Photo ID Center is open during store hours from 7:00 a.m. to 5:30 p.m. Monday through Friday and from 9:00 a.m. to 1:00 p.m. on Saturday. For more information call (215) 955-7942.

FOOD SERVICES
The Department of Nutrition and Dietetics of Thomas Jefferson University Hospital manages all the food service operations on the University campus. The locations are as follows:

- The Atrium, 2nd floor Gibbon building, full service with the EXPRESS open weekday evenings. Hours of operation: 6:00 a.m. to 7:00 p.m.; 7:00 a.m. to 7:00 p.m. on weekends and University holidays.
- The Corner Café, Jefferson Hospital for Neuroscience, 1st floor lobby. Hours of operation: 7:00 a.m. to 2:00 p.m. weekdays. Menu features continental breakfast with a
variety of hot breakfast items during morning hours. Sandwiches, salads, soup, entrees, pizza and sushi are available for lunch.

Information on daily specials in The Atrium and satellite food operation is easy to access:
• Log onto Pulse - click the “Dining Services” link
• Call (215) 955-FOOD (215-955-3663)

FastPass Program
The Jefferson FastPass Program is a cashless card system that allows dining around campus without the need to carry cash for food, beverages and snacks. This program makes it easy and convenient to purchase items at the dining locations on campus operated by Nutrition & Dietetics by using the Jefferson ID (see locations above). The FastPass program provides access to 24-hour-a-day vending on the 2nd and 5th floors of the Gibbon Building and the Scott Library Café. In addition to the dining services locations, FastPass is accepted at the Gift Shop and all Jefferson pharmacies on campus, Jefferson Medical and Health Science Bookstore and the Jefferson Farmers Market. The program expands to include participating off-campus merchants. The list can be viewed on the Dining Services site by selecting Jefferson FastPass Program-Off Campus Dining.

Enrollment
Pick up a brochure (enrollment form) at The Atrium, The Corner Café or Jefferson Alumni Hall. Complete the FastPass application online. Log onto Pulse and click the “Dining Services” link. Click the tab “FastPass Program” and fill out the online FastPass enrollment form.

Card Value Centers (CVC)
You also have the ability to add additional funds to your account using the Card Value Centers located in the 10th street seating area of The Atrium Cafeteria and in the lobby of Jefferson Alumni Hall. Money deposited at the Card Value Center is deposited directly to your FastPass account for immediate use.
Bioscience Technologies

Biotechnology/Applied Molecular Technologies
Cytotechnology/Cell Sciences
Medical Laboratory Science

Graduate Certificate Programs

Honors Program in Genomic Pathology
Honors Program in Molecular Genetics
DEPARTMENT OF BIOSCIENCE TECHNOLOGIES
The Department of Bioscience Technologies is a multidisciplinary regional facility for laboratory education, research and practice that offers a variety of professional laboratory programs for full-time students and working practitioners. The Department not only provides specialized laboratory-based education in each of its programs, but also incorporates crosscutting laboratory technologies that span bioscience research and diagnostic applications now and for the future. This combination of specialized and comprehensive education assures that graduates have the scientific, problem solving and creative skills that are needed to keep pace with and influence technology-driven changes in the laboratory industry.

Program Levels Available

<table>
<thead>
<tr>
<th>Program</th>
<th>Bachelor’s Degree</th>
<th>Combined BS/MS</th>
<th>Accelerated Professional Masters</th>
<th>Advanced Masters</th>
<th>Graduate Certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biotechnology/Applied Molecular Technologies</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Cytotechnology/Cell Sciences</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Medical Lab. Science</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Clinical Chemistry</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Hematology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Immunohematology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Microbiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Molecular Biology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Baccalaureate programs in Biotechnology/Applied Molecular Technologies, Cytotechnology/Cell Sciences and Medical Laboratory Sciences are offered in two options. For students entering as juniors, the “2+2” option is completed in two academic years of full-time study. For students entering as seniors, the “3+1” option is completed in 12 consecutive months of full-time study including summer sessions. Upon satisfactory completion of the prescribed baccalaureate “2+2” or “3+1” program curriculum, a Bachelor of Science Degree in Bioscience Technologies is granted by the University.

Graduate Certificate programs in Clinical Chemistry, Hematology, Immunohematology (Blood Banking), Microbiology and Molecular Biology are available for students who have already earned a baccalaureate degree. The options are offered in part-time accelerated (three semesters) and part-time extended (five semesters) options. Upon successful completion of one of these graduate-level programs, a certificate is granted by the University, after which students are eligible for certification in these laboratory disciplines.

Master of Science Degree Programs in Bioscience Technologies are offered in entry-level, advanced and professional options. The BSEM entry-level option enables students to qualify for
admission to graduate bioscience technologies education at Thomas Jefferson University through a combined BS/MS program. At the conclusion of the program, the BS and MS degrees are awarded by the University.

The **advanced MS option** allows graduates of BS level laboratory science based programs to customize their graduate programs to meet their educational or practice goals. Students pursuing the advanced MS on a full-time basis can complete the MS degree as little as two academic semesters.

The **accelerated professional master's program** is available to students who have already earned a baccalaureate degree in a major other than those offered by the Department of Bioscience Technologies (Biotechnology, Cytotechnology, Medical Laboratory Science). This accelerated graduate program is completed in 12 consecutive months of full-time study including Summer Sessions.

At the conclusion of the advanced or professional program, the Master of Science degree is awarded by the University.

**CORE CURRICULUM**
Courses labeled Laboratory Sciences (LS) are designated as Departmental Core Curriculum courses and are offered on a required or elective basis to students in all programs. Core courses contain knowledge, skills and competencies applicable to all laboratory disciplines including fundamental laboratory techniques, laboratory quality management and regulatory procedures, bioinformatics, communications, scientific writing, basic science research skills, health services research methods, mechanisms of disease and education principles. These courses allow students to gain a broad perspective of the laboratory fields as integral components of the larger healthcare delivery system.

**BIOSCIENCE HONORS PROGRAMS**
In collaboration with Jefferson Medical College's Department of Pathology, Anatomy & Cell Biology and the Clinical Laboratories of Thomas Jefferson University Hospitals, we now offer unique opportunities in expanding, high-tech areas of pathology laboratory practice to students enrolled in the Department's programs. The Bioscience Honors Programs will enable exceptional students to earn Honors Certificates in **Molecular Genetics** and/or **Genomic Pathology**. Depending on the student's program, courses included in these certificate programs may be part of the student's curriculum. In other cases, a student may be required to take additional coursework outside his/her curriculum. Upon completion of the Honors Program, the student will be presented with an “Honors Certificate in Molecular Genetics" or an "Honors Certificate on Genomic Pathology” conferred jointly by the Departments of Bioscience Technologies and Pathology. The Honors designation will be part of the student's permanent academic record.
EDUCATIONAL PROGRAMS
In all programs, students attain proficiency in their selected discipline’s laboratory procedures and practices by completing clinical and/or research rotations at the Department’s affiliated laboratories. In addition to preparing students for specialized professional laboratory practice, each program provides an excellent scientific and practical foundation for students who are preparing to enter graduate programs in medicine, the basic sciences or clinical translational research.

Biotechnology/Applied Molecular Technologies program options are designed for students interested in laboratory careers in biomedical research, the pharmaceutical industry, forensic DNA testing or molecular analysis. The program emphasizes hands-on laboratory training in various aspects of biotechnology and molecular biology including recombinant DNA and related techniques, molecular diagnostics, protein purification, characterization and modeling, flow cytometry, cell and tissue culture, and systems biology. Laboratory internships or practicums provide additional in-depth laboratory training in actual working laboratories.

Cytotechnology/Cell Sciences program options are designed for students interested in laboratory careers that rely on visualization, detection and diagnosis of disease at the cellular level. Students learn to locate and interpret cellular microscopic findings and correlate them with normal body functions, disease processes, principles of medical oncology, therapeutic procedures and patients’ clinical information. Adjunct molecular and cytometric diagnoses, cellular and anatomic pathology, quantitative and qualitative cell analysis techniques and cell preparation methods are essential for Cytotechnology practice and are included in classroom, laboratory and clinical courses. Research applications and cytology quality assurance methodology are emphasized throughout the program, as are professional responsibilities and the value of cytologic interpretation as part of comprehensive public health screening programs.

Medical Laboratory Science program options prepare students for careers in a wide range of diagnostic practice settings including hospital, commercial, clinic, pharmaceutical, forensic, public health and research laboratories. Students are well prepared to move into technical specialty, sales, marketing or product development positions. Students acquire a thorough background in the theory, principles and practice of clinical laboratory medicine, followed by application of technical and problem-based methods to the performance of clinical laboratory tests and troubleshooting procedures in clinical practicums. Emphasis on interpretation of automated system analyses and other measurements of health status and disease processes helps students achieve a broad understanding of biochemical life processes.

Graduate Certificate Programs in Clinical Chemistry, Hematology, Immunohematology (Blood Banking), Microbiology and Molecular Biology allow students to concentrate their studies in specific areas of clinical or research laboratory practice. Baccalaureate graduates, laboratory
technologists, research technicians and junior scientists may acquire new skills or update their knowledge for continuing education or job mobility.

PROGRAM ACCREDITATION
The Biotechnology/Applied Molecular Technologies Programs are approved by the University administration. The programs in Cytotechnology/Cell Sciences are approved by the University administration and are fully accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) in collaboration with the American Society of Cytopathology. The programs in Medical Laboratory Science are approved by the University administration and are fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Addresses of the agencies that accredit the academic programs of the School may be found in the “SCHOOL” section of this catalog under the heading “ACCREDITATION.” Graduate Certificate programs are conducted under the auspices of the programs in Medical Laboratory Science and Biotechnology.

ELIGIBILITY FOR CERTIFICATION
National certification is proof that a certain level of knowledge and competence in the field has been attained. Employers seek certified individuals because they know that people with professional credentials can be counted on for the value-added expertise that is in such high demand today. Certification is also a measurable benchmark for outcomes assessment of student and program performance, the evaluation of which is required by accreditation agencies. Department of Bioscience Technologies faculty expect all program graduates to sit for their respective certification examinations immediately upon graduation.

With additional laboratory work experience, Biotechnology graduates are eligible for the examination in molecular biology offered by the Board of Certification of the American Society for Clinical Pathology. Successful examinees may use MB(ASCP) after their names.

Cytotechnology graduates are eligible to take the Cytotechnology Certification Examination of the Board of Certification of the American Society for Clinical Pathology. Successful examinees may use CT(ASCP) after their names.

Medical Laboratory Science graduates are eligible to take the Medical Laboratory Scientist (MLS) examination of the Board of Certification of the American Society for Clinical Pathology. Successful examinees may use MLS(ASCP) after their names.

Cytotechnology and Medical Laboratory Science graduates may apply for and take the MB(ASCP) examination as soon as they pass their CT or MLS certification exam.

In addition, through a combination of academic preparation in our programs and work experience, graduates of Bioscience Technologies programs may prepare for special qualifications or certifications in cytometry, immunohistochemistry, laboratory informatics and other specialty areas of laboratory practice.
Individuals who complete a Graduate Certificate program are eligible for certification in their respective laboratory discipline. Certification is from the American Society for Clinical Pathology (ASCP). Once certified, individuals may use these designations following their names: C(ASCP) for Clinical Chemistry; BB(ASCP) for Blood Banking/Immunohematology; M(ASCP) for Microbiology; and H(ASCP) for Hematology. If not previously certified as a technologist (MT/MLS, CG, CT, HTL, BB, C, H, I or M) or specialist (SBB, SC, SCT, SH, SI, SM or SV), certification in Molecular Biology MB(ASCP) requires additional practical experience for exam eligibility.

COURSE REQUIREMENTS FOR ADMISSION – ALL BIOSCIENCE TECHNOLOGIES PROGRAMS

Please refer to ADMISSION TO THE SCHOOL for application procedures.

Prerequisite Courses for Baccalaureate, Entry-Level BS/MS and Masters Programs

<table>
<thead>
<tr>
<th>Course Distribution</th>
<th>2+2 BS Program</th>
<th>3+1 BS Program</th>
<th>3+2 Entry-Level BS/MS Program</th>
<th>Accelerated Professional Masters</th>
<th>Advanced Masters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological or Chemical Sciences¹</td>
<td>16</td>
<td>16</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Organic Chemistry</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>College Algebra, Trigonometry, Precalculus, Calculus or Statistics</td>
<td>3</td>
<td>3</td>
<td>3*</td>
<td>3*</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>26</td>
<td>41</td>
<td>49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>70</td>
<td>82</td>
<td>33**</td>
<td>***</td>
</tr>
</tbody>
</table>

¹Suggested biological or chemical sciences courses include but are not limited to General Biology, General Chemistry and Anatomy & Physiology.

*It is recommended that applicants the Entry-Level BS/MS or the Professional MS program take Statistics to satisfy either the Math or Electives prerequisites.

**Credits may be part of or in addition to an earned bachelor’s degree from an accredited institution.

***Advanced MS program Applicants: Must have a previously earned BS degree or Post-baccalaureate Certificate from a CAAHEP- or NAACLS-accredited program in Cytotechnology (CT), Medical Technology/Medical Laboratory Science (MT/MLS), Diagnostic Molecular Science (DMS) or other approved laboratory discipline. Foreign-degreed applicants to the CT or MLS program, and U.S. or foreign-degreed applicants to the BT program must show evidence of an undergraduate curriculum that is substantially similar to the respective BS 3+1 curriculum offered at Thomas Jefferson University, including prerequisite courses.
NOTE: Graduates of associate degree MLT, CLT, BT or other similar programs may transfer technician coursework credits to satisfy biological/chemical sciences and elective prerequisites.

Prerequisite Courses for Graduate Certificate Programs
Candidates for Graduate Certificate Programs must meet these prerequisite distributions as part of, or in addition to, their earned undergraduate degree.

<table>
<thead>
<tr>
<th>Biology, Chemistry and / or Medical Sciences</th>
<th>Molecular Biology</th>
<th>Immuno-hematology (Blood Bank)</th>
<th>Clinical Chemistry</th>
<th>Microbiology</th>
<th>Hematology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Semester Credits</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

Admission Requirements for the Entry-Level Combined BS/MS Degree Program
Applicants to the combined degree program complete the Jefferson School of Health Professions admission form.
- Two letters of recommendation (at least one from a science professor)
- Cumulative GPA of at least 2.80 (on a 4.0 scale) for all undergraduate courses, with a 3.00 in science courses.
- Personal statement
- The Test of English as a Foreign Language (TOEFL) English proficiency examination may be required of applicants whose native language is not English.
- International applicants must obtain an evaluation of foreign transcripts by the World Education Service (WES) or comparable agency.
- A personal interview, when requested.

Admission Requirements for the Accelerated Professional MS and Advanced MS Degree Programs
Applicants to these graduate programs complete the Jefferson School of Health Professions admission form.
- Baccalaureate transcript(s). For applicants to the Advanced MS program, transcripts must demonstrate completion of an accredited baccalaureate and/or post-baccalaureate certificate program in Biotechnology (or equivalency to the BS 3+1 Biotechnology curriculum offered at Thomas Jefferson University), Cytotechnology, Medical Technology/Medical Laboratory Science or other eligible laboratory discipline.
- Two letters of recommendation (at least one from a science professor).
- Cumulative GPA of 2.80 (on a 4.0 scale) for all undergraduate courses, with a 3.00 in science courses.
- Personal statement.
• The Test of English as a Foreign Language (TOEFL) English proficiency examination may be required of applicants whose native language is not English.
• International applicants must obtain an evaluation of foreign transcripts by the World Education Service (WES) or comparable agency.
• A personal interview, when requested.

UNDERGRADUATE DEGREE PROGRAMS

BIOTECHNOLOGY/ APPLIED MOLECULAR TECHNOLOGIES

Biotechnology uses knowledge obtained about organisms at the molecular level to inform diagnostic and therapeutic decisions and help solve environmental issues. Biotechnology integrates biochemistry, microbiology, immunology, genetics, cell and tissue culture, physiology and engineering sciences to develop insights, techniques and products that advance our understanding of biological structures and processes. Biotechnology is essential to progress in medicine and drug development; agriculture, forestry, wildlife management, and the environment; forensic investigations, and the fight against bioterrorism. Jefferson’s programs in Biotechnology/Applied Molecular Technologies prepare students to work in a wide variety of biotechnology-related settings. The program emphasizes hands-on training and practical experience, while providing a solid foundation in the basic subjects from which biotechnology evolved. Faculty from academia and industry give students a broad perspective of biotechnology’s applications and possibilities. Graduates are uniquely positioned to begin research laboratory careers in academia, the pharmaceutical industry, public health, forensics, agriculture or bioprocessing. Graduates are also well-positioned to pursue further education in medical, veterinary or basic science doctoral programs.

Curriculum – Biotechnology/Applied Molecular Technologies

Baccalaureate Degree Program
(Full-time, 2-year “2+2” option for students entering as juniors)

Junior Year

<table>
<thead>
<tr>
<th>FALL SEMESTER</th>
<th>Semester Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS 301 Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>LS 303 Fundamental Clinical and Experimental Techniques</td>
<td>3</td>
</tr>
<tr>
<td>BT 303 Molecular Preparatory Techniques</td>
<td>1</td>
</tr>
<tr>
<td>BT 310 Basic Molecular Techniques</td>
<td>4</td>
</tr>
<tr>
<td>BT 405 Microbial Genetics</td>
<td>3</td>
</tr>
<tr>
<td>CH 304 Biochemistry</td>
<td>3</td>
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<tr>
<td></td>
<td>17</td>
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</table>

<table>
<thead>
<tr>
<th>SPRING SEMESTER</th>
<th>Semester Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS 440 Current Research in the Biosciences</td>
<td>2</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
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<td>------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>BT 320</td>
<td>Cell and Tissue Culture</td>
</tr>
<tr>
<td>BT 403</td>
<td>Human Genetics</td>
</tr>
<tr>
<td>BT 410</td>
<td>Molecular Diagnostic Techniques</td>
</tr>
<tr>
<td>BT 411</td>
<td>Protein Purification and Characterization</td>
</tr>
</tbody>
</table>

**Senior Year**

**SUMMER I**
- LS 430 | Laboratory Standards and Practices | 3 |

**FALL SEMESTER**
- LS 311 | Functional Histology | 2 |
- BT 412 | Biotechnology Practicum I | 4 |
- BT 422 | Biotechnology Practicum II | 4 |
- MT 331 | Immunology | 3 |
- HCA 300 | Healthcare Delivery in America | 3 |

**SPRING SEMESTER**
- LS 416 | Comprehensive Examination | 1 |
- LS 413 | Pathology | 2 |
- BT 401 | Systems Biology | 2 |
- BT 432 | Biotechnology Practicum III | 4 |
- BT 442 | Biotechnology Practicum IV | 4 |

**Credit Summary**
- Credits Required for Admission | 55 |
- Credits for Junior Year | 33 |
- Credits for Senior Year | 32 |

**Total Credits for Bachelor of Science Degree in Bioscience Technologies - “2+2” option (Biotechnology/Molecular Sciences) | 120**
**Curriculum – Biotechnology / Applied Molecular Technologies**  
**Baccalaureate Program (“3+1” option for students entering as seniors)**  
**(Full-time one-year option, 12 consecutive months)**

<table>
<thead>
<tr>
<th>FALL SEMESTER</th>
<th>Semester Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS 301 Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>LS 303 Fundamental Clinical and Experimental Techniques</td>
<td>3</td>
</tr>
<tr>
<td>BT 303 Molecular Preparatory Techniques</td>
<td>1</td>
</tr>
<tr>
<td>BT 310 Basic Molecular Techniques</td>
<td>4</td>
</tr>
<tr>
<td>BT 405 Microbial Genetics</td>
<td>3</td>
</tr>
<tr>
<td>CH 304 Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>MT 331 Immunology</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>SPRING SEMESTER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LS 413 Pathology</td>
<td>2</td>
</tr>
<tr>
<td>LS 440 Current Research in the Biosciences</td>
<td>2</td>
</tr>
<tr>
<td>BT 320 Cell and Tissue Culture</td>
<td>4</td>
</tr>
<tr>
<td>BT 401 Systems Biology</td>
<td>2</td>
</tr>
<tr>
<td>BT 403 Human Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BT 410 Molecular Diagnostic Techniques</td>
<td>4</td>
</tr>
<tr>
<td>BT 411 Protein Purification and Characterization</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUMMER SESSIONS I &amp; II</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LS 416 Comprehensive Examination</td>
<td>1</td>
</tr>
<tr>
<td>LS 430 Laboratory Standards and Practices</td>
<td>3</td>
</tr>
<tr>
<td>BT 412 Biotechnology Practicum I</td>
<td>4</td>
</tr>
<tr>
<td>BT 422 Biotechnology Practicum II</td>
<td>4</td>
</tr>
<tr>
<td>BT 432 Biotechnology Practicum III</td>
<td>4</td>
</tr>
<tr>
<td>BT 442 Biotechnology Practicum IV</td>
<td>4</td>
</tr>
</tbody>
</table>

**Credit Summary for 3+1 Baccalaureate Degree Option**

| Credits Required for Admission            | 70               |
| Credits for Senior Year                   | 60               |

**Total Credits for Bachelor of Science Degree in Bioscience Technologies - “3+1” option (Biotechnology/Applied Molecular Technologies) 130**

Descriptions for courses listed above are found in the section entitled “Course Descriptions.” Courses with prefixes other than LS, BT, or MT are described in the Department of Professional and Continuing Studies chapter.
CYTOTECHNOLOGY/CELL SCIENCES
Cytotechnologists are cell scientists whose work focuses on the examination of cellular specimens to detect the presence of infectious, inflammatory, neoplastic and therapy-related conditions. Using microscopy, automated cell analysis systems, immunochemistry, and molecular technologies, Cytotechnologists visualize, locate, interpret and diagnose normal and abnormal cells, cellular patterns and tissue architecture from any body site. Cytotechnologists perform a significant service in the prevention and control of a variety of diseases including cancers and contribute to patient management by identifying those who need further follow up and treatment. They are experts in diagnosing cancer at its earliest and potentially most curable stages. Based on careful cellular analysis, it is the cytotechnologist who determines whether gynecologic specimens ("Pap Tests") contain abnormal cells or not. Cytotechnologists then issue final reports on negative tests. When abnormal cells are detected, cytotechnologists prepare a preliminary diagnosis that is then reviewed with a pathologist. Cytologic evaluation of other body systems, such as the respiratory tract and gastrointestinal tract, can provide diagnostic information that helps to identify pathologic conditions and can minimize the need for extensive surgical procedures. Cytotechnologists work independently at their microscopes, but also work collaboratively with pathologists, radiologists, oncologists and other medical specialists. Their daily routine includes major problem-solving and decision-making activities. Cytotechnologists may assist in the collection of fine needle aspiration specimens from patients using ultrasound, CT scanning or endoscopic techniques. They also select the appropriate preparation and staining methods for cytopathology specimens and supervise “cytoprep” technicians, monitor and document quality assurance procedures, or conduct research in laboratory standards and best practices. They are responsible for recommending and performing ancillary tests (such as immunocytochemistry, fluorescent molecular diagnostic probes or special staining tests) that yield highly specific diagnoses to direct and personalize treatment decisions for patients and their physicians.

Students enrolled in Cytotechnology/Cell Sciences programs are prepared in the contemporary theoretical and practical aspects of the field as well as in the technologies that will shape future diagnostic practice. They can confidently pursue careers as highly qualified healthcare professionals and participants in health service teams, or continue with medical, dental, veterinary or basic science education at the doctoral level.

The goal of the Cytotechnology/Cell Sciences programs is to prepare competent entry-level Cytotechnologists/Cell Scientists in the cognitive (knowledge), psychomotor (skills), and affective (behavioral) learning domains such that graduates are prepared to perform, respond to or initiate and influence change in the skill sets and knowledge base required for contemporary and future laboratory practice.
Curriculum – Cytotechnology/Cell Sciences

Baccalaureate Degree Program
(Full-time, 2-year “2+2” option for students entering as juniors)

Junior Year
FALL SEMESTER
LS 301 Molecular Biology 3
LS 303 Fundamental Clinical and Experimental Techniques 3
LS 311 Functional Histology 2
CT 301 Principles of Cell Analysis 2
CT 311 Gynecologic Cytology and Histocorrelations 3
CT 312 Gynecologic Cytology and Histocorrelations Laboratory 5
18

SPRING SEMESTER
LS 413 Pathology 2
CT 307 Cellular and Molecular Laboratory Techniques 4
CT 315 Nongynecologic Cytology and Histocorrelations I 4
CT 317 Nongynecologic Cytology and Histocorrelations II 4
14

Senior Year
SUMMER I
LS 430 Laboratory Standards and Practices 3

FALL SEMESTER
LS 498 Special Topics in Laboratory Science 2
CT 412 Cytotechnology Practicum I 4
CT 413 Cytotechnology Practicum II 4
CH 304 Biochemistry 3
HCA 300 Healthcare Delivery in America 3
16

SPRING SEMESTER
LS 416 Comprehensive Examination 1
LS 440 Current Research in the Biosciences 2
CT 325 Cellular and Molecular Diagnostics 3
CT 414 Cytotechnology Practicum III 4
CT 415 Cytotechnology Practicum IV 4
14

Credit Summary
Credits Required for Admission 55
Credits for Junior Year 32
Credits for Senior Year 33

Total Credits for Bachelor of Science Degree in Bioscience Technologies - “2+2” Option (Cytotechnology/Cell Sciences) 120
Descriptions for courses listed above are found in the section entitled “Course Descriptions.” Courses with prefixes other than CT or LS are described in the Department of Professional and Continuing Studies chapter.

**Curriculum – Cytotechnology/Cell Sciences**

**Baccalaureate Program (“3+1” option for students entering as seniors)**

(Full-time one-year option, 12 consecutive months)

<table>
<thead>
<tr>
<th>FALL SEMESTER</th>
<th>Semester Credits</th>
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<tbody>
<tr>
<td>LS 301 Molecular Biology</td>
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<tr>
<td>LS 303 Fundamental Clinical and Experimental Techniques</td>
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<tr>
<td>LS 311 Functional Histology</td>
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<td>CT 311 Gynecologic Cytology and Histocorrelations</td>
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<td>CT 312 Gynecologic Cytology and Histocorrelations Laboratory</td>
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<td>CH 304 Biochemistry</td>
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<tr>
<td>LS 413 Pathology</td>
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<td>LS 440 Current Research in the Biosciences</td>
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<td>CT 307 Cellular and Molecular Laboratory Techniques</td>
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<td>CT 315 Nongynecologic Cytology and Histocorrelations I</td>
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<td>CT 325 Cellular and Molecular Diagnostics</td>
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<tr>
<td>CT 414 Cytotechnology Practicum III</td>
<td>4</td>
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<tr>
<td>CT 415 Cytotechnology Practicum IV</td>
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</table>

**Credit Summary for 3+1 Baccalaureate Degree Option**

| Credits Required for Admission  | 70 |
| Credits for Senior Year         | 60 |

**Total Credits for Bachelor of Science Degree in Bioscience Technologies - “3+1” Option (Cytotechnology/Cell Sciences)**

130
MEDICAL LABORATORY SCIENCE

Medical Laboratory Scientists are skilled professionals who perform chemical, hematological, immunological, microscopic and microbiological tests for the interpretation and monitoring of diseases. These may include chemical tests to determine a patient’s blood glucose or cholesterol level or examination of patient samples to detect the presence of bacteria, fungi, parasites, viruses or other disorders. They type and cross-match blood samples for transfusions, perform analyses for chemicals and toxins, and test samples for antibiotic sensitivities and immune response. They integrate and apply concepts of biology, chemistry and informatics to produce valid and reliable patient test results. Test results, in turn, provide other health professionals with information that is crucial for the diagnosis of diseases, management of patient therapy and maintenance of health. Medical Laboratory Scientists occupy responsible and respected positions in hospital, commercial, public health, research and pharmaceutical laboratories, as well as in sales, management and education.

The mission of the Medical Laboratory Science Programs is to prepare outstanding medical laboratory scientists who will provide team-based, quality care to and for patients, and who will advance the medical laboratory science profession. This mission is accomplished by assuring that graduates demonstrate (1) a firm foundation in the medical laboratory sciences with emphasis on accurate and efficient test interpretation; (2) utilization of instrumentation to assure quality; (3) problem-solving skills that enable correlation of theory and practice so that they are able to keep abreast of developments in the field and to contribute to them; (4) a commitment to continual learning throughout one’s professional career; and (5) an educational foundation suitable for continuing graduate study.

Curriculum – Medical Laboratory Science

Baccalaureate Degree Program

(Full-time, 2-year “2+2” option for students entering as juniors)

Junior Year

FALL SEMESTER

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<tr>
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<td>MT 312</td>
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<td>MT 323</td>
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<td>MT 331</td>
<td>Immunology</td>
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<td>MT 341</td>
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SPRING SEMESTER

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<tr>
<td>MT 307</td>
<td>Clinical and Molecular Laboratory Techniques</td>
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<tr>
<td>MT 313</td>
<td>Microbiology II</td>
<td>3</td>
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<tr>
<td>MT 324</td>
<td>Chemistry II</td>
<td>3</td>
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<tr>
<td>MT 343</td>
<td>Hematology II</td>
<td>3</td>
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<tr>
<td>MT 352</td>
<td>Immunohematology</td>
<td>3</td>
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</table>
Senior Year
SUMMER I
LS 430 Laboratory Standards and Practices 3
FALL SEMESTER
LS 301 Molecular Biology 3
LS 311 Functional Histology 2
HCA 300 Healthcare Delivery in America 3
MT 412 Medical Technology Practicum I 4
MT 422 Medical Technology Practicum II 4
16
SPRING SEMESTER
LS 413 Pathology 2
LS 416 Comprehensive Examination 1
LS 440 Current Research in the Biosciences 2
MT 442 Medical Technology Practicum III 4
MT 454 Medical Technology Practicum IV 4
13
Credit Summary
Credits Required for Admission 55
Credits for Junior Year 33
Credits for Senior Year 32
Total Credits for Bachelor of Science Degree in Bioscience Technologies - “2+2” Option (Medical Laboratory Science) 120

Descriptions for courses listed above are found in the section entitled “Course Descriptions.” Courses with prefixes other than MT or LS are described in the Department of Professional and Continuing Studies chapter.

Curriculum – Medical Laboratory Science
Baccalaureate Program (“3+1” option for students entering as seniors)
(Full-time one-year option, 12 consecutive months)
FALL SEMESTER
LS 301 Molecular Biology 3
LS 303 Fundamental Clinical and Experimental Techniques 3
MT 312 Microbiology I 3
MT 323 Chemistry I 2
MT 331 Immunology 3
MT 341 Hematology I 3
CH 304 Biochemistry 3
20
SPRING SEMESTER
LS 413 Pathology 2
LS 440 Current Research in the Biosciences 2
MT 307 Clinical and Molecular Laboratory Techniques 4
101
MT 313    Microbiology II    3  
MT 324    Chemistry II     3  
MT 343    Hematology II   3  
MT 352    Immunohematology 3  

SUMMER SESSIONS I & II
LS 416    Comprehensive Examination  1  
LS 430    Laboratory Standards and Practices  3  
MT 412    Medical Technology Practicum I   4  
MT 422    Medical Technology Practicum I   4  
MT 442    Medical Technology Practicum III  4  
MT 454    Medical Technology Practicum IV  4  

Credit Summary for 3+1 Baccalaureate Degree Option
Credits Required for Admission  70  
Credits for Senior Year  60  
Total Credits for Bachelor of Science Degree in Bioscience Technologies - "3+1" Option (Medical Laboratory Science)  130

Descriptions for courses listed above are found in the section entitled “Course Descriptions.” Courses with prefixes other than MT or LS are described in the Department of Professional and Continuing Studies chapter.

GRADUATE CERTIFICATE PROGRAMS
The Graduate Certificate programs are part-time programs offered as accelerated (three semesters) or extended (five semesters) options.

CLINICAL CHEMISTRY CERTIFICATE PROGRAM
Clinical chemists analyze patients' blood and body fluids to assess physiological health or disease status. Utilizing state-of-the-art instrumentation to measure enzyme activity, blood gas saturation, and concentrations of drugs and glucose, the clinical chemist determines the biochemical parameters of blood and body fluids to help physicians in the prevention, diagnosis, monitoring and treatment of diseases.

Curriculum – Clinical Chemistry Certificate - Accelerated Option

<table>
<thead>
<tr>
<th>FALL SEMESTER</th>
<th>Semester Credits</th>
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<tbody>
<tr>
<td>LS 303 Fundamental Clinical and Experimental Techniques</td>
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<td>MT 523 Chemistry I</td>
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<td>MT 531 Immunology</td>
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<th>SPRING SEMESTER</th>
<th>Semester Credits</th>
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<tr>
<td>LS 613 Pathology</td>
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<td>MT 524 Chemistry II</td>
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<td>MT 507 Clinical and Molecular Laboratory Techniques</td>
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</table>
SUMMER SESSION
LS 610  Regulatory and Fiscal Issues in Laboratory Management 3
LS 812  Practicum (Clinical Chemistry) 2

Curriculum – Clinical Chemistry Certificate - Extended Option
FALL SEMESTER
LS 303  Fundamental Clinical and Experimental Techniques 3
MT 523  Chemistry I 2

SPRING SEMESTER
MT 507  Clinical and Molecular Laboratory Techniques 4
MT 524  Chemistry II 3

SUMMER SESSION
LS 610  Regulatory and Fiscal Issues in Laboratory Management 3

FALL SEMESTER
MT 531  Immunology 3

SPRING SEMESTER
LS 613  Pathology 2
LS 812  Practicum (Clinical Chemistry) 2

Total Credits for Graduate Certificate in Clinical Chemistry 22

MICROBIOLOGY CERTIFICATE PROGRAM
Microbiologists culture, isolate and diagnose bacteria, parasites and viruses to identify the causes of diseases and determine the appropriate antibiotics needed for treatment. The constant discovery of newly mutated and therapy-resistant organisms, as well as the importance of identifying and neutralizing potential biological attack agents, demonstrates that the role of the microbiologist is becoming increasingly important.

Curriculum –Microbiology Certificate - Accelerated Option
FALL SEMESTER  
LS 303  Fundamental Clinical and Experimental Techniques 3
MT 512  Microbiology I 3
MT 531  Immunology 3

SPRING SEMESTER
LS 613  Pathology 2
MT 507  Clinical and Molecular Laboratory Techniques 4

103
<table>
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<th>Course Title</th>
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<td>LS 610</td>
<td>Regulatory and Fiscal Issues in Laboratory Management</td>
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<tr>
<td>LS 812</td>
<td>Practicum (Microbiology)</td>
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<td><strong>Curriculum – Microbiology Certificate - Extended Option</strong></td>
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<tr>
<td>LS 303</td>
<td>Fundamental Clinical and Experimental Techniques</td>
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<tr>
<td>MT 512</td>
<td>Microbiology I</td>
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<td>SPRING SEMESTER</td>
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<tr>
<td>MT 507</td>
<td>Clinical and Molecular Laboratory Techniques</td>
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<tr>
<td>MT 513</td>
<td>Microbiology II</td>
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<td>SUMMER SESSION</td>
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<tr>
<td>LS 610</td>
<td>Regulatory and Fiscal Issues in Laboratory Management</td>
<td>3</td>
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<tr>
<td></td>
<td>FALL SEMESTER</td>
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<tr>
<td>MT 531</td>
<td>Immunology</td>
<td>3</td>
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<td></td>
<td>SPRING SEMESTER</td>
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</tr>
<tr>
<td>LS 613</td>
<td>Pathology</td>
<td>2</td>
</tr>
<tr>
<td>LS 812</td>
<td>Practicum (Microbiology)</td>
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<tr>
<td></td>
<td><strong>Total Credits for Graduate Certificate in Microbiology</strong></td>
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</table>

**HEMATOLOGY CERTIFICATE PROGRAM**

Hematologists analyze the function and formation of red and white blood cells and other elements of blood and body fluids as well as monitor the components of the coagulation system. By monitoring normal and abnormal cells and assessing concentrations of coagulation factors, the hematologist provides health practitioners with the information necessary to ensure that therapy and treatment are appropriate for each patient.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credits</th>
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<tbody>
<tr>
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<td><strong>Curriculum – Hematology Certificate - Accelerated Option</strong></td>
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<tr>
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<td>FALL SEMESTER</td>
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</tr>
<tr>
<td>LS 303</td>
<td>Fundamental Clinical and Experimental Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MT 531</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>MT 541</td>
<td>Hematology I</td>
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<tr>
<td></td>
<td>SPRING SEMESTER</td>
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</tr>
<tr>
<td>LS 613</td>
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<td>2</td>
</tr>
<tr>
<td>MT 507</td>
<td>Clinical and Molecular Laboratory Techniques</td>
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</tr>
</tbody>
</table>
SUMMER SESSION
LS 610  Regulatory and Fiscal Issues in Laboratory Management  3
LS 812  Practicum (Hematology)  2

Curriculum – Hematology Certificate - Extended Option
FALL SEMESTER
LS 303  Fundamental Clinical and Experimental Techniques  3
MT 531  Immunology  3

SPRING SEMESTER
LS 613  Pathology  2
MT 507  Clinical and Molecular Laboratory Techniques  4

SUMMER SESSION
LS 610  Regulatory and Fiscal Issues in Laboratory Management  3

FALL SEMESTER
MT 541  Hematology I  3

SPRING SEMESTER
MT 543  Hematology II  3
LS 812  Practicum (Hematology)  2

Total Credits for Graduate Certificate in Hematology  23

IMMUNOHEMATOLOGY (BLOOD BANKING) CERTIFICATE PROGRAM
Immunohematology and transfusion medicine are critical areas within clinical blood bank laboratories. Immunohematologists not only type and cross-match blood from donors and recipients, they also analyze specific blood products for the rapidly expanding field of component therapy. As individual blood components become more readily available, whole blood transfusions are used less frequently.

Curriculum – Immunohematology Certificate - Accelerated Option
FALL SEMESTER
LS 303  Fundamental Clinical and Experimental Techniques  3
MT 531  Immunology  3
MT 541  Hematology I  3

SPRING SEMESTER
LS 613  Pathology  2
MT 507  Clinical and Molecular Laboratory Techniques  4

Total Credits for Graduate Certificate in Hematology  23
**Immunohematology Certificate - Extended Option**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
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<tbody>
<tr>
<td>LS 303 Fundamental Clinical and Experimental Techniques</td>
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<tr>
<td>MT 541 Hematology I</td>
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</tr>
<tr>
<td><strong>Total Credits for Graduate Certificate in Immunohematology</strong></td>
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**Spring Semester**

| LS 613 Pathology                       | 2       |
| MT 507 Clinical and Molecular Laboratory Techniques | 4       |
| **SUMMER SESSION**                     |         |
| LS 610 Regulatory and Fiscal Issues in Laboratory Management | 3       |

**MOLECULAR BIOLOGY CERTIFICATE PROGRAM**

Molecular biological techniques have broad applications for identifying genetic diseases and infectious agents or determining paternity. Molecular biologists use a variety of techniques such as DNA/RNA extractions, Southern blot, Western blot, PCR and gene sequencing. These methods are being used more and more in clinical laboratories, in diagnostic genetics laboratories, in research laboratories and in forensic investigations.

**Curriculum – Molecular Biology Certificate - Accelerated Option**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Semester Credits</th>
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</thead>
<tbody>
<tr>
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<td>3</td>
</tr>
<tr>
<td>BT 503 Molecular Preparatory Techniques</td>
<td>1</td>
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<tr>
<td>BT 510 Basic Molecular Techniques</td>
<td>4</td>
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<tr>
<td><strong>Total Credits for Graduate Certificate in Molecular Biology</strong></td>
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<tr>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>LS 613 Pathology</td>
<td>2</td>
</tr>
<tr>
<td>BT 603 Human Genetics</td>
<td>3</td>
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</table>
### Curriculum – Molecular Biology Certificate - Extended Option

#### FALL SEMESTER
- **LS 501** Molecular Biology
  - 3 credits
- **BT 503** Molecular Preparatory Techniques
  - 1 credit
- **BT 510** Basic Molecular Techniques
  - 4 credits
  - Total: 8 credits

#### SPRING SEMESTER
- **BT 603** Human Genetics
  - 3 credits
- **BT 610** Molecular Diagnostic Techniques
  - 4 credits
  - Total: 7 credits

#### SUMMER SESSION
- **LS 812** Practicum [Research Applications]
  - 2 credits

#### FALL SEMESTER
- **LS 813** Practicum [Clinical Applications]
  - 2 credits

#### SPRING SEMESTER
- **LS 613** Pathology
  - 2 credits
- **BT 611** Protein Purification and Characterization
  - 3 credits
- **LS 814** Practicum [Forensic Applications]
  - 2 credits
  - Total: 7 credits

### Total Credits for Graduate Certificate in Molecular Biology
- 26 credits
GRADUATE DEGREE PROGRAMS

MASTER OF SCIENCE IN BIOSCIENCE TECHNOLOGIES
Clinical and research laboratories develop and utilize increasingly sophisticated technical and information systems to provide accurate and reliable diagnostic and therapeutic products. At the same time, the healthcare climate in which laboratories provide these services necessitates meticulous attention to the integrity of the research process, and to quality assurance including patient outcomes of laboratory testing, regulatory compliance, and human and financial resources management. The laboratory industry seeks individuals who possess these value-added skills in addition to their exceptional technological skills for clinical and research laboratory practice and management. The MS Programs prepare students for positions of leadership in laboratory testing, management and research.

ENTRY-LEVEL COMBINED BS/MS PROGRAM
The entry-level combined BS/MS (or BSEM) Program is designed for students who have not yet received a bachelor’s degree but have completed a minimum of 82 semester credits, including 24 credits in biological and/or chemical sciences. The BS/MS program enables students to qualify for admission to graduate bioscience technology education at Thomas Jefferson University through a combined program that begins each Fall Semester. Students progress through an integrated undergraduate/graduate curriculum. At the conclusion of the program, the BS and MS degrees are awarded.

ACCELERATED PROFESSIONAL MS GRADUATE PROGRAM
This unique 1-year professional master’s program is available for students who have already earned a baccalaureate degree in a non-science or science field other than laboratory sciences/bioscience technologies. The professional master’s graduate program is completed in 12 consecutive months of full-time study, including Summer Sessions. The program is designed for BS graduates who are interested in the biosciences and who wish to acquire specific sets of technical and managerial competencies that will prepare them for employment in biotech, clinical and/or anatomic pathology laboratories. This accelerated program is ideal for BS graduates looking for a rapid and comprehensive entry to the laboratory science workforce. For those who are planning a "gap year" before applying to medical or other doctoral programs, this MS program can demonstrate additional academic experience to medical/doctoral admissions offices.

ADVANCED MS GRADUATE PROGRAM
This program is designed to amplify the skills and knowledge base of individuals who have earned a bachelor’s degree or post-baccalaureate certificate in a laboratory science field of Biotechnology, Cytotechnology, Medical Laboratory Science (formerly called Medical Technology/Clinical Laboratory Science) or related degree-granting field. Management and regulatory strategies, specialized laboratory assignments, and bioscience education methods with practical teaching experiences are significant components of this advanced curriculum. Experiential and elective coursework is customized to meet each student's unique interests. The Advanced MS Program is offered on a full-time or part-time basis. Following their
individualized course sequence, advanced master’s students earn the MS degree at the conclusion of the program.

**MASTER’S CONCENTRATION AREAS FOR ENTRY-LEVEL BS/MS AND ADVANCED MS STUDENTS**

Students in the Entry-level BS/MS and Advanced MS programs select 7-9 credits of Concentration Electives from available graduate level courses offered throughout the University. Concentration Areas should focus on and reflect contemporary areas of clinical or research laboratory management, administration and advanced practice.

Concentration Areas for Bioscience Technologies include but are not limited to:

- Management and Supervision
- Financial Management
- Regulatory and Quality Management
- Research Skills

**ENTRY-LEVEL COMBINED BS/MS PROGRAMS (UNDERGRADUATE/GRADUATE)**

**Curriculum – BS/MS (Biotechnology/ Applied Molecular Technologies Option)**

*Undergraduate Phase*

<table>
<thead>
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<th>Semester Credits</th>
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<tr>
<td>LS 301 Molecular Biology</td>
<td>3</td>
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<tr>
<td>LS 303 Fundamental Clinical and Experimental Techniques</td>
<td>3</td>
</tr>
<tr>
<td>CH 304 Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>BT 303 Molecular Preparatory Techniques</td>
<td>1</td>
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<td>BT 310 Basic Molecular Techniques</td>
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<tr>
<td>BT 405 Microbial Genetics</td>
<td>3</td>
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<tr>
<td>MT 331 Immunology</td>
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**SPRING SEMESTER**

<table>
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<tr>
<td>BT 411 Protein Purification and Characterization</td>
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<td>BT 320 Cell and Tissue Culture</td>
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<td>LS 440 Current Research in the Biosciences</td>
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**Graduate Phase**

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<td>LS 603 Research Design</td>
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<tr>
<td>LS 640 Methods in Bioscience Education</td>
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<td>LS 801 Research Project I</td>
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Concentration Electives 6

SPRING SEMESTER
LS 613 Pathology 2
LS 610 Regulatory and Fiscal Issues in Laboratory Management 3
LS 802 Research Project II 2
LS 814 Practicum III 2
LS 815 Practicum IV 2
LS 816 Comprehensive Examination 1
Concentration Elective 3

Credit Summary
Credits Required for Admission 82
Undergraduate Phase Credits 39
Graduate Phase Credits 32

Total Credits for the BS/MS in Bioscience Technologies - Biotechnology/Applied Molecular Technologies Option 153

Curriculum – BS/MS (Cytotechnology/Cell Sciences Option)
Undergraduate Phase

FALL SEMESTER
LS 301 Molecular Biology 3
LS 303 Fundamental Clinical and Experimental Techniques 3
LS 311 Functional Histology 2
CT 301 Principles of Cell Analysis 2
CT 311 Gynecologic Cytology and Histocorrelations 3
CT 312 Gynecologic Cytology and Histocorrelations Laboratory 5
CH 304 Biochemistry 3

21

SPRING SEMESTER
LS 440 Current Research in the Biosciences 3
CT 307 Cellular and Molecular Laboratory Techniques 4
CT 315 Nongynecologic Cytology and Histocorrelations I 4
CT 317 Nongynecologic Cytology and Histocorrelations II 4
CT 325 Cellular and Molecular Diagnostics 3

18
Graduate Phase

FALL SEMESTER
LS 603 Research Design 3
LS 640 Methods in Bioscience Education 3
LS 801 Research Project I 1
LS 812 Practicum I 2
LS 813 Practicum II 2
Concentration Electives 6
17

SPRING SEMESTER
LS 610 Regulatory and Fiscal Issues in Laboratory Management 3
LS 613 Pathology 2
LS 802 Research Project II 2
LS 814 Practicum III 2
LS 815 Practicum IV 2
LS 816 Comprehensive Examination 1
Concentration Elective 3
15

Credit Summary
Credits Required for Admission 82
Undergraduate Phase Credits 39
Graduate Phase Credits 32

Total Credits for the BS/MS in Bioscience Technologies -
Cytotechnology/Cell Sciences Option 153

Curriculum – BS/MS (Medical Laboratory Science Option)

Undergraduate Phase

FALL SEMESTER
LS 301 Molecular Biology 3
LS 303 Fundamental Clinical and Experimental Techniques 3
CH 304 Biochemistry 3
MT 312 Microbiology I 3
MT 323 Chemistry I 2
MT 331 Immunology 3
MT 341 Hematology I 3
20

SPRING SEMESTER
MT 307 Clinical and Molecular Laboratory Techniques 4
MT 313 Microbiology II 3
MT 324 Chemistry II 3
MT 343 Hematology II 3
MT 352 Immunohematology 3
LS 440 Current Research in the Biosciences 3
19
Graduate Phase

FALL SEMESTER
Concentration Electives  6
LS 603  Research Design  3
LS 640  Methods in Bioscience Education  3
LS 801  Research Project I  1
LS 812  Practicum I  2
LS 813  Practicum II  2

SPRING SEMESTER
LS 610  Regulatory and Fiscal Issues in Laboratory Management  3
LS 613  Pathology  2
LS 802  Research Project II  2
LS 814  Practicum III  2
LS 815  Practicum IV  2
LS 816  Comprehensive Examination  1
Concentration Elective  3

Credit Summary
Credits Required for Admission  82
Undergraduate Phase Credits  39
Graduate Phase Credits  32
Total Credits for the BS/MS in Bioscience Technologies - Medical Laboratory Science Option  153

ACCELERATED PROFESSIONAL MS PROGRAMS (GRADUATE)
Curriculum – Prof. MS (Biotechnology/Applied Molecular Technologies Option)

FALL SEMESTER  Semester Credits
LS 501  Molecular Biology  3
LS 603  Research Design  3
CH 504  Biochemistry  3
BT 503  Molecular Preparatory Techniques  1
BT 510  Basic Molecular Techniques  4
BT 605  Microbial Genetics  3
MT 531  Immunology  3
  20

SPRING SEMESTER
BT 611  Protein Purification and Characterization  3
BT 520  Cell and Tissue Culture  4
BT 603  Human Genetics  3
BT 610  Molecular Diagnostic Techniques  4
BT 601  Systems Biology  2

112
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<tr>
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**SUMMER I & II**

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**Total Credits** 19

**Curriculum – Professional MS (Cytotechnology/Cell Sciences Option)**

**FALL SEMESTER**

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<td>Principles of Cell Analysis</td>
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<td>Gynecologic Cytology and Histocorrelations</td>
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<td>Gynecologic Cytology and Histocorrelations Laboratory</td>
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<td>CH 504</td>
<td>Biochemistry</td>
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**SPRING SEMESTER**

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<td>Pathology</td>
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**SUMMER I & II**

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<td>Regulatory and Fiscal Issues in Laboratory Management</td>
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<td>Practicum II</td>
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<td>Practicum IV</td>
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**Total Credits** 53
Curriculum – Professional MS (Medical Laboratory Science Option)

**FALL SEMESTER**

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**SPRING SEMESTER**

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**SUMMER I & II**

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**Total Credits** 53

**ADVANCED MS PROGRAM**

**Curriculum – Full-Time Option**

**FALL SEMESTER**

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<td>LS 603</td>
<td>Research Design</td>
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<td>LS 640</td>
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<td>*LS 644</td>
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SPRING SEMESTER
LS 610 Regulatory and Fiscal Issues in Laboratory Management 3
LS 613 Pathology 2
LS 802 Research Project II 2
LS 814** Practicum III 2
LS 815** Practicum IV 2
or
**LS 645 Laboratory Administration and Management 2-4
Concentration Elective(s) 4-5
minimum 15

Curriculum – Part-Time Option (Suggested)

FALL SEMESTER
LS 603 Research Design 3
LS 640 Methods in Bioscience Education 3
LS 812* Practicum I 2

SPRING SEMESTER
LS 610 Regulatory and Fiscal Issues in Laboratory Management 3
LS 613 Pathology 2
LS 813* Practicum II 2
or
*LS 644 Laboratory Education Administration and Instruction 2-4

SUMMER I and/or II
LS 814** Practicum III 2
Concentration Elective 3

FALL SEMESTER
LS 801 Research Project I 1
LS 815** Practicum IV 2
CH 504 Biochemistry 3

SPRING SEMESTER
LS 802 Research Project II 2
Concentration Elective(s) 4-5
or
**LS 645 Laboratory Administration and Management 2-4

Total Credits for the Master of Science in Bioscience Technologies
(Advanced MS)
minimum 32

CLINICAL AND RESEARCH PRACTICE SITES
The Department has affiliation agreements with laboratory facilities at Jefferson Health System member institutions and a variety of other hospital-based and commercial clinical and research
laboratories in the Philadelphia area, as well as across the United States, to optimize students’ practical experiences. More than 40 additional clinical and research laboratory sites are listed in the Clinical Affiliation Directory, copies of which are available for review in the Department and in the Office of Admissions.

Students are responsible for travel arrangements to and from affiliate sites. Public transportation systems make most affiliate sites in the Philadelphia area easily accessible. However, if practicums at distant affiliate sites are assigned, or if students wish to complete all or a portion of their practicum courses in laboratories in their home states/countries, students are responsible for arranging their own transportation and housing.

Scheduling for all practicum courses, including assignment to specific affiliate sites or times, is contingent on the availability of an appropriate affiliate site and adequate supervision. If the number or types of affiliate sites are deemed insufficient to provide required experiences for students, the Department may institute alternative affiliate experiences or affiliate placement mechanisms. These mechanisms may include on-site simulation laboratories, competitive student affiliate placements, preferential placements based on students’ academic performance and professional conduct evaluations, and/or lotteries. Clinical affiliate time periods may not conform to the School's published academic year schedule. Flexibility is expected on the part of students in scheduling and completing requisite clinical and/or research practicum courses.

OPTIONS FOR ADVANCED PLACEMENT, CREDIT BY CHALLENGE EXAMINATION, AND/OR TRANSFER OF UPPER DIVISION COURSEWORK
Several courses and clinical requirements in each of the programs offered in the Department may be satisfied through challenge examination, proficiency assessment, portfolio assessment and/or permission to transfer prior coursework, at the discretion of and with approval from the Program Directors. Permission to satisfy course requirements using one or more of these alternative methods is not automatic. Candidates must submit sufficient proof of prior relevant experience. Baccalaureate candidates who wish to transfer prior academic coursework for upper division credit must be able to demonstrate that prior courses are substantially similar in credit weight, content and level (i.e.: junior or senior level courses) to those in Jefferson’s required bachelors curricula. As a general guideline, prior upper division coursework should have been completed with at least a grade of “B” to be eligible for transfer. Undergraduate courses cannot be transferred to satisfy graduate course requirements. Instructions for preparing and assembling applications for these alternative methods are available from the Department of Bioscience Technologies.

Candidates who may qualify for challenge examination, proficiency assessment or portfolio assessment include those who 1) have completed an accredited medical laboratory or similar technician program; 2) possess Medical Laboratory Technician, Histotechnician/technologist or similar certification; 3) possess baccalaureate-level certification in a laboratory discipline other
than the program for which they are applying; or who 4) have been employed for three or more years as technicians/technologists in a clinical, anatomic or research laboratory.

**REQUIREMENTS FOR COMPLETION OF PROGRAMS**

Course prerequisites must be successfully completed to follow each prescribed curriculum sequence. Undergraduate students must earn a minimum cumulative grade point average (CGPA) of 2.00 to earn the baccalaureate degree. Graduate students must earn a CGPA of 3.00 to earn the master’s degree. For departmental (designated by prefixes BT, CT, MT and LS) and non-departmental required or approved elective courses, undergraduate students are required to maintain a minimum grade point average (GPA) of 2.00 in each semester of their program. Graduate students (including students in the combined BS/MS and Professional MS programs) should achieve a minimum GPA of 2.90 in the first semester and 2.95 in the second semester to assure approval for and progression to the second year and/or clinical phase of their program.

Students in the Advanced MS program must earn a minimum GPA of 3.00 in each semester of their program.

A student who falls below the prescribed minimum GPA may be subject to dismissal and/or will be placed on academic probation until such time as he or she achieves the required GPA.

A student is required to complete his or her course of study in a timely manner. Except when it is necessary for the department to extend practicum schedules for circumstances beyond departmental control, full-time students are expected to complete all program requirements within the sequence and timeframes indicated for their respective curricula. Any student unable to complete his or her program requirements within four years of initial matriculation will be required to apply for readmission to the program as it is currently offered and complete the full program.

A full-time undergraduate student in a 3+1 (12-month) program who earns a grade less than C- in a course or who withdraws from a course will be required to change his/her status to the undergraduate two year (2+2) program. This change of status does not guarantee program completion within a two year time frame.

In extraordinary circumstances, a full-time student unable to meet the applicable time frame may receive departmental permission to complete his or her program requirements in part-time status, or may be required to retake or supplement one or more courses prior to graduation. Such change of status does not guarantee program completion within four years of initial matriculation.

Students are required to conduct their academic, clinical and professional activities in accordance with University and School policies, and in accordance with the Department of Bioscience Technologies’ Academic and Clinical Practice and Ethics: Policies and Procedures. Students receive a copy of this document prior to starting their program courses.
DEPARTMENTAL ACADEMIC, PRACTICUM & TECHNICAL STANDARDS

Academic Performance

All required didactic and practicum departmental courses use a plus/minus letter grade system based on unrounded earned numerical scores/grades.

Undergraduate Academic Performance

1. A student who earns a grade less than C- in any department or non-departmental course must repeat the course and earn a grade of C- or better. Only one course in the student's curriculum may be repeated in this manner.
2. No course may be repeated more than once.
3. A student who earns a second grade less than C- in a departmental or non-departmental course or who earns two or more grades less than C- in the same academic term in departmental or non-departmental courses will be dismissed from the Department of Bioscience Technologies due to unsatisfactory academic performance, regardless of that student’s cumulative grade point average or previous grade of C- or better in a repeated course.

Graduate Academic Performance

1. A graduate student may earn only one C+ or C in his/her graduate curriculum.
2. A student who earns a second C+ or C grade will be placed on academic probation and will be required to repeat the second course (or a substantially similar course) with a grade of B or better. Only one course in the student's curriculum may be repeated in this manner.
3. No course may be repeated more than once.
4. A graduate student who earns a grade less than C (i.e.: C-, D+, D, D-, F) or who earns a third C+ or C grade will be dismissed from the graduate program due to unsatisfactory academic performance, regardless of that student’s cumulative grade point average or previous grade of B or better in a repeated course.

Performance in Laboratory, Clinical or Research Practicum Courses

1. A student who earns a grade less than C- (B- for graduate courses) in a laboratory or practicum course must repeat that course. The student will earn a maximum grade of C- (B- for graduate courses) if he or she passes the repeated course, or a grade of F if he or she does not pass. The repeat grade will be used to compute the grade point average. Students can repeat only one laboratory or practicum course in this manner.
2. A student may be removed from an on-site laboratory course or affiliate practicum site due to unsafe or unprofessional conduct, as defined by the School and by the Department of Bioscience Technologies’ Academic and Laboratory Practice and Ethics: Policies and Procedures. The nature of such conduct and the applicable disciplinary procedure will determine whether the course or practicum may be continued, extended, repeated or whether the student is subject to dismissal.
Technical Standards
Technical standards are the fundamental abilities that are absolutely necessary to perform the activities requisite to obtaining credit for education and subsequent entry-level employment in the field. Technical standards are based on the competency, proficiency and/or skill standards set forth by accrediting and professional organizations appropriate to each of the Bioscience Technologies programs. The technical standards of the Department do not preclude the use of an assistive device or devices, alternative means to aid in or evaluate the performance of essential functions, or program time extensions necessary to accomplish the requirements of the program. Such accommodation must be requested in a timely manner, and must be documented, reasonable, appropriate and available to the Department and/or the student.

Technical Standards of the Department of Bioscience Technologies are:
1. The ability to observe and participate in classroom exchanges, demonstrations, experiments and other learning venues in the applicable laboratory discipline or in interdisciplinary didactic and clinical settings.
2. The ability to analyze and synthesize concepts and data, and apply appropriate metrics to solve problems and reach interpretive judgments.
3. Sufficient use of the senses of vision, hearing, somatic sensation and motor movement necessary to learn and perform applicable laboratory procedures and associated data management in the classroom, clinical or research setting.
4. The ability to communicate electronically, in writing and verbally with faculty, other students, colleagues and all personnel in the practice setting with accuracy, clarity, efficiency and timeliness.
5. Sufficient cognitive and physical ability to comply with physical, chemical and biohazard precautions.

READMISSION TO THE DEPARTMENT
A student who is dismissed from the Department due to unsatisfactory academic performance, or for unsafe or unprofessional performance in a laboratory or practicum course may petition for readmission to the Department. The petition must be in writing, addressed to the Department Chair. Determination of eligibility for and conditions of readmission and reentry status will be based on the decision of the Chair, Program Director(s) and Department faculty. A student will be granted readmission only once.

Upon petition for readmission to a graduate program, the Director of Bioscience Technologies Graduate Programs will: (a) permit continuation of graduate studies; or (b) require the student to change his/her status to an undergraduate-level program as a condition for readmission; or (c) require the student to change his/her status to a graduate certificate program as a condition for readmission; or (c) uphold the dismissal.

Prior to approval for readmission, a student petitioning for reinstatement will be required to sign and adhere to a written document specifying completion requirements and/or course schedules.
If an undergraduate or graduate student is granted readmission, prior unsatisfactory grades must be remediated. An unsatisfactory grade earned after readmission (less than C-; less than B- for graduate courses) will result in dismissal with no recourse for readmission.

HONORS AND AWARDS
Undergraduate and graduate students are eligible for several departmental awards and national laboratory organization certificates of recognition. Meritorious performance is recognized for outstanding student achievement in and potential for professional laboratory competencies and practices. Bioscience Technologies Awards for Outstanding Scholarship, Outstanding Clinical Practice and Outstanding Laboratory Professionalism are presented annually at Class Day.

SCIENTIFIC/PROFESSIONAL ORGANIZATIONS, COMMUNITY SERVICE & NETWORKS
A variety of specialty and subspecialty science and professional societies offer membership to students. Local, state, national and international groups conduct educational and scientific programs of interest to students. A few of the many professional societies in which students are eligible for membership are:

- American Society for Cytotechnology (ASCT)
- American Society of Cytopathology (ASC)
- International Academy of Cytology (IAC)
- American Society for Clinical Laboratory Science (ASCLS)
- American Society for Clinical Pathology (ASCP)
- American Medical Technologists (AMT)
- Pennsylvania Biotechnology Association (PBA)
- Biotechnology Industry Organization (BIO)
- American Society for Biochemistry and Molecular Biology (ASBMB)
- Sigma Xi

In addition to these professional opportunities, students are encouraged to participate in public health education and outreach programs such as health fairs, community health screening activities, interprofessional studies or activities, bioscience education programs at high schools and colleges, and opportunities for volunteer or cooperative service in clinical or research laboratories.
DEPARTMENT OF BIOSCIENCE TECHNOLOGIES FACULTY
Shirley E. Greening, MS, JD, CT(ASCP), CFIAC
   Chair and Professor
   Director, Bioscience Technologies Graduate Programs
   Director, Cytotechnology/Cell Sciences Programs
Esther Biswas, MS, PhD, MB(ASCP)
   Associate Professor and Director, Biotechnology/Applied Molecular Technologies Programs
Richard D. Vandell, MS, MT(ASCP)SC, SH
   Assistant Professor and Director, Medical Laboratory Science Programs
   Director, Bioscience Strategic Initiatives
Stephen C. Peiper, MD
   Professor
   Chairman & Peter A. Herbut Professor, Department of Pathology, Anatomy and Cell Biology
Tatiana Zorina, MD, PhD, CT(ASCP)CM
   Assistant Professor and Education Coordinator, Cytotechnology/Cell Sciences Program
Samir K. Ballas, MD
   Clinical Professor
Hormoz Ehya, MD
   Clinical Professor
Albert A. Keshgegian, MD, PhD
   Clinical Professor and Medical Advisor, Medical Laboratory Sciences, Chief of Clinical Pathology, Main Line Health System
Ronald D. Luff, MD, MPH
   Clinical Professor and Medical Director, Cytotechnology/Cell Sciences
   Director, Anatomic Pathology for Clinical Trials, Questdiagnostics, Inc.
Carolyn Grotkowski, MD
   Clinical Associate Professor
Renu Bajaj, MS, PhD, CG(ASCP)
   Clinical Assistant Professor
   Clinical Assistant Professor, Department of Pathology, Anatomy and Cell BiologyJames Bondi, MS, MLS (ASCP)
   Clinical Assistant Professor
Scott Gygax, PhD
   Clinical Assistant Professor
Randall W. Hammond, PhD
   Clinical Assistant Professor
Katharine A. Muirhead, PhD
   Clinical Assistant Professor
Zi-Xuan Wang, PhD
   Clinical Assistant Professor
   Clinical Assistant Professor, Department of Pathology, Anatomy and Cell Biology
Thomas Bell, PhD
Lecturer

Glenn Bull, MS, MLS(ASCP)
Lecturer

Olarae Giger, PhD
Lecturer

Donna Goldner, BS, MT(ASCP)
Lecturer

Jennifer Slodysko, MS, MLS(ASCP)
Lecturer, Laboratory Teaching Associate

Meghan Campion, BS, MT (ASCP)
Lecturer

Dawn M. Curran, MS, CT(ASCP)PBT
Laboratory Teaching Associate

Kelly Doxzon, MBA, CT(ASCP)
Laboratory Teaching Associate

Nicole Qualtieri, MS, PA(ASCP)CT
Laboratory Teaching Associate

Kelly Lennen, MS, CT(ASCP)
Laboratory Teaching Associate

Valerie Jalicke, BS, , MLT(ASCP)
Laboratory Teaching Associate

Wendy White, MS, MT(ASCP)
Laboratory Teaching Associate

Kimberly Fielder, BS, CT(ASCP)
Clinical Instructor

Clementine Hawthorne, BS, CT(ASCP)
Clinical Instructor

Marcia Marchese, BS, MT(ASCP)
Clinical Instructor

Margaret Rapa, BS, MT(ASCP)
Clinical Instructor

Susan Salber, BA, CLSp(CG)
Clinical Instructor

Deborah Santucci, BS, CT(ASCP)
Clinical Instructor

Ewa Tomczak, DVM, CLSp(CG)
Clinical Instructor

James Weidmann, BS, CT(ASCP)HT
Clinical Instructor
BIOSCIENCE TECHNOLOGIES COURSE DESCRIPTIONS
Courses are described in numerical order within academic departments. The number within parentheses following the course title indicates the number of semester credits assigned to each course. Courses with prefixes other than BT, CT, MB, MT or LS are described in the Department of Professional and Continuing Studies Chapter.

Core Curriculum Courses
LABORATORY SCIENCES 301/501
Molecular Biology (3)
Principles and mechanisms of cellular function at the molecular level, including an overview of experimental techniques; protein structure and function, gene expression, chromosome structure and replication; the cell cycle; transcription and translation, cell signaling pathways; molecular basis of genetic disease and cancer, and diagnostic applications.

LABORATORY SCIENCES 303
Fundamental Clinical and Experimental Techniques (3)
Orientation to fundamental theories and practice in core competencies common to all bioscience disciplines, including safety; microscopy; operating principles; use and maintenance of basic instruments and supplies; laboratory mathematics; molecular concepts; information processing; principles of laboratory education; and clinical correlations. Lecture and laboratory.

LABORATORY SCIENCES 311/511
Functional Histology (2)
Microscopic study of the human body including normal structure and function and relationships to life processes through computer interactive, lecture and microscopy laboratory sessions. Available as an online course with permission of program director.

LABORATORY SCIENCES 413/613
Pathology (2)
Study of basic disease processes of the body including inflammation, repair, fluid and hemodynamic disorders, and neoplasia; and specific disease processes affecting the major body systems.

LABORATORY SCIENCES 416/816
Comprehensive Exam (1)
Background readings, comprehensive review and self-administered quizzes/exams in the discipline-specific body of knowledge and scope of practice necessary to prepare for national certification examination(s). Web-based course.
Prerequisite: Completion of at least two practicum courses.
LABORATORY SCIENCES 430
Laboratory Standards and Practices (3)
Managerial/supervisory, professional, technological, ethical, regulatory, legal, financial and health services research issues as they affect and are influenced by contemporary laboratory practice, laboratory personnel and laboratory services. Student-centered discussions, assignments and presentations are based on information drawn from print, electronic and professional sources. Available as an online course with permission of program director.

LABORATORY SCIENCES 440
Current Research in the Biosciences (2-3)
Examination and critical review of the literature pertaining to the bioscience disciplines of biotechnology, cytotechnology and medical technology. Students and faculty present important papers from contemporary literature for critical discussion. Education methods and communication skills relevant to conveying scientific findings are emphasized. Undergraduate students submit a written synopsis of weekly topics. Entry-level masters students select a topic of interest, research the literature and produce a comprehensive review suitable for publication in a peer-reviewed journal.

LABORATORY SCIENCES 498
Special Topics in Laboratory Science (2)
Student-designed, arranged and implemented experience in a setting directly or indirectly related to laboratory sciences. Practical and/or theoretical studies may be selected from laboratory practice areas (histotechniques and histopathology, electron microscopy, forensics, veterinary; flow cytometry, cytopreparation); laboratory practice settings (physician office, home health service, community clinic, OR/Stat lab); administration (managed care, laboratory or research); education (public, professional); diagnostic and/or treatment services (radiography, respiratory care, nuclear medicine, dialysis, IV therapy, family medicine); and community service. These or other experiences are subject to availability and/or scheduling restrictions. Depending on the area selected, competence assessment and/or a summary report is required.
Prerequisite: Approval of course coordinator and program director.

LABORATORY SCIENCES 399, 499, 699
Independent Study (1 to 6)
Study under faculty supervision of an area or topic not included in the formal curriculum, with emphasis on individual study and research. Eligible students must obtain faculty sponsorship. Objectives, settings, implementation strategies, preceptorship and evaluation criteria are the responsibility of the student and program faculty. A maximum of six semester credits during the entire program may be earned by independent study. Prerequisites: completion of one semester of study, good standing in the School and department, a minimum grade point average of 2.00 (2.90 for graduate students), and approval of faculty advisor and program director.
Biotechnology/Applied Molecular Technologies Courses

BIOTECHNOLOGY 303/503
Molecular Preparatory Techniques (1)
Basic aspects of biotechnology laboratory work: gel preparation, buffer composition, media preparation, streaking and isolating bacteria. Lecture and laboratory.

BIOTECHNOLOGY 310/510
Basic Molecular Techniques (4)
Discussion, demonstration and practice of basic molecular techniques including DNA/RNA isolation, restriction digest, gel electrophoresis and blotting techniques. Lecture and laboratory. Co-requisite: BT 303/503

BIOTECHNOLOGY 320/520
Cell and Tissue Culture (4)
Sterile technique, suspension and adherent culture, growth curve, cryopreservation, cell cycle analysis, imaging, laboratory safety and documentation. Lecture & laboratory.

BIOTECHNOLOGY 401/601
Systems Biology (2)
Cross-disciplinary course combining flow cytometry, digital imaging technologies, bioinformatics and molecular modeling aimed at understanding organisms as a whole. Presents methods by which specific biological information relating to DNA, RNA, proteins, cells and tissues are integrated and modeled. Prerequisite: Laboratory Sciences 301/501, or permission of Program Director

BIOTECHNOLOGY 403/603
Human Genetics (3)
Overview of principles of heredity and their significance. Topics include principles of heredity, patterns of transmission, pedigree analysis, gene action, mutations, gene linkage, gene localization, somatic cell genetics, immunogenetics and population genetics. Prerequisite: Laboratory Sciences 301/501

BIOTECHNOLOGY 405/605
Microbial Genetics (3)
Specialized topics in microbiology and molecular genetics. Examines the biology of human bacteria, yeast and viruses with special emphasis on their use in molecular genetics. Lecture/seminar. Co-requisite: Laboratory Sciences 301/501
BIOTECHNOLOGY 410/610
Molecular Diagnostic Techniques (4)
Introduces clinical applications of molecular techniques. Includes discussion, demonstration and practice of molecular techniques including detection of gene mutations, oncogene amplification and loss of tumor suppressor gene function. Covers advanced techniques such as forensics, probe development and cloning and sequencing. Lecture & laboratory. Prerequisite: Biotechnology 310/510

BIOTECHNOLOGY 411/611
Protein Purification and Characterization (3)
Introduction to theory and applications of protein purification, characterization, and enzymology. Students perform various types of chromatography, gel filtration, ion exchange chromatography, affinity chromatography, protein assays, protein analysis, SDS PAGE, spectroscopic methods, and enzyme kinetics. Lecture & laboratory. Prerequisite: Biotechnology 310/510

BIOTECHNOLOGY 412, 422, 432, 442
Biotechnology Practica I, II, III, IV (4 each)
Undergraduate practical internships in biotechnology laboratories. Students participate in all phases of laboratory functions relating to the various applications of biotechnology including, but not limited to, molecular diagnostics, basic and applied research and forensics. As appropriate, students will also participate in relevant continuing education activities, attend seminars and engage in other professionally related activities. Prerequisites: Completion of pre-practicum Biotechnology and Core Curriculum coursework

Cytotechnology/Cell Sciences Courses
CYTOTECHNOLOGY 301/501
Principles of Cell Analysis (2)
Cell identification methods and morphologic criteria used in the evaluation of cytology specimens. Emphasis on manual and automated microscopy for detection and interpretation of basic cell types and changes found in conventional and liquid-based cytology specimens. Lecture and laboratory.

CYTOTECHNOLOGY 303
Histologic and Electron Microscopic Techniques (2)
Introduction to histologic preparatory techniques and special stains. Preparation techniques and principles of operation for electron microscopic study. Prerequisite: Permission of program director.

CYTOTECHNOLOGY 307/507
Cell and Molecular Laboratory Techniques (4)
Modular course focusing on the techniques, procedures and protocols used in cytological, histologic, and molecular preparation and interpretation of anatomic specimens using genetic technologies, flow cytometry, nucleic acid hybridization and amplification techniques,
immunochemistry and biosensor technology. Laboratory sessions cover contemporary procedures for diagnostic testing such as prognostic markers, DNA analysis FISH, PCR, blotting techniques and DNA sequencing. Lecture and laboratory.  
Prerequisite: CT 311/511 or permission of program director

**CYTOTECHNOLOGY 311/511**  
Gynecologic Cytology and Histocorrelations (3)  
Study of the anatomy, physiology, cytology and pathophysiology of the female genital tract and corresponding cellular manifestations which provide diagnostic information. Lecture.  
Prerequisite: Cytotechnology 301/501

**CYTOTECHNOLOGY 312/512**  
Gynecologic Cytology and Histocorrelations Laboratory (5)  
Integration of didactic information pertaining to the female genital tract, with application of diagnostic criteria to develop practical analytical expertise. Students interpret laboratory data, explain the significance of the data to a patient’s condition and offer diagnoses and/or recommendations for further testing.  
Prerequisite: Cytotechnology 301/501

**CYTOTECHNOLOGY 315/515**  
Non-Gynecologic Cytology and Histocorrelations I (4)  
Study of the anatomy, physiology, cytology and pathophysiology of the respiratory tract (including lung FNA’s), fine needle aspiration cytology of mediastinum, breast, liver, pancreas and salivary glands, kidney and adrenals, with application of cytohistologic and molecular diagnostic criteria to develop practical analytical expertise. Students interpret laboratory data, explain the significance of the data to a patient’s condition and offer diagnoses and/or recommendations for further testing. Lecture & Laboratory.  
Prerequisites: Cytotechnology 311/511, 312/512

**CYTOTECHNOLOGY 317/517**  
Non-Gynecologic Cytology and Histocorrelations II (4)  
Study of the anatomy, physiology, cytology and pathophysiology of the gastrointestinal tract (brushes), urinary tract, effusions including CSF, fine needle aspiration cytology of thyroid, lymph nodes, bone and soft tissue, with application of cytohistologic and molecular diagnostic criteria to develop practical analytical expertise. Students interpret laboratory data, explain the significance of the data to a patient’s condition and offer diagnoses and/or recommendations for further testing. Lecture and Laboratory  
Prerequisites: Cytotechnology 315/515
CYTOTECHNOLOGY 325/525
Cellular and Molecular Diagnostics (3)
Review, microscopic examination and comprehensive analysis of selected cases in gynecologic, nongynecologic and fine needle aspiration cytology, including clinical correlations. Special emphasis on differential diagnosis, decision-making algorithms and diagnostic pitfalls.

CYTOTECHNOLOGY 403
Histopathology (1)
Technical preparation of tissue specimens for microscopic examination, including gross dissection of tissues, paraffin processing, sectioning and routine and special staining. Microscopic analysis of the tissue specimens and preparation of a histopathologic report.
Prerequisite: Permission of program director.

CYTOTECHNOLOGY 412, 413, 414, 415
Cytotechnology Practica I, II, III, IV (4 each)
Undergraduate clinical internships in a variety of cytopathology laboratories. Students participate in all phases of diagnostic service work and laboratory functions (preanalytical, analytical, postanalytical) that may include continuing education activities, adjunct diagnostic technologies and seminar attendance.
Prerequisites: Completion of pre-practicum Cytotechnology and Core Curriculum coursework

Medical Laboratory Sciences Courses
MEDICAL TECHNOLOGY 307/507
Clinical and Molecular Laboratory Techniques (4)
Modular course focusing on the techniques, procedures and protocols used in the chemical, microscopic and molecular preparation and interpretation of biologic fluids and other human specimens using clinical analysis, genetic technologies, flow cytometry, HLA tissue typing, nucleic acid hybridization and amplification techniques, immunochemistry and biosensor technology. Laboratory sessions cover contemporary procedures for diagnostic testing such as prognostic markers, DNA analysis FISH, PCR, blotting techniques and DNA sequencing. Lecture and laboratory
Prerequisite: MT 323/523 and MT 331/531 or permission of program director

MEDICAL TECHNOLOGY 312/512
Microbiology I (3)
Examines the biology of clinically significant bacteria. Emphasizes physiology and morphology of pathogenic bacteria and the key laboratory diagnostic tests used for their identification. Discusses pathogenic bacteria with respect to their associated clinical syndromes, epidemiology, mechanisms of infection, antimicrobial treatment and susceptibility testing. Contemporary laboratory methodologies used to examine clinical specimens are reviewed. Lecture and laboratory.
MEDICAL TECHNOLOGY 313/513
Microbiology II (3)
Continuation of MT 312. Epidemiology, pathogenesis, laboratory diagnosis and treatment of the following classes of microorganisms: parasites, fungi, mycobacteria, Nocardia, Chlamydia, rickettsiae, mycoplasma, spirochetes and virology. Uses contemporary laboratory methodologies and clinical correlations to examine prepared specimens and infectious processes. Lecture and laboratory.
Prerequisite: Medical Technology 312/512

MEDICAL TECHNOLOGY 323/523
Chemistry I (2)
Study of the significance of chemical analytes indicative of human health and disease. Theory, operating principles and utilization of biochemical instrumentation and techniques for research in and testing of clinically significant analytes. Photometric and electrophoretic methodologies are used to test analytes including but not limited to carbohydrates, proteins, enzymes, lipids, drugs of abuse, therapeutic drugs and tumor markers. Quality control and preventive maintenance methods are emphasized. Lecture and laboratory.

MEDICAL TECHNOLOGY 324/524
Chemistry II (3)
Continued study in the theory, operating principles and utilization of biochemical instrumentation and techniques for testing of clinically significant analytes, with correlation of test data to a patient’s clinical status. Emphasis on the study of hormones, electrolytes, water metabolism, blood gases, renal, hepatic and pancreatic functions and nutrition. Lecture and laboratory.
Prerequisite: Medical Technology 323/523

MEDICAL TECHNOLOGY 331/531
Immunology (3)
Examines the human immune system as it relates to health and disease. Topics include structure, function and generation of antibody molecules, and cellular recognition, response and regulation of the immune response. Mechanisms of hypersensitivity, autoimmunity, responses to microbiological agents especially viruses, HLA, transplantation and tumor immunology are covered. Principles and applications of diagnostic immunologic laboratory methods are discussed. Lecture and Laboratory. Lecture portion available online with permission of program director.

MEDICAL TECHNOLOGY 341/541
Hematology I (3)
Introduction to the hematopoietic system through study of the origin, development, and function of red blood cells, including normal physiology and metabolism of red cells. Normal and abnormal red and white blood cell morphology, and associated pathological findings are examined. Basic techniques employed in clinical hematology laboratories are taught and testing
is performed on human blood samples. Introduction to blood collection techniques. Lecture and laboratory.

**MEDICAL TECHNOLOGY 343/543**  
**Hematology II (3)**  
Continued study of the hematopoietic system through study of abnormal white blood cell morphology and associated pathological findings. Normal and pathologic conditions of the coagulation process are examined. Basic techniques employed in clinical hematology laboratories are taught and testing is performed on human blood samples. Students continue to practice blood collection techniques. Lecture and laboratory.  
Prerequisite: Medical Technology 341/541

**MEDICAL TECHNOLOGY 352/552**  
**Immunohematology (3)**  
Principles and protocols of modern transfusion services, covering blood typing, testing for antibodies and antigens, crossmatching, neonatal testing, and quality systems; immunology of hematologic diseases. Lecture and laboratory.  
Prerequisite: Medical Technology 331/531

**MEDICAL TECHNOLOGY 412, 422, 442, 454**  
**Clinical Practica I, II, III, IV (4 each)**  
Undergraduate practical internships in clinical and/or research laboratories. Students participate in all phases of laboratory functions common to contemporary clinical laboratory practice including, but not limited to, microbiology (routine and specialized procedures in bacteriology, mycology, parasitology, virology and serology), chemistry (routine and specialized procedures in general chemistry, toxicology, therapeutic drug monitoring and chemical immunoassay), hematology (routine and specialized procedures in clinical hematology, coagulation and other biologic fluids), immunohematology (routine and specialized procedures in blood banking and transfusion medicine) and immunopathology (immunodiagnostics, serology). Students also participate in relevant continuing education activities and engage in other professionally-related activities.  
Prerequisites: Completion of pre-practicum Medical Laboratory Science and Core Curriculum coursework

**GRADUATE PROGRAM**

**Laboratory Sciences Courses**  
**LABORATORY SCIENCES 603**  
**Research Design (3)**  
Methods and techniques for extending the scientific base of knowledge for bioscience laboratory practice. Students analyze contemporary research studies, designs and related statistical processes to assess their appropriateness for answering experimental hypotheses
and laboratory practice issues. Education methods and communication skills relevant to disseminating scientific findings are emphasized.

LABORATORY SCIENCES 610
Regulatory and Fiscal Issues in Laboratory Management (3)
Study and application of professional, regulatory and fiscal requirements for laboratory operations including federal, state and local requirements governing clinical and research laboratories; compliance issues; billing and reporting requirements for laboratories using private, managed care and other third party payers (including federal government programs); current procedural terminology to assign and bill for laboratory procedures; budgeting for laboratory operations.

LABORATORY SCIENCES 620
Laboratory Information Systems (3)
Design and use of information systems and laboratory informatics for clinical, anatomic and research laboratories. Vendor demonstrations, hands-on practice and trouble-shooting of data protocol development, input and retrieval to produce useful information for laboratory operations.

LABORATORY SCIENCES 630
Laboratory Services Research (3)
Overview of the various techniques and resources used to influence and measure performance improvement, proper test utilization and best practices as strategies to improve the effectiveness of patient care. Students examine the relevant literature and develop instruments to assess the laboratory’s role in cost-effectiveness, access to laboratory testing and quality of laboratory testing.

LABORATORY SCIENCES 640
Methods in Bioscience Education (3)
Theory and practice of teaching, learning and evaluation in traditional classroom settings, clinical settings, and through on-line platforms, with emphasis on issues unique to biosciences learning environments. Seminar.

LABORATORY SCIENCES 644
Laboratory Education Administration and Instruction (2-4)
Completion of teaching and learning experience(s) in classroom, on-line and/or laboratory practice settings. Students acquire and demonstrate fundamental knowledge and practical skills in education administration, delivery and evaluation.
Prerequisite: Laboratory Sciences 644 and completion of or concurrent discipline-specific coursework in the planned area of performance and permission of Program Director.
LABORATORY SCIENCES 645
Laboratory Administration and Management (2-4)
On-site interaction with and immersion in administrative duties enabling students to observe, participate in and evaluate the various functions and responsibilities associated with laboratory organization and management. Under direct supervision of a laboratory director, supervisor, manager, or administrator, the student assesses management and administrative roles and outcomes within the laboratory as a means to develop and refine leadership skills
Prerequisite: LS 610 or other approved graduate/undergraduate management course.

LABORATORY SCIENCES 801, 802
Research Project I, II (1, 2)
Research using the various techniques and resources available to conduct experimental research and/or measure performance improvement, test utilization, best practices and clinical outcomes. A publishable paper and oral presentation are required at the conclusion of the project.

LABORATORY SCIENCES 812, 813, 814, 815
Practica I, II, III, IV (2 each)
Graduate internships in affiliated laboratories. Students rotate through all phases of laboratory work and functions in their respective disciplines. Components include practical work experience, participation in and/or observation of specialty area(s), quality assurance and continuing education activities, seminar attendance and adjunct technologies. Advanced master’s students may also expect to participate in undergraduate teaching or management internships.
Prerequisite: Completion of pre-practicum discipline-specific and Core Curriculum coursework.
Couple and Family Therapy
DEPARTMENT OF COUPLE AND FAMILY THERAPY
MISSION
The Department of Couple and Family Therapy has as its mission preparing students to enter the profession of marriage and family therapy as highly qualified entry-level professionals, whose clinical work is well grounded in the theoretical models, the empirical findings and the ethical guidelines of the field. The goals of the faculty are to teach students the skills to be life-long learners, able to evaluate and incorporate new developments in the field; to prepare them to be able to practice competently with diverse clinical and cultural populations; to have them evolve strong professional identities; and to develop the self awareness necessary to critically assess their relationships with clients throughout their careers. Graduates of the program will be prepared to provide state of the art treatment, to collaborate with other health care professionals and to assume leadership roles in the evolving health care environment.

PHILOSOPHY AND CURRICULUM DESIGN
The curriculum is designed around two major foci, the nature of couple and family relationships in all of their diversity and the importance of the therapeutic relationship and its role in the change process. The goals and objectives of the Department of Couple and Family Therapy are to prepare students through the use of didactic, experiential and clinical learning modalities – to be able to understand, to describe and to integrate foundational and higher level theoretical concepts, key empirical findings and therapeutic techniques into a working clinical model of couple and family therapy.

The program is designed to meet the standards of the Commission on Accreditation in Marriage and Family Therapy Education that states that, “that the training of marriage and family therapists “… [is] based on a relational view of life in which an understanding and respect for diversity and non-discrimination are fundamentally addressed, valued and practiced. Based on this view, marriage and family therapy is a professional orientation toward life and is applicable to a wide variety of circumstances, including individual, couple, family, group and community problems. It applies to all living systems; not only to persons who are married or who have a conventional family (COAMTE Standards Version 11, Adopted 11/04/05).”

The program subscribes to the Standard Occupational classification of the Bureau of Labor and Statistics which states that marriage and family therapists are qualified to “diagnose and treat mental and emotional disorders, whether cognitive, affective, behavioral, within the context of marriage and family systems. [They] Apply psychotherapeutic and family systems theories and techniques in the delivery of professional services to individuals, couples and families for the purpose of treating such diagnosed nervous and mental disorders.”

Key to the philosophy and curriculum design of the Department of Couple and Family Therapy are seven guiding assumptions:

1. Humans are social beings who seek relationships and that these relationships are constantly evolving in response to changes in the larger culture, as well as in
response to internal changes in their structure, composition and dynamics. This relational capacity, along with the ability to change and adapt to new circumstances, provides the framework for couple and family therapy.

2. Human behavior is best understood in the context in which it occurs and therefore is best assessed in that context. For most individuals the family is a primary context, but other contexts of significance—such as, school, workplace, medical setting and community must be considered.

3. Human diversity in all of its forms impacts family functioning and the therapeutic process and therapists must be sensitive to and aware of the implications of this in their clinical work.

4. Human behavior must also be understood within a biopsychosocial framework. The behavior of individuals, couples, families and larger systems is viewed as the result of a complex interaction of biological, psychological and social factors linked by feedback loops. Family therapists must understand the relative contributions of each of these factors, how they influence each other in any given clinical situation and know how and when to address them.

5. Families and larger social systems develop and differentiate over time and family therapists must take account of these developmental issues in planning and executing effective clinical interventions.

6. Couples, families and individuals must be treated in a therapeutic environment, that not only seeks to address pathological factors that may be inhibiting their growth and development, but one that also seeks to identify and build on the inherent strengths and capacities already available to the clients. Therapists therefore must be equally adept at finding client’s strengths as they are at identifying problems.

7. Family therapists must understand the use of self as the crucial element of change in the therapeutic relationship. Development of self-awareness and the ability to understand the role the therapeutic relationship plays in the change process is essential.

COUNCIL FOR RELATIONSHIPS: HISTORY, MISSION AND AFFILIATION WITH THOMAS JEFFERSON UNIVERSITY
The Council for Relationships is an outgrowth of the pioneering work of Emily Mudd, Ph.D., in the field of sexual and marital counseling. In 1932, Dr. Mudd helped found the Marriage Council of Philadelphia, which initially focused on providing women with information on birth-control. Under her direction the Marriage Council, now the Council for Relationships, became the first center in the country to establish a program to evaluate the effectiveness of counseling. In the mid-1950’s, it was one of three centers in the nation with an accredited training program for marriage counselors. Dr. Mudd was a founding member of the American Association of Marriage Counselors and presided over the organization in 1954-55.

The Council for Relationships is now one of the largest outpatient treatment centers in the country—with thirteen offices throughout the region-specializing in couple and family therapy. It
is a private, not for profit center with a large multi-disciplinary staff including psychologists, social workers, couple and family therapists and psychiatrists who provide clinical services to over three thousand clients per year. In addition to individual, couple and family therapy, Council for Relationships offers a variety of psycho-educational programs for clients, offers psychiatric services, conducts on-going research into relationship issues and is committed to training mental health professionals in couple and family therapy.

The history of the relationship between Thomas Jefferson University and Council for Relationships dates to February 2, 2000, when an Affiliation agreement was signed between Jefferson Medical College and Council for Relationships to establish a cooperative academic program of medical education and training at Jefferson in the Department of Psychiatry and Human Behavior. During this time Council for Relationship’s faculty have held clinical appointments in the Department of Psychiatry and have participated in teaching and training psychiatry residents in couple and family therapy. It was this relationship that became the springboard for the development of the master’s program in couple and family therapy. The program is now part of the School of Health Professions.

The core faculty for the Couple and Family Therapy Department of Thomas Jefferson University are all active members of the Council for Relationships and the Couple and Family Therapy Program is a joint endeavor of Council for Relationships and Thomas Jefferson University.

The Couple and Family Therapy Program at Thomas Jefferson University
The Couple and Family Therapy Program is a full-time, two year, 66 credit program that culminates in the awarding of a Master’s in Family Therapy degree (MFT). The curriculum is modeled on the core curriculum developed by the Committee on Education of the American Association of Marital and Family Therapy focusing on key areas of contemporary practice including: couple and marital intervention; family development; family therapy with children; families in transition (divorce and remarriage); family violence; medical family therapy; diversity issues; sex therapy; and research in couple and family therapy. The program offers two tracks: the couple and family therapy track and the sex therapy track, which students declare at the end of their first year.

Educational Outcomes
The program is designed to meet the following educational outcomes. These outcomes have been developed from a number of sources, including the identified Professional Marriage and Family Therapy Principles of the American Association of Marriage and Family Therapy (AAMFT), the MFT Core Competencies as defined by AAMFT, the AAMFT Code of Ethics, the Commission on Accreditation of Marriage and Family Therapy Education (COAMFTE) Educational Guidelines, and Pennsylvania State Marriage and Family Therapy Licensure Law. These outcomes also provide key feedback to the department as part of an annual cycle of review to gauge program effectiveness and foster ongoing program improvement.
**Student Learning Outcomes:**

A. Students in the program will demonstrate mastery of the theoretical and clinical knowledge needed to practice as an entry level MFT as measured by achieving a score of at least 66% correct on the American Association of Marital and Family Therapy Regulatory Board Practice Examination in either their first or second attempt. The benchmark for this SLO is 75% will achieve a passing score as indicated above and 75% will achieve at least a meets expectation score on the rubric associated with academic course assignments linked with this SLO (see Course Syllabi).

B. Students will demonstrate mastery of key clinical skills required to practice as an entry level MFT, as reflected in the 5 domains of the Core Competencies of COAMFTE, as measured by an aggregate score of 3 (out of 4) or higher on the department Practicum Evaluation Form. The benchmark for this SLO is 75% will achieve at least a score 3 or higher on this instrument in their final evaluation.

C. Students will learn to work effectively with culturally diverse clinical populations as measured by an aggregate score of 3 (out of 4) on the diversity subscale of the Practicum Evaluation Form. The benchmark for this SLO is 75% will achieve at least a score 3 or higher on this instrument in their final evaluation.

D. Students will demonstrate competency in critically reviewing the scientific literature in the field of couple and family therapy as measured by a grade of Meets Expectations or better on the scientific literature review section of the Master’s Project. The benchmark for this SLO is 75% will achieve at least a score Meets Expectations or higher on this rubric.

E. Students will demonstrate competency in practicing within the scope of the AAMFT code of Ethics as measured by: 1) receiving a P on their presentations of ethical principles during their Practicum Orientation; 2) receiving a grade of at least a B on the ethics assignment from the course Professional, Ethical and Legal Issues in Couple and Family Therapy and; 3) receiving an aggregate average score of at least 3 (out of 4) on the ethics subscale of the Practicum Evaluation Form. The benchmark for this SLO is 75% of students will achieve the stated criteria for these measures in their final evaluation.

F. Students will demonstrate the ability to collaborate with other health care professionals as measured by their aggregate team member ratings of at least 5 out of 6 on the Team Performance Evaluation and at least 4 out of 5 on the Peer/Self Evaluation in the Health Mentors Program. The benchmark for this SLO is that the mean score for students in the department on these assignments will meet the minimum requirements outlined above.
Program Outcomes:

A. Eighty percent of the students admitted to the program will graduate within 2 years of matriculation.

B. Seventy five percent of the students who respond to the Alumni Survey will report achieving licensure as an MFT within six years of graduation as measured by response to the Alumni Survey and state licensure data.

C. Seventy five percent of the students who respond to the Alumni Survey will report they have attained employment in the field of MFT or they have been admitted to a doctoral program in MFT within one year of graduation.

D. Sixty percent of the students responding to the Alumni Survey will report that they have made contribution to field in one or more of the following ways: 1) professional or lay presentation; 2) lay or professional publication; 3) achievement of AAMFT Approved Supervisor status; 4) advanced academic degree attainment in the field of MFT within six years of graduation.

E. Seventy five percent of students who respond to the Alumni Survey will report working with culturally diverse clinical populations and will also report the program equipped them to work confidently with culturally diverse populations.

Faculty Outcomes:

A. The faculty will demonstrate excellent teaching skills. The benchmark is faculty receiving an aggregate average score of 4 (out of 7) or higher each semester on the student course evaluations covering course quality, assignment quality, instructor quality, and diversity competency.

B. The faculty will demonstrate excellence in teaching diversity related issues. The benchmark is faculty receiving an aggregate average score of 4 (out of 7) or higher on their student course evaluations in the area of diversity issues covered.

C. The faculty will demonstrate excellence in supervisory skills. The benchmark is the program supervisors maintaining a 100% rate of being either an AAMFT Approved Supervisory or meeting the qualifications of being eligible to provide supervision for MFT licensure in Pennsylvania under the Pennsylvania Licensure law.

D. The faculty will demonstrate a commitment to clinical practice as measured by an 80% rate of ongoing practice participation.
E. The faculty will contribute to the field of couple and family therapy through at least one of the following each academic year as measured by a score of one or more on the Faculty Contribution Rubric: 1) professional or lay presentation; 2) professional or lay publication; 3) participation in MFT based research; 4) community service.

Students are required to complete 500 hours of direct clinical experience in order to graduate. Two hundred and fifty of these hours must be with couples and families, while the other half can be with individuals. Students will receive a minimum of 100 hours of supervision, at least 50 hours of which will be based on direct observation, videotape, or audiotape. During the program students will complete 12-16 hours of face to face clinical work per week. The first year practicum is designed to help students develop the basic clinical skills and competencies necessary to conduct couple, family and individual therapy. The second year practicum is designed to help students broaden and integrate advanced clinical skills in working with diverse populations. Students will receive supervision based on a 5 to 1 ratio of clinical hours to supervision hours. Students will receive a combination of individual, dyadic and group supervision.

Practicum placements are available at a variety of clinical settings, including Council for Relationships locations in the Philadelphia region, affiliated community organizations, as well as sites within the Jefferson Health System. Students have the opportunity and are expected to choose from a wide spectrum of placement options, such as outpatient mental health clinics, The Institute of Sex Therapy, schools and homeless shelters for their clinical training.

Students will also have the opportunity to participate in a variety of interprofessional training activities, emphasizing the collaborative nature of health care delivery.

**ADMISSION REQUIREMENTS**

- Completed application
- $25 fee for on-line application
- Official transcripts from all educational institutions attended
- Two letters of recommendation
- Essay
- An interview is required for all academically eligible applicants
- Bachelor’s degree
- Introductory Psychology, Abnormal Psychology (Psychopathology) and Statistics courses (3 credits each with at least a B in each course)
- Undergraduate GPA of at least 3.0
- GREs (preferred or MATs)
- Work-related experience will be considered
## CURRICULUM: MASTER'S IN FAMILY THERAPY PROGRAM

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>Fall semester</strong></td>
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<td>CFTP 501 Theory and Practice of Family Therapy I</td>
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<td>CFTP 503 Theory and Practice of Couple Therapy</td>
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<td>CFTP 509 Foundations of Systemic Practice</td>
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<td>CFTP 505 Life Span Development from a Systemic Perspective</td>
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<td>CFTP 502 Theory and Practice of Family Therapy II</td>
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<td>CFTP 504 Assessment in Couple and Family Therapy</td>
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<td>CFTP 510 Psychopathology in Socio-Cultural Context</td>
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<td>CFTP 511 Introduction to Sex Therapy: Concepts in Human Sexuality</td>
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<td>CFTP 507 Practicum II</td>
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<th>Second Year</th>
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<td>CFTP 601 Implications for Diversity in Practice</td>
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<td>CFTP 602 Research in Couple and Family Therapy</td>
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<td>CFTP 606 Live Supervision II</td>
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<td>Specialty Track Coursework</td>
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<tr>
<td>• CFTP 603 Advanced Sex Therapy (Sex Therapy Track)</td>
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<td>• CFTP 605 Issues of Violence and Abuse in the Family (Family Therapy Track)</td>
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<td>CFTP 610 Professional, Ethical and Legal Issues in Couple and Family Therapy</td>
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<td>CFTP 612 Families in Transition</td>
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<td>CFTP 613 Master’s Project</td>
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<td>CFTP 608 Practicum V</td>
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<td>Specialty Track Coursework</td>
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<td>• CFTP 604 Advanced Sex Therapy (Sex Therapy Track)</td>
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<td>• CFTP 611 Medical Family Therapy (Family Therapy Track)</td>
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<td><em>Continuation of Practicum V, if needed.</em></td>
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Students will elect to apply to either the Sex Therapy Track or the Family Therapy Track at the end of the first year.

*As it is impossible to predict how a student’s caseload will fill over the course of the program, students may be required to complete Practicum V through the summer (June through August) of their second year. Until students complete the requisite 500 clinical hours, students will receive a grade of Incomplete in Practicum V.

**PRACTICUM REQUIREMENTS FOR THE COUPLE AND FAMILY THERAPY PROGRAM**

Couple and family therapy is an applied clinical science which is learned through a combination of didactic, experiential and clinical methods. Practica experiences during which students provide direct clinical services to clients and receive clinical supervision is an integral part of professional education. Practica are divided into two levels—beginning and advanced. Beginning practica occur in the first year of training and focus on helping students develop basic assessment and couple, family, sex and individual therapy skills. Advanced practica occur in the second year of training and are geared to help students develop more sophisticated assessment and therapy skills and expertise with specific clinical populations. Students will participate in practica throughout their graduate training but must demonstrate that they are prepared for this experience at several levels: intellectually, in terms of personal maturity and their basic skill levels. In order to be considered ready to participate in the practicum students must successfully complete the following requirements:

1. Students must be enrolled as full-time students in good standing in the Jefferson Department of Couple and Family Therapy and participate in on-going clinical supervision as assigned.
2. Students are screened by faculty members with the aim of assessing their readiness for clinical work, which includes personal maturity, self-awareness, interpersonal comfort and problem-solving ability and communication skills.
3. Students are required to complete a set of basic readings in couple and family therapy to acquaint them with basic concepts.
4. Students must complete the practicum orientation program which provides didactic information, role plays, readings and experiential learning on the initial stages of couple and family therapy— including how to structure initial sessions, how to begin couple and family assessments and how to contract with clients. In addition, the orientation will include presentations on clinical issues such as suicide, affairs, addictions, diversity and person of the therapist issues and the AAMFT Code of Ethics. Students are observed during the orientation to identify anyone who displays signs they may need more preparation before beginning seeing cases. Excessive anxiety, poor affect regulation or extreme cognitive or behavioral rigidity are some indicators we look for. A decision to slow or postpone assignment of cases can be made based on these observations.
5. During the orientation, students must meet with their assigned supervisors to process their experience and review administrative procedures before cases are assigned. The
ability to function effectively as a clinician requires both skill and personality functioning which is relatively free from anxieties and psychopathology. The clinical intern is expected to obtain personal therapy outside of the Council for individual problems which would adversely affect the ability to function well with clients.

6. Students will be expected to follow the rules and procedures of the practicum placements to which they are assigned, including clinical procedures, dress codes, codes of professional behavior and participation in staff meetings as necessary.

7. Students will be expected to be familiar with and adhere to the Ethical Code of the American Association of Marriage and Family Therapy (AAMFT), failure to so may result in probation or dismissal from the program.

STUDENT ACADEMIC AND CLINICAL PERFORMANCE

Academic Probation
Students are expected to meet all minimum academic performance requirements listed in the Jefferson School of Health Professions Student Handbook and the Department of Couple and Family Therapy Student Handbook. A student who fails to maintain a cumulative grade point average (GPA) of at least 3.0 will be placed on academic probation for one semester. At the end of the probationary period the student will be reinstated in good standing if he or she increases his or her GPA to at or above the minimum threshold of 3.0. If the student fails to increase his or her GPA to at least this level at the end of the semester, he or she will be dismissed from the program for academic underachievement. In extraordinary cases, the Department Chair may recommend granting an additional probationary semester to a student who has made significant progress toward achieving the minimum GPA.

Additionally, a student may earn only one C+ or C in his or her graduate curriculum. A student who earns a C or C+ will be placed on academic probation for one semester and must receive no less than a B in all courses to be restored to full academic standing. A student who receives a second grade of C+ or C, at any point in future will be dismissed from the program for academic underachievement regardless of the student’s overall grade point average.

A student who earns a grade less than C (C- or lower) in any course will result in dismissal for academic underachievement regardless of the student’s overall grade point average.

Clinical Probation or Dismissal
Students can be placed on clinical probation or be dismissed from the program, depending on the seriousness of the issue, for failure to demonstrate sufficient progress in the technical competencies required by the program (as determined by their clinical supervisors), for violations of the AAMFT ethical code, for failure to comply with practicum policies and procedures, and/or jeopardizing client welfare in other ways or for violations of the departmental code of behavior (see the Departmental Student Handbook) or the Jefferson School of Health Professions Code of Conduct (see the JSHP Student Handbook) .
Clinical probation will last for one semester, and any student placed on clinical probation will be given a learning contract containing personalized objectives which they must fulfill to the satisfaction of their clinical supervisor, in consultation with the larger faculty, to be removed from probationary status. Failure to achieve these learning goals will result in dismissal for failure to meet the technical standards of the program. If a student is successfully removed from probationary status but is then later placed on clinical probation again will be dismissed from the program immediately.

ADVISERS
Every student will be assigned to an adviser who will assist the student with academic issues, departmental issues, and other issues pertinent to their progress through the program. Students can initiate meetings with their adviser as needed and will also be expected to meet with their adviser on a schedule determined by the adviser.

ELIGIBILITY FOR LICENSURE
Eligibility for licensure is determined on a state by state basis and students are encouraged to communicate with the state licensing board in the state in which they intend to practice to determine eligibility requirements. The curriculum of The Couple and Family Therapy Department at Thomas Jefferson University was designed to meet the academic requirements of all state licensing boards at the time of its design. Additional post-graduate clinical and supervision hours are usually required for licensing. The Pennsylvania State Board of Social Workers, Marriage and Family Therapists and Professional Counselors can be contacted at P. O. Box 2469, Harrisburg, PA 17105-2649 or on-line at www.ST-SOCIALWORK@state.pa.us. Information on other states’ requirements can be found at the American Marriage and Family Therapy Regulatory Board’s website www.amftrb.org.

PROFESSIONAL ORGANIZATIONS
Students are encouraged to participate in the state professional marriage and therapy organization, Pennsylvania Association of Marriage and Family Therapy (PAMFT) and the national organization, the American Association of Marriage and Family Therapy (AAMFT), as student members.

TRANSFER OF GRADUATE CREDITS
A student wishing to transfer credits for a graduate course with a grade of B or higher, earned at another institution, must submit a written request to the Chair of the Couple and Family Therapy Program at Jefferson. The request must include a course description, a syllabus and an official transcript from the outside institution if not already included in the student’s academic file. The Chair will submit the request to the appropriate school/department committee for review and communicate the transfer of credit decision to the student.
CRIMINAL BACKGROUND CHECK AND CHILD ABUSE CHECK
Individuals who have been convicted of a felony or misdemeanor may be denied certification or licensure as a health professional. Information regarding individual eligibility may be obtained from the appropriate credentialing bodies. Clinical rotation and fieldwork sites may require a criminal background check and/or child abuse check in order to permit participation in the clinical experience, rotation or fieldwork. Participation in clinical experiences, rotations or fieldwork is a required part of the curriculum and a requirement for graduation. Clinical rotation and fieldwork sites may deny a student’s participation in the clinical experience, rotation or fieldwork because of a felony or misdemeanor conviction, failure of a required drug test, or inability to produce an appropriate health clearance, which would result in delayed graduation or in the inability to graduate from the program.

TECHNICAL STANDARDS FOR COUPLE AND FAMILY THERAPY STUDENT PERFORMANCE IN CLASSROOM AND PRACTICUM SETTINGS
Individuals participating in the Couple and Family Therapy Program at Thomas Jefferson University must have essential skills to perform successfully as a student. These requirements apply to classroom, supervision and clinical environments. A student must be able to perform the following cognitive/intellectual tasks with or without reasonable accommodation:

1. Acquire, process retain and apply knowledge through a variety of instructional methods such as written materials, lecture, video, clinical experience, supervision and independent learning.
2. Complete reading and written assignments in standard and organized English, search and analyze professional literature, apply information gained to guide clinical practice.
3. Process large amounts of complex information, apply theoretical concepts to clinical practice and perform clinical problem solving in a logical and timely manner.
4. Apply basic statistical skills to evaluate research findings.
5. Participate positively in cooperative group learning activities; actively participate in class discussions and as a member of team.
6. Orally present information in class and in professional and clinical situations in an organized and coherent fashion.
7. Take and pass tests/quizzes in a variety of formats.
8. Apply knowledge and judgment required to demonstrate ethical reasoning and behavior.
9. Apply safety and judgment to a variety of situations.
10. Comply with practica site rules and regulations.
11. Demonstrate mastery of core foundational, advanced theoretical and empirical information in the areas of human development, systems theory, family development, models of family and couple therapy, couple and family therapeutic process, human sexuality, gender, diversity, psychopathology, couple and family therapy research, ethics and other areas deemed relevant by the faculty to the field of couple and family therapy.
12. Apply clinical reasoning and judgment necessary for development of appropriate clinical assessments and development of appropriate treatment plans.
13. Demonstrate judgment necessary to establish clinical priorities and develop and use effective clinical strategies.

14. Form a collaborative relationship with clinical supervisors. Students must possess sufficient interpersonal, communication and professional behaviors to adequately perform the following clinical skills and competencies:
   a. Engagement Competencies
      1. Engage the client(s) in treatment in a systemic way.
      2. Foster a feeling of trust and hope in the therapeutic process.
      3. Maintain a balanced therapist-client(s) alliance.
   b. Problem Identification/Assessment Competencies
      1. Obtain all the necessary information about the present problem or problems.
      2. Observe and become aware of the emotional process(es) currently at work in the client(s).
      3. Identify and explore relationship problems, including maladaptive interactional patterns such as triangulation, collapsed hierarchies, boundary issues, intergenerational legacies, attachment styles, destructive entitlement, etc.
      4. Identify individual psychopathology, its role in the system, and implications for treatment.
      5. Use both formal and informal assessment tools to identify individual and relational problems.
   c. Case Formulation and Goal Setting Competencies
      1. Describe the case within a systems perspective (individual, interactional, intergenerational).
      2. Formulate and test hypotheses about the system.
      3. Describe orally and in written format the functioning of the system from several theoretical perspectives.
      4. Establish realistic and workable goals in collaboration with the client(s).
      5. Change goals as a function of stage of therapy and needs of the client(s).
   d. Change/ Facilitation Competencies
      1. Modify maladaptive interaction patterns using appropriate therapeutic techniques including-pacing, boundary modification, reframing, clarifying cognitive distortions, unbalancing, structuring, creating therapeutic focus and themes, creating enactments, affect regulation, assigning tasks and therapeutic homework, confront or work with resistance, etc.
      2. Clarify how actions may lead to consequences which constitute problems for the client(s).
      3. Help the client(s) to identify alter emotional factors that may block attempts to achieve better functioning.
4. Alter cognitive factors that may block the client(s) attempts to achieve better functioning.
5. Help the client(s) implement new, adaptive patterns of interaction.
6. Helping the client(s) mobilize outside resources.
7. Identify and build on client strengths in the service of change

e. Termination Competencies
1. Assess the situation when a client(s) initiates the termination process.
2. Assess the need for termination and initiating termination when this is appropriate.
3. Concluding treatment constructively.

f. Behave in ways that conform to the AAMFT Code of Ethics.

DEPARTMENT OF COUPLE AND FAMILY THERAPY FACULTY
Kenneth W. Covelman, PhD*
Chair
Sara J. Corse, PhD
Stephen Betchen, DSW*
Rita DeMaria, PhD, LMFT*
Wanda Sevey, MDiv, LMFT
George James, LMFT
Kenneth Maguire, PsyD
Michele M. Marsh, PhD
Diane Logan Thompson, PhD*
Stephen R. Treat, DMin, LMFT*
William F. Coffey, LCSW
Priscilla F. Singleton, LCSW, LMFT*
*American Association of Marriage and Family (AAMFT) Approved Supervisor

DEPARTMENT OF COUPLE AND FAMILY THERAPY COURSE DESCRIPTIONS
Courses are described in numerical order. The number within the parentheses following the course title indicates the number of semester credits assigned to each course.

COUPLE AND FAMILY THERAPY 501
The Theory and Practice of Family Therapy I (3)
This course covers the major early theories of family therapy (Bowenian, structural, strategic, interactional, object-relations, symbolic-experiential) and places them in historical perspective. Umbrella concepts related to theories of change, family development, self in context, the nature of therapeutic reality and the therapist’s use of self will be addressed. Issues of gender, power, sexual orientation and ethnicity in the clinical context will be explored, along with application of the theories to specific clinical problems.

COUPLE AND FAMILY THERAPY 502
The Theory and Practice of Family Therapy II (3)
This course covers major recent developments in the field of family therapy including social constructionism, post-modernism, the feminist critique of family therapy and the emphasis on language based systems. Newer theories such as narrative therapy, solution focused therapy, feminist therapy, paradoxical therapy and collaborative language systems will be reviewed. Clinical applications of these theories will be addressed along with issues of diversity, power, gender and sexual orientation class and ethnicity.

COUPLE AND FAMILY THERAPY 503  
Foundations of Systemic Practice (3)
This course will introduce students to the theoretical and epistemological ideas basic to the field of couple and family therapy. It will examine how concepts from general systems theory, cybernetics and communication theory inform clinical practice. It will also introduce students to basic skills and concepts necessary to initiate therapy with families and couples such as conducting the first interview, framing the presenting problem, developing an initial assessment and treatment contract.

COUPLE AND FAMILY THERAPY 504  
Psychopathology in Social Context (3)
This course familiarizes the student with the major areas of psychopathology from a biopsychosocial perspective. It will review the DSM-IV and the emerging DSM-V classification of mental disorders as a basis for a more complete assessment, understanding and treatment of couples and families. The reciprocal impact of individual psychopathology and couple and family functioning will be examined along with issues of cultural context and deviancy, power and class.

COUPLE AND FAMILY THERAPY 505  
Life Span Development from a Systemic Perspective (3)
This course explores the dynamic interaction of the family life cycle and child and adult development. It orients the student to the concept of family life cycle changes and their impact on individual, couple, and family functioning. The course also familiarizes students to the effect of issues of race, gender, ethnicity, sexual orientation, and culture on the family life cycle.

COUPLE AND FAMILY THERAPY 506  
Practicum I (3)
Practicum I is a clinical experience during which students develop foundational clinical skills, professional attitudes and ethical awareness in systems oriented individual, couple and family therapy. Focus will be on forming the therapeutic system, contracting, couple and family assessment, clinical record keeping, the therapeutic alliance and the initial stages of couple and family therapy. Practica will be conducted at various clinical sites and require students to provide their own transportation.

COUPLE AND FAMILY THERAPY 507  
Practicum II (3)
Practicum II is a continuation of Practicum I.

**COUPLE AND FAMILY THERAPY 508**

**Practicum III (3)**

Practicum III is a continuation of Practicum II.

**COUPLE AND FAMILY THERAPY 509**

**Theory and Practice of Couple Therapy (3)**

This course covers the history and practice of couple therapy. Major theoretical models of couple therapy will be reviewed including Bowenian, Structural, Object Relations, Cognitive-Behavioral, Strategic, Psychodynamic, Emotionally Focused and Contextual. Focus will be on the fundamentals of working therapeutically with couples including couples dynamics, intervention strategies and methods of facilitating growth and change. Particular emphasis will be placed on distinguishing content and process in couple therapy and the role of the therapist in creating a therapeutic context. Issues of therapeutic balance, power, reactivity, gender, privilege and ethnicity will be explored along with application theoretical models to specific clinical problems such as affairs, communication, intimacy issues, chronic conflict and jealousy.

**COUPLE AND FAMILY THERAPY 510**

**Assessment in Couple and Family Therapy (3)**

This course explores direct and indirect and both qualitative and quantitative methods of assessment. Self-report and observational approaches are considered. The value of ongoing assessment throughout the course of therapy is highlighted. The relevance of age, race, culture and gender to the assessment process is reviewed. The course gives students an understanding of the relationship between a thorough assessment and direct clinical intervention. Students will integrate assessment into practice through experiential exercises, role plays, case presentations, discussions, and videotapes.

**COUPLE AND FAMILY THERAPY 511**

**Introduction to Sex Therapy: Concepts in Human Sexuality (3)**

This course explores essential concepts of sexuality by examining the basic theory, research and practice regarding sexual issues for which clients seek understanding and treatment. Topics include the history of sexology, sexual and reproductive anatomy and physiology, sexually transmitted infections and safer sex practices, sexual trauma, sexual compulsive behaviors, sexual orientation, atypical sexual behaviors, gender, religion, chronic illness, social-cultural issues and sexual feelings in clinical practice. Students will explore personal attitudes, values and emotions as they relate to course material. This course will also include a mandatory one day Sexual Attitude/Values training experience.

**COUPLE AND FAMILY THERAPY 512**

**Live Supervision I (3)**

This is an advanced clinical seminar that allows students to experience supervisory input while actually conducting therapy with the use of a one–way mirror. Students also will function as part of a clinical team observing, hypothesizing and developing interventions behind the mirror.
The history, theory and rules of live supervision will be discussed. The use of self in the process of change and person of the therapist issues will be examined. This seminar will focus on the early phases of therapy.

COUPLE AND FAMILY THERAPY 601
Implications of Diversity for Clinical Practice (3)
This course will help students develop awareness and sensitivity to diversity issues as they influence assessment and treatment of individuals, couples and families within a socio-cultural context. Students will develop an understanding of discrimination and prejudice in areas of age, culture, ethnicity, gender, race, health/ability, spirituality, sexual orientation and socioeconomic status. Students will be encouraged to explore biases, stereotypes and their own values. This course will highlight the strengths of diverse family structures and explore how to use them as therapeutic resources.

COUPLE AND FAMILY THERAPY 602
Research in Couple and Family Therapy (3)
This course will prepare the student to evaluate research findings and formulate research questions and methods of exploration in the field of couple and family therapy. The role of theory, research design, and the use of qualitative and quantitative methods, data collection and data analysis will be emphasized. The role of research in advancing systemic theory and practice will be addressed. Students will be helped to develop a preliminary draft of their master’s project in the second half of the course.

COUPLE AND FAMILY THERAPY 603
Advanced Sex Therapy Training I (Sex Therapy Track) (3)
This course builds on the introductory course and offers advanced understanding of assessment, diagnosis and treatment models for sex therapy practitioners. Students will learn and engage in the practice of these therapeutic modalities throughout the course. Specific attention will be paid to learning the techniques of sex-related assessment, diagnosis and treatment of the psychosexual disorders as described in the current edition of the DSM. Theory and methods of both psychological and medical interventions will be explored. This course will include a mandatory one day Advanced Sexual Attitude/Values training experience.

COUPLE AND FAMILY THERAPY 604
Advanced Sex Therapy Training II (prerequisite ASTT I) (Sex Therapy Track) (3)
This course is an extension of ASTT-I. It will help students gain greater insight into the field of sex therapy as well as practice the skills learned in the previous courses. The course will include peer group supervision, discussion of current issues in human sexuality, videotape case presentation of the student’s clinical work.

COUPLE AND FAMILY THERAPY 605
Issues of Violence and Abuse in the Family from a Systems Perspective (3)
This course will examine the characteristics and impact of intrafamilial violence and abuse on adults and children. It will focus on the nature and scope of this epidemic problem and review
key contributing factors. Issues of gender, power and socioeconomic status will be examined. Sexual, physical and emotional abuse of adults and children will be discussed. Systems oriented treatment for all family members approaches will be reviewed with an emphasis on accurate assessment and the development of appropriate interventions.

**COUPLE AND FAMILY THERAPY 606**
**Live Supervision II (3)**
A continuation of Live Supervision I (CFTP 512), this is an advanced clinical seminar that allows students to experience supervisory input while actually conducting therapy with the use of a one-way mirror. Students also will function as part of a clinical team observing, hypothesizing and developing interventions behind the mirror. The history, theory and rules of live supervision will be discussed. The use of self in the process of change and person of the therapist issues will be examined. This seminar will focus on the middle and late stages of therapy.

**COUPLE AND FAMILY THERAPY 607**
**Practicum IV (3)**
Practicum IV is an advanced clinical practicum during which students will focus on the integration of clinical theory, assessment techniques, intervention strategies, dealing with resistance, the therapeutic alliance, use of self as an instrument of change, recontracting, ethical issues, sex therapy techniques and termination issues. Practica are conducted at various clinical sites and require students to provide their own transportation.

**COUPLE AND FAMILY THERAPY 608**
**Practicum V (3)**
Practicum V is a continuation of Practicum IV.

**COUPLE AND FAMILY THERAPY 610**
**Professional, Ethical, and Legal issues in Couple and Family Therapy (3)**
This course introduces students to the professional, ethical and legal issues common to a systems-oriented therapy practice. The impact of the therapist’s personal values and ideological convictions on his/her professional practice will be examined. In addition a thorough review of the AAMFT Code of Ethics and the steps toward clinical membership in the AAMFT, as well as state licensure as a marriage and family therapist will be provided.

**COUPLE AND FAMILY THERAPY 611**
**Medical Family Therapy (3)**
This course will examine the complex interactions between physical illness and family functioning and the clinical interventions that can be utilized in these situations. A review of the empirical findings and theoretical concepts that form the basis of this emerging field will be undertaken. A biopsychosocial framework will be developed for understanding and treating a variety of common clinical problems such as psychosomatic symptoms, coping with chronic illness and chronic pain, grief and end of life issues. Collaboration with other health care providers will be discussed.
COUPLE AND FAMILY THERAPY 612  
Families in Transition (3)  
This course will focus on the differential impact of major life cycle transitions, specifically, separation, divorce and remarriage on family members. An overview of the issues and challenges that these families face within a broader cultural context will be discussed. The dynamics of family dissolution and reorganization will be addressed, along with specific intervention strategies. The course will cover helping families through the separation process, co-parenting counseling, understanding issues relating to loss, the effects of conflict on children’s adjustment, and blended family and step-parenting dynamics, as well as, the impact of the legal system on the family and therapeutic system.

COUPLE AND FAMILY THERAPY 613  
Master’s Project (3)  
The master’s project is the culmination of the student’s scholarly requirements. Students will develop a scholarly paper demonstrating a mastery of clinical theory in the field of couple and family therapy and the ability to apply that theory in a clinical situation under the direction of a faculty advisor. The project must demonstrate the student’s mastery of the academic area chosen and attempt to integrate his or her clinical interests within a scientific framework. Students will be expected to produce a written work that meets high academic standards and to present his or her work to the program faculty and his or her peers in a supportive learning environment.
Occupational Therapy
DEPARTMENT OF OCCUPATIONAL THERAPY
The Department of Occupational Therapy provides innovative educational programs designed to prepare students to enter the profession of Occupational Therapy as qualified entry-level professionals. Students are taught to systematically consider all of the complex issues that influence an individual's ability to engage in occupation and participate within personal, cultural, physical, social, virtual, and spiritual contexts in order to provide effective interventions.

Using this perspective, students come to understand the relationship between the unique factors that influence an individual’s ability to participate competently in occupations. Nested within the university climate of excellence, students are encouraged to set professional and personal goals that foster their development as inquisitive, reflective practitioners and lifelong learners (Rogers, 1982; Parham, 1987; Mattingly & Fleming, 1994). In addition to their educational program, students are encouraged by faculty to make contributions to the community through volunteer and fieldwork initiatives. Along with the knowledge, skills, and attitudes required for entry-level practice, the Jefferson graduate is able to assume a variety of professional roles, including that of evidence-based practitioner, supervisor, administrator, research collaborator, research consumer, program developer, and entrepreneur. In addition, students are able to assume various educator roles, such as clinical educator. Students participate in advanced work in theory, research, leadership clinical reasoning and evidence based practice, to prepare them to assume positions that emphasize leadership, scholarship and education.

The Department of Occupational Therapy subscribes to the belief that humans are uniquely capable of occupying their time and investing their energy in self selected, meaningful and purposeful activity called “occupation” that contribute to health and feelings of self-worth. Occupation consists of “the units of organized activity within the ongoing stream of human behavior that are named and classified … according to the purpose they serve” (Yerxa, 1998a, p. 366). The desire or drive for occupation is based on a number of interacting factors both internal and external to individuals. These factors include state of health, developmental status, level of motivation and interest, and environmental context, all of which may help or hinder a person’s participation in occupation. The unique role of occupational therapy is to assist persons to competently participate in their occupational roles within a variety of contexts. The ‘goodness of fit’ between the person, occupation, and environment is essential for achieving the best possible occupational outcomes.

Occupational therapists apply their knowledge and skills along with the core values of the profession to assist clients’ participation in occupations that they want and need to do in a way that supports their health and self-efficacy (AOTA, 2008 p. 626). Competence is recognized as the ability of the individual to successfully interact with the environment to support and enable participation within personal, cultural, physical, social, temporal, virtual, and spiritual contexts.

This guiding philosophy of the Occupational Therapy faculty has directed the development and continuous evaluation of the Jefferson educational programs, influenced curriculum planning
and development, and established research endeavors. The core beliefs about human beings expressed within this philosophy are as follows:

1. Humans are occupational beings with an innate drive to engage in meaningful occupation, as contextualized by their culture and environment.
2. Individuals, groups, and populations have a right to access these occupations in order to promote their health and wellbeing and enable their participation in a variety of contexts.
3. Individuals have intrinsic worth and dignity and have the right to participate in decisions that affect their health status, care, and personal development. Therefore, occupational therapy is a collaborative, client-centered process that includes the individual, therapist, and others such as caregivers and other professionals.

CURRICULUM DESIGN
Occupation is the conceptual core of the occupational therapy programs. Occupation provides a deep and broadly encompassing perspective on human life that is reflected in such diverse theoretical approaches and frameworks such as the Model of Human Occupation (Kielhofner & Burke, 1980; Kielhofner, Burke and Heard, 1980), dynamic systems theory (Gray, Kennedy & Zemke, 1996), Person, Environment, Occupation Model (Law, et. al, 1996), Person, Environment, Occupation, Performance (Baum & Christiansen, 2005 and the International Classification of Functioning, Disability and Health of the World Health Organization (World Health Organization, 2001). The further translation of occupation into the language of 21st century science provides additional opportunities for greater understanding and refinement of occupational therapy’s contribution to health and human services. These evolving notions of occupation drive the Occupational Therapy curriculum at The Jefferson School for Health Professions, Thomas Jefferson University and the ongoing refinement and evaluation of our educational programs.

The Occupational Therapy curricula focus on human occupation as a complex notion that can be applied to all individuals and is essential for health and adaptation (Yerxa, 1998b). The concept of human occupation is used to understand key issues for persons with specific health concerns and a given developmental status (infant through older adult) and provides a framework for enabling participation within an individual’s unique context. An understanding of human occupation is fundamental to enable occupational therapy outcomes such as improved occupational performance, role competence, and quality of life, within the continuum of service delivery systems and beyond (acute, rehabilitation, home and community).

Using occupation as a focal point, related concepts and principles are introduced and revisited. Students build higher-level thinking and apply skills to occupational therapy practice and research. Five primary elements intertwined in the curriculum serve to prepare occupational therapy entry-level practitioners and to help students translate these key concepts into practice.
The five elements are:

1) *Foundational knowledge and skills* that provide the basis for supporting an understanding of human mental and physical functions and body structures, pathology and the concepts of occupation, environment, and their application in occupational therapy;

2) *Critical analysis and problem solving skills* that provide the basis for decision-making in occupational therapy, including basic analysis and problem solving related to the OT process. The more advanced levels of analysis and problem solving include those needed for critique and design of research studies and program development and evaluation;

3) *Occupational therapy theoretical tenets* that demonstrate the principles, beliefs, and values of occupational therapy;

4) *Occupational therapy process*, which results in successful evaluation and intervention with individuals, groups, and communities with a wide range of socio-cultural needs and within the continuum of service delivery systems (acute, rehabilitation, home and community practice settings); and

5) *Development of a professional identity*, which includes ethical and responsible behavior, lifelong learning and the ability to reflect upon one’s own professional development and conduct.

The Entry-Level Masters Program (EMOT), the Combined Bachelor of Science to Master of Science Program (Combined BS/MSOT Program) and the Advanced Occupational Therapy Clinical Doctorate Program (OTD) utilize the five elements delineated above in their curriculum designs. Students develop advanced competency in clinical reasoning, research skills and leadership skills.

**INTERPROFESSIONAL EDUCATION**

The Department of Occupational Therapy agrees with the vision that interprofessional collaborative practice is the key to safe, high quality, accessible, patient-centered care. (Interprofessional Education Collaborative Expert Panel, 2011, p. i). Throughout the curriculum students have the opportunity to participate in a variety of interprofessional learning activities designed to develop students’ knowledge of roles and expertise of other professions and skills in team communication and interprofessional practice.

In regard to Interprofessional education, The Jefferson School of Health Professions has adopted the following Core Competencies:

Students will:

1. Respect the unique cultures, values of, roles/responsibilities and expertise of other
health professionals.

2. Explain the roles and responsibilities of other care providers and how the team works together to provide care.

3. Work to ensure common understanding of information, treatment and care decisions by listening actively, communicating effectively, encouraging ideas and opinions of other team members and expressing one’s knowledge and opinions with confidence, clarity and respect.

4. Reflect on the attributes of highly functioning teams and demonstrate the responsibilities and practices of effective team member(s).

THE OCCUPATIONAL THERAPY PROGRAMS OFFERED AT THOMAS JEFFERSON UNIVERSITY

Students must earn a Masters degree in occupational therapy in order to become certified as an occupational therapist. Beginning January 1, 2007, occupational therapy educational programs were accredited only at the post baccalaureate degree level.

The department offers two entry-level programs that can lead to qualification for certification in occupational therapy. The first option is an upper division (junior, senior and graduate year) full-time program leading to a Combined Bachelor of Science in Occupation and Health and a Master of Science in Occupational Therapy (Combined BS/MSOT Program). Students are admitted to the program in the Jefferson School of Health Professions after completing two years of college-level courses that satisfy pre-professional requirements. These pre-professional requirements can be earned at any accredited college or university. Students must complete a total of 120 semester credits, 58 prerequisite credits and 62 credits in the prescribed Occupational Therapy Curriculum to meet the baccalaureate degree requirements and 35 graduate credits to meet the graduate degree requirements of the program. Upon successful completion of the Combined BS/MSOT Program, students are concurrently awarded the Bachelor of Science in Occupation and Health and Master of Science in Occupational Therapy degrees. Students who successfully complete both academic and fieldwork requirements are eligible to take the Certification Examination of the National Board for Certification in Occupational Therapy (NBCOT).

Students who already have a bachelor’s degree in a field other than occupational therapy are encouraged to apply to the Entry-Level Masters of Science Program (EMOT). This program integrates entry-level education with graduate studies. This option is a 2 year accelerated program. Students who have a bachelor’s degree, have fulfilled pre-professional requirements and meet admission criteria can apply to the program. The coursework includes 47 undergraduate credits of basic professional knowledge and 35 graduate credits of advanced knowledge and skill.

Both of these occupational therapy programs are designed to prepare students for work as entry-level practitioners in a variety of settings. Students have opportunities to do advanced work and study in specialized practice, research specific problems, experience clinical
education, and assist in academic teaching, or administrative, supervisory and entrepreneur projects.

The Department of Occupational Therapy curriculum fulfills all of the essential educational standards established by the Accreditation Council for Occupational Therapy Education (ACOTE). These standards are national and mandate students successfully complete a minimum of six months of fieldwork experience in assigned, predetermined fieldwork sites. Training takes place under the direction of qualified fieldwork supervisors.

Students who successfully complete both academic and fieldwork requirements are eligible to take the Certification Examination of the National Board for Certification in Occupational Therapy, Inc. (NBCOT). The computerized examination is offered on demand. Students become registered occupational therapists once they have passed the NBCOT Examination. Students are then eligible to apply for a license to practice in those states that require licensing. NBCOT can be contacted at 800 S. Frederick Avenue, Suite #200, Gaithersburg, MD 20877-4150, (301) 990-7979.

For students who already have a degree in occupational therapy (undergraduate degree, post-baccalaureate certificate or master’s degree) the Occupational Therapy Doctoral Degree is offered. The program provides students with advanced skills and knowledge, prepares students to be innovators in traditional and emerging areas of occupational therapy and offers opportunities to develop or refine academic and clinical teaching skills. This program is described in detail below.

PROGRAM ACCREDITATION
The Combined Bachelor’s to Masters Program (Combined BS/MSOT Program) and the Entry-Level Masters Program (EMOT) are accredited by the Accreditation Council for Occupational Therapy Education (ACOTE). ACOTE only requires that entry-level occupational therapy programs be accredited at this time. Contact information for ACOTE is:

ACOTE

c/o Accreditation Department
American Occupational Therapy Association (AOTA)
4720 Montgomery Lane, Suite 200
Bethesda, MD 20814-3425
www.acoteonline.org

COMBINED BACHELOR’S TO MASTERS DEGREE PROGRAM (BS/MSOT)
Admission Requirements (BS/MSOT)
The Combined BS/MSOT Program is designed for applicants who have earned 58 credits from an undergraduate program and have completed the prerequisite coursework required for application to the Occupational Therapy Program, Jefferson School of Health Professions, Thomas Jefferson University. Applications are also accepted through the PACE program (see Jefferson School of Health Professions section of catalog for more information). Applicants
should check with the Admissions Office or the Occupational Therapy Program annually for the most current pre-admission requirements. Application requirements are:

- Completed OTCAS application and Jefferson supplemental application
- OTCAS application fee; $25 supplemental application fee
- Official transcripts from all post secondary educational institutions attended (sent to OTCAS)
- Volunteer or work experience in occupational therapy settings minimum of 50 hours/2 sites (included in OTCAS application)
- Two letters of recommendation: one from a volunteer site supervisor; both sent to OTCAS
- Test of English as a Foreign Language (TOEFL) scores, if applicable (sent to OTCAS)
- Essay/Personal statement (included in the OTCAS application)
- 3.0 GPA strongly recommended
- Jefferson will contact academically eligible applicants who are competitive via email to schedule a required interview (provided space is still available).

*See the Admissions section of Jefferson School of Health Professions catalog for admission requirements for non-U.S. citizens.

**Prerequisite Requirements (BS/MSOT)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy &amp; Physiology I $^{1,2}$</td>
<td>4</td>
</tr>
<tr>
<td>Anatomy &amp; Physiology II$^{1,2}$</td>
<td>4</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Developmental or lifespan Psychology (not one specific age level)</td>
<td>3</td>
</tr>
<tr>
<td>Cultural or ethnic diversity</td>
<td>3</td>
</tr>
<tr>
<td>Sociology</td>
<td>3</td>
</tr>
<tr>
<td>English Composition$^3$</td>
<td>3</td>
</tr>
<tr>
<td>English elective</td>
<td>3</td>
</tr>
<tr>
<td>Electives: Humanities, arts, math, social or natural science</td>
<td>29</td>
</tr>
<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>58</strong></td>
</tr>
</tbody>
</table>

$^1$Anatomy and physiology is strongly recommended. Kinesiology and exercise physiology are also acceptable.

$^2$Lab must be included.

$^3$Strongly recommended.

A grade of C or higher (not C-) is required in each course.

**Curriculum (BS/MSOT) - 3 years full time**

<table>
<thead>
<tr>
<th>Year</th>
<th>Schedule</th>
<th>Full-Time Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>September-May</td>
<td>fall and spring semester coursework</td>
</tr>
<tr>
<td></td>
<td>May- June</td>
<td>summer semester coursework</td>
</tr>
</tbody>
</table>
2nd September-May fall and spring semester coursework
May-June summer semester coursework
June/July begin 2 full-time Level II fieldwork rotations and online coursework
3rd September-December continue full-time Level II fieldwork and online coursework
January-May spring semester coursework

Year One

FALL SEMESTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 300</td>
<td>Introduction to Applied Science</td>
<td>1 u</td>
</tr>
<tr>
<td>OT 302</td>
<td>Applied Anatomy and Kinesiology (Lecture/Laboratory)</td>
<td>4 u</td>
</tr>
<tr>
<td>OT 311</td>
<td>Health and Health Conditions</td>
<td>4 u</td>
</tr>
<tr>
<td>OT 321</td>
<td>Foundations of Occupation-Centered Practice Laboratory I</td>
<td>2 u</td>
</tr>
<tr>
<td>OT 330</td>
<td>Using an Occupational Therapy Lens in the Clinic (Fieldwork I)</td>
<td>2 u</td>
</tr>
<tr>
<td>OT 336</td>
<td>Occupation Through the Life Span (Lecture/Laboratory)</td>
<td>5 u</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

SPRING SEMESTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMST 201</td>
<td>Technology Applications for Healthcare</td>
<td>3 u</td>
</tr>
<tr>
<td>OT 308</td>
<td>Concepts in Neurodevelopment (Lecture/Laboratory)</td>
<td>4 u</td>
</tr>
<tr>
<td>OT 322</td>
<td>Foundations of Occupation-Centered Practice Laboratory II</td>
<td>2 u</td>
</tr>
<tr>
<td>OT 340</td>
<td>Domains of Occupational Therapy Practice (Fieldwork I)</td>
<td>2 u</td>
</tr>
<tr>
<td>OT 357</td>
<td>Evaluation Process (Lecture/Laboratory)</td>
<td>4 u</td>
</tr>
<tr>
<td>OT 577</td>
<td>Historical Perspectives on Theory Based Practice</td>
<td>3 g</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15 u/3 g = 18</td>
</tr>
</tbody>
</table>

SUMMER SEMESTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 341</td>
<td>Occupational Analysis and Evaluation (Fieldwork I)</td>
<td>2 u</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

Year Two

FALL SEMESTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 440</td>
<td>Interventions: Enhancing Human Performance (Fieldwork I)</td>
<td>2 u</td>
</tr>
<tr>
<td>OT 441</td>
<td>Interventions: Enhancing Social Performance (Fieldwork I)</td>
<td>2 u</td>
</tr>
<tr>
<td>OT 552</td>
<td>Interventions: Enhancing Human Performance (Lecture/Laboratory)</td>
<td>5 g</td>
</tr>
<tr>
<td>OT 558</td>
<td>Interventions: Enhancing Social Participation</td>
<td>3 g</td>
</tr>
<tr>
<td>Graduate elective</td>
<td></td>
<td>3 g</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4 u/11g = 15</td>
</tr>
</tbody>
</table>

SPRING SEMESTER

Undergraduate elective 3 u
Undergraduate elective
ID 302 Understanding Research Principles and the Scientific Method 3 u
OT 560 Interventions: Environmental Competence 3 u
OT 561 Environmental Competence Lab 1 g
OT 562 Environmental Competence in Action 1 g
OT 600 Occupational Therapy Professional Seminar 1 g
Total 9 u/6 g = 15

SUMMER SEMESTER
OT 467 Health Services Administration and Professional Development 2 u
OT 603 Research Mentorship and Methods 4 g
Total 2 u/4 g = 6

SUMMER SEMESTER
OT 480 Fieldwork Level II A (July through end of September) 6 u
OT 578 Evidence-Based Practice (July through December) 2 g
Total 6 u/2 g = 8

Year Three
FALL SEMESTER
OT 482 Fieldwork Level II B (October through December) 6 u
Total Total 6 u = 6

SPRING SEMESTER
OT 682 Clinical Leadership 3 g
OT 627 Program Design and Evaluation 3 g
OT 670 Advanced Research Seminar 3 g
Total 9 g = 9

Descriptions for courses listed above are found in the section entitled “Course Descriptions.” Courses with prefixes other than OT are described in the Department of Professional and Continuing Studies chapter of this catalog.

Credit Summary
Credits Required for Admission: 58
TJU Undergraduate Credits: 62
Total # of Credits for TJU Bachelor of Science Requirement: 120
Total # of Credits for TJU Graduate Degree Requirement: 35

By the end of the spring semester of the second year, students must have a minimum of a 3.0 cumulative GPA in order to progress to the six months full-time fieldwork requirement.

The School does not award a Bachelor of Science in Occupation and Health degree independent of the Master of Science degree. Candidates awarded Combined Bachelor’s and Masters
Degrees must have successfully completed all credits and other requirements of the program, and have a cumulative grade point average of 3.0 or higher on all work completed. Upon successful completion of the Combined BS/MSOT Program, students are concurrently awarded the Bachelor of Science in Occupation and Health and a Master of Science in Occupational Therapy degrees concurrently. Students who successfully complete both academic and fieldwork requirements are eligible to take the Certification Examination of the National Board for Certification in Occupational Therapy, Inc. (NBCOT).

ENTRY-LEVEL MASTERS DEGREE PROGRAM (EMOT)
This program is designed for applicants who have earned a bachelor’s degree from an accredited college or university in a field other than occupational therapy and who have completed the prerequisites required for applicants to Jefferson’s masters degree program in occupational therapy. The EMOT program is completed on a full basis. Students may enter through articulation agreements with other colleges and universities (see the Jefferson School of Health Professions website for the most current listing of college/university articulation agreements).

Admission Requirements (EMOT)
Application requirements are:

- Completed OTCAS application and Jefferson supplemental application
- OTCAS application fee; $25 supplemental application fee
- Official transcripts from all educational institutions attended (sent to OTCAS)
- Volunteer or work experience in occupational therapy settings minimum of 50 hours/ 2 sites (included in OTCAS application)
- Two letters of recommendation: one from a volunteer site supervisor; both sent to OTCAS
- GRE, MAT test scores preferred scores: GRE 1000, MAT – 450 (sent to OTCAS)
  Submit official, original GRE or MAT scores to Jefferson.  GRE Code = 5750
- GRE or MAT scores are not required for students who have already earned a conferred Master's degree
- Test of English as a Foreign Language (TOEFL) scores, if applicable (sent to OTCAS)
- Essay/Personal statement (included in the OTCAS application)
- 3.0 GPA strongly recommended

*See the Admissions section of Jefferson School of Health Professions catalog for admission requirements for non-U.S. citizens.

Prerequisite Requirements (EMOT)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy &amp; Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>Anatomy &amp; Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>
Curriculum (EMOT) (Full-Time, 2 years)

Year | Schedule | Full-Time Activities
--- | --- | ---
1st | September – May | fall, spring semester coursework
 | May-June | summer semester coursework
2nd | September - December | fall semester coursework
 | January – June | two 12-week full-time Level II fieldwork rotations and online coursework
 | July-August | summer semester coursework

Year One

**FALL SEMESTER**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 302</td>
<td>Applied Anatomy and Kinesiology (Lecture/Laboratory)</td>
<td>4 u</td>
</tr>
<tr>
<td>OT 311</td>
<td>Health &amp; Health Conditions</td>
<td>4 u</td>
</tr>
<tr>
<td>OT 321</td>
<td>Foundations of Occupation-Centered Practice Laboratory I</td>
<td>2 u</td>
</tr>
<tr>
<td>OT 336</td>
<td>Occupation Through the Lifespan</td>
<td>5 u</td>
</tr>
<tr>
<td>OT 340</td>
<td>Domains of Occupational Therapy Practice – Fieldwork Level I</td>
<td>2 u</td>
</tr>
<tr>
<td>OT 600</td>
<td>Occupational Therapy Professional Seminar</td>
<td>1g</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17u/1 g = 18 cr</strong></td>
<td></td>
</tr>
</tbody>
</table>

**SPRING SEMESTER**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 308</td>
<td>Concepts in Neurodevelopment (Lecture/Laboratory)</td>
<td>4 u</td>
</tr>
<tr>
<td>OT 322</td>
<td>Foundations of Occupation-Centered Practice Laboratory II</td>
<td>2 u</td>
</tr>
<tr>
<td>OT 357</td>
<td>Evaluation Process (Lecture/Laboratory)</td>
<td>4 u</td>
</tr>
<tr>
<td>OT 560</td>
<td>Interventions: Environmental Competence</td>
<td>3 g</td>
</tr>
<tr>
<td>OT 561</td>
<td>Environmental Competence Lab</td>
<td>1 g</td>
</tr>
<tr>
<td>OT 562</td>
<td>Environmental Competence in Action</td>
<td>1 g</td>
</tr>
<tr>
<td>OT 577</td>
<td>Historical Perspectives on Theory Based Practice</td>
<td>3 g</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10u/8g = 18 cr</strong></td>
<td></td>
</tr>
</tbody>
</table>

**SUMMER SEMESTER**
OT 341  Occupational Analysis & Evaluation Fieldwork Level 1 2 u
OT 467  Health Services Administration & Professional Development 2 u
OT 603  Research Mentorship & Methods 4 g
Total 4 u/4 g = 8 cr

**Year Two**

**FALL SEMESTER**

OT 440  Interventions: Enhancing Human Performance Fieldwork Level I 2 u
OT 441  Interventions: Enhancing Social Participation Fieldwork Level I 2 u
OT 552  Intervention Enhancing Human Performance 5 g
OT 558  Interventions: Enhancing Social Participation 3 g
Elective 3 g
Total 4u/11g = 15 cr

**SPRING SEMESTER (January through June)**

OT 480  Fieldwork Level II A 6 u
OT 482  Fieldwork Level II B 6 u
OT 578  Evidence Based Practice (January through June) 2 g
Total 12u/2g = 14 cr

**SUMMER SEMESTER (July-August)**

OT 627  Program Design & Evaluation 3 g
OT 670  Advanced Research Seminar 3 g
OT 682  Clinical Leadership 3 g
Total 9 g = 9 cr

**Credit Summary**

Undergraduate Credits 47
Graduate Credits 35

By the end of the semester preceding fieldwork II, students must have a minimum of a 3.0 cumulative GPA in order to progress to the six months full-time fieldwork requirement. A student who fails to achieve a 3.0 cumulative GPA is not eligible to enroll in level II fieldwork.

**FIELDWORK REQUIREMENTS FOR COMBINED BS/MSOT AND EMOT PROGRAMS**

Occupational Therapy is an applied science. Evaluation and intervention techniques are taught by both didactic and experiential methods. Fieldwork is an integral part of professional education. There are two kinds of fieldwork training: Level I (clerkships) and Level II Fieldwork (affiliations). Level I fieldwork is designed as an integral part of didactic coursework and is offered along with the classroom curriculum beginning in the first semester. Students gain experience in observation and practice clinical skills. Combined BS/MSOT Program students participate in up to five Level I experiences. EMOT Program students participate in up to four Level I experiences.
Level II fieldwork placements (OT480 and OT482) are full time with an emphasis on the application of knowledge learned in the occupational therapy curriculum. Students are required to successfully complete a minimum of six months of full-time clinical training under the supervision of qualified occupational therapists. All occupational therapy students must have a 3.0 cumulative GPA by the end of the semester prior to beginning Level II fieldwork placements in order to progress onto fieldwork. Students who do not meet the grade point criteria will be guided by their academic advisor according to the most appropriate course of action, which may include repeating coursework to raise the student’s GPA or consideration of other career and degree options.

The Department has fieldwork agreements with hundreds of facilities locally and nationally, each of which offers a unique opportunity for student learning. Students are assigned to a range of practice arenas for their fieldwork experiences. Practice settings may include medical settings, community health programs, school systems, early intervention programs, work programs and home environments, to name a few. Students’ needs and interests are incorporated into the preliminary phase of fieldwork site selection however, placement is the responsibility of the Fieldwork Coordinator.

Students are responsible for providing their own transportation to fieldwork sites. Public transportation systems make most fieldwork sites in the Philadelphia area easily accessible. However, if fieldwork placement is at a site outside the Philadelphia area, or if students wish to complete all or some of their fieldwork placements at sites near their home, students are responsible for arranging their own transportation. Housing, living, transportation, and similar additional costs associated with fieldwork are the responsibility of the student.

The students’ exposure to clinical care begins in the first semester of the program with their Level I Fieldwork and continues throughout the curriculum. Specific details covering Fieldwork placement are available in the Department of Occupational Therapy Student Fieldwork Handbook. Students have access to this handout through the Department Intranet. Participation in this integrated learning helps students to gain proficiency in the occupational therapy process.

**Fieldwork Sequencing**

Students may only progress through Fieldwork courses in the curriculum in sequence. Each experience builds on prior work, and students will not be placed in subsequent clinical experiences until current requirements are completed. Successful completion of both level II fieldwork placements is required before enrolling in the final coursework.

**COMPLETION OF THE PROGRAM**

Students are required to complete their course of study within 4 years from the date of matriculation.
IMPORTANT NOTICE
Individuals who have been convicted of a felony or misdemeanor may be denied certification or licensure as a health professional. Information regarding individual eligibility may be obtained from the appropriate credentialing bodies. Clinical rotation and fieldwork sites may require a criminal background check, child abuse clearance, fingerprinting, drug screens and CPR certification in order to permit participation in the fieldwork experience. Participation in fieldwork is a required part of the curriculum and a requirement for graduation. Students are responsible for the cost of these requirements. Clinical rotation and fieldwork sites may deny a student’s participation in the fieldwork experience because of a felony or misdemeanor conviction, failure of a required drug test, inability to produce an appropriate health clearance or other requirements, which could result in delayed graduation or in the inability to graduate from the program. All students in the Department of Occupational Therapy are required to maintain current two-year CPR certification for healthcare providers for the duration of their time in the occupational therapy program. Students without the required certification will not be able to go out on fieldwork, resulting in inability to complete course requirements in a timely manner.

STUDENT ACADEMIC AND CLINICAL PERFORMANCE
Specific policies on academic and clinical regulations such as academic retention and progression, GPA requirements, academic probation and dismissal, failure in clinical performance, grade appeal protocol, criteria for graduation, attendance, withdrawal from courses, withdrawal from the program, disability accommodations, ethical behavior and code of conduct are described in detail in the Jefferson School of Health Professions (JSHP) and Department of Occupational Therapy Student Handbooks. Students will be given their handbooks during their orientation session. Students are given a copy of the JSHP and Department handbooks at the beginning of each academic year. Both handbooks are also available online. Students can discuss questions about policies with their advisor.

To maintain good academic standing, all students must have a cumulative GPA of 3.0 or higher. Students with a cumulative GPA below 3.0 are placed on academic probation. More information on policies regarding academic probation and dismissal are available in the Department of Occupational Therapy and the Jefferson School of Health Profession Student Handbooks.

ADVISORS
A faculty advisor is assigned to each student. The advisor assists with academic and practice-related questions. Details about the role of the faculty advisor can be found in the Department of Occupational Therapy Student Handbook.

ELIGIBILITY FOR CERTIFICATION AND LICENSURE
Students who successfully complete both academic and fieldwork requirements are eligible to take the Certification Examination of the National Board for Certification in Occupational Therapy, Inc. (NBCOT). The computerized examination is offered on demand. Students become
registered occupational therapists once they have passed the NBCOT Examination. Students are then eligible to apply for a license to practice in those states which require licensing. NBCOT can be contacted at 800 S. Frederick Avenue, Suite #200, Gaithersburg, MD 20877-4150, (301) 990-7979.

PROFESSIONAL ORGANIZATIONS
Students are encouraged to participate in the Jefferson Student Occupational Therapy Association (SOTA) and national and state professional occupational therapy associations. The American Occupational Therapy Association (AOTA), as well as the Pennsylvania, New Jersey and Delaware Occupational Therapy State Associations support and encourage student involvement. Professional associations offer students opportunities to interact and network with practicing occupational therapists and future employers.

POST PROFESSIONAL CLINICAL OCCUPATIONAL THERAPY DOCTORAL (OTD) PROGRAM
Jefferson's OTD program is a post professional clinical degree open to Bachelor and Masters prepared occupational therapists who wish to create a new vision of occupational therapy, lead in health and human services, and translate their knowledge and skills into evidence based, innovative occupational therapy practice and education. The convenient schedule is designed for busy working professionals: the OTD program can be completed entirely online or online with 1-2 meetings per semester in Fall and Spring semesters at our center-city Philadelphia campus.

For Bachelor prepared occupational therapists (including those with a post-baccalaureate certificate in occupational therapy) the OTD requires a minimum of 46 credits. For students entering with a Masters degree, 33 credits are required. The total length of time to complete the program for both Bachelor and Masters prepared students depends on the number of years experience, whether the program is taken full or part time, and the type of capstone project. A complete listing of coursework and other information for the OTD program is located at: www.jefferson.edu/ot/otd.

Jefferson OTD students build on a foundation of knowledge from the arts and sciences, knowledge of current practice issues and entry-level competency in occupational therapy to address the rapidly changing and dynamic nature of contemporary health and human service delivery systems. The program provides opportunities for occupational therapists to use their knowledge and skills in a specific practice area functioning as a direct care provider, consultant, educator, manager, leader, researcher and advocate for the profession and the consumer. As a graduate of the Jefferson OTD program, you will be poised to create a new vision for occupational therapy. You will be prepared to lead in health care and human services, and use your advanced expertise to translate your knowledge and skills into evidence-based, innovative occupational therapy practice that contributes to AOTA’s Centennial Vision. Through participation in courses, interaction with faculty, guidance by mentors, participation in clinical
fellowship, and completion of a culminating project, the graduates of the Jefferson OTD program will:

1. **Demonstrate advanced level expertise in a chosen area of practice:**
   a. Demonstrate advanced practice in a chosen area such as direct patient/client service, administration, teaching, and/or research.
   b. Integrate scientific evidence into practice.
   c. Demonstrate advanced level skill in evidence based practice
   d. Apply occupation principles to unique and innovative intervention programs.
   e. Demonstrate ability to analyze the impact of social, political, economic and culture influences on health, occupation, and disability.
   f. Integrate an understanding of the impact of disability on the occupations of individuals and populations.
   g. Adjust their practice, using their understanding of the role of culture and the environment, to an individual’s health needs.
   h. Be able to teach others in area of expertise in both clinical and didactic venues
   i. Demonstrate the ability to integrate theory and practice, and to synthesize advance knowledge in a practice area through completion of a culminating project

2. **Create, evaluate and implement innovative programs that address important, contemporary public health needs**
   a. Demonstrate in-depth knowledge of delivery models, policies and systems related to the area of practice in new and traditional venues
   b. Design, implement and evaluate occupational therapy programs that use the tenets of occupation.
   c. Create new knowledge in occupation based practice to address the unmet needs of an organization or a community.
   d. Demonstrate skills in advocacy
   e. Solve complex clinical practice issues using cutting edge, cost effective models of practice.
   f. Present new models of service delivery to administration and management
   g. Publish and present work in interdisciplinary venues

3. **Become leaders in traditional and contemporary venues,**
   a. Develop a personal philosophy of leadership
   b. Create an innovative, advanced professional development plan
   c. Carve out a unique niche for occupational therapy practice or education
   d. Create a vision for innovative occupational therapy practice.
   e. Demonstrate advanced skills needed to assume leadership positions including communication skills, negotiation skills; consultation skills; initiative; collaboration; team building, management and business skills
   f. Understand organizational theory including strategies for evaluating organizational effectiveness, creating strategies for change and monitoring the success of the implemented strategies.
   g. Utilize leadership skills to create and implement a program or practice based on an identified public health need that includes an analysis of the need for the program, a
business plan to outline the program, and a sophisticated plan for implementation and evaluation.

h. Demonstrate skills in teaching others about occupational therapy within and outside of the profession.

All students take core coursework focused on advanced evidence based practice, leadership, and visionary program development. Students also take an OTD seminar in Fall, Spring semesters and during the Summer to facilitate and integrate overall learning while developing their professional trajectory and enhancing clinical reasoning and practice skills.

The curriculum provides an individualized plan of study with electives that match the students’ interests and goals, a fellowship program, and a capstone project. Electives are drawn from the advanced practice specialties in autism, neuroscience, neuro-cognitive disorders, teaching in the digital age, and interprofessional geriatric education in addition to courses that focus on health literacy, cultural competence and humility, and wellness. Students may also take a Seminar in Clinical Research, in which they determine individual learning goals in an area of interest with the guidance and mentorship of one or more faculty members to develop their ideas, knowledge, and skills for the final doctoral project.

The OTD program includes an 80-hour Fellowship designed to immerse the student in advanced practice, program development, and/or policy and provide opportunities for professional growth in an identified area of interest. The Fellowship is a substantive project that advances student’s knowledge and skills in program development and evaluation, the ability to create new practice models, approaches to OT education, and/or clinical research. The Fellowship is followed by the Capstone, in which students disseminate project results by preparing a manuscript for in a publication in a peer reviewed journal. Students are also encouraged to shared their work through state, national and international conference presentations.

Advanced Practice Certificates

Specialty certificates in occupational therapy offer individuals with a BS or MS in occupational therapy specialized knowledge in a specific area. The curriculum for each of the advanced practice certificates consists of four graduate level courses that total 12 credits and can be completed part-time over 12 - 16 months (see specific certificate pages for more information). Jefferson currently offers certificates in Autism, Neuroscience, Neuro-cognitive disorders, Teaching in the Digital Age, and Interprofessional Geriatric Education. For more information about the Certificate programs see: www.jefferson.edu/ot/certificates. All certificates can be completed entire online format and used toward a clinical doctorate in occupational therapy (OTD) at Jefferson.

Admission Requirements for Clinical Occupational Therapy Doctoral Program

Application requirements are:
• Official transcript from all education institutions attended
• Essay/personal statement including specific goals for the doctoral program
• GRE, MAT (preferred scores GRE 1000, MAT 450 (required only for those who did not achieve a minimum GPA of 3.0 in their undergraduate program)
• NBCOT certification
• State licensure, if applicable
• TOFEL scores, if applicable

NOTE: Applicants who are U. S. citizens and graduated from a foreign OT program that is a member of WFOT may be considered for admission without a bachelor’s degree if they have established equivalency as determined by the admission coordinator. In addition to meeting academic standards and submitting all appropriate documentation (including course-by-course evaluation of foreign transcripts), the following supplemental criteria are required:
• Proof of NBCOT certification
• Work history - at least 3 years of documented work as a practicing occupational therapist in the United States
• Evidence of continuing education - at least 36 Professional Development Units (PDU's) within the past 3 years
• International students who are in the U.S. in F or J status are restricted to taking one online course per term per federal regulations. International students in F or J status may not enroll as part-time students.
• International students who remain overseas for the duration of the program and have graduated from a WFOT-approved school are encouraged to apply. All transcripts originating from academic institutions outside of the U.S. must be translated and a course-by-course evaluation performed by the World Education Services (WES) or comparable credential evaluation service. WES will transmit the results electronically to Jefferson. Students must demonstrate English language proficiency through the Internet-based Test of English as a Foreign Language (TOEFL) with an overall score of at least 87 and individual section scores as follows: Writing - 21, Speaking - 23, Reading - 21 and Listening – 22 (does not apply to international students where English is an official language).

TECHNICAL STANDARDS REQUIRED FOR OCCUPATIONAL THERAPY STUDENT PERFORMANCE IN CLASSROOM, LABORATORY AND FIELDWORK SETTINGS
Students participating in the Occupational Therapy Program at Thomas Jefferson University must have essential skills to perform successfully as a student. These requirements apply to classroom, laboratory and clinical/fieldwork environments. Students must be able to perform the following with or without reasonable accommodation:

Student must possess sufficient COGNITIVE skills to:
1. Acquire, process, retain and apply knowledge through a variety of instructional methods such as written materials, oral delivery, visual demonstrations, laboratory experiences, clinical experiences and independent learning.
2. Complete reading assignments, search and analyze professional literature, and apply
information gained to guide practice; learn, retain and use information from texts, journals documentation and other written sources.

3. Process (measure, calculate, analyze, synthesize and evaluate) large amounts of complex information; apply theoretical concepts to practice activities and perform clinical problem solving in a logical and timely manner.

4. Apply mathematical and basic statistical skills.

5. Perceive and understand three-dimensional relationships and spatial relationships necessary for education and practice-related tasks such as moving in a variety of environments, designing treatment equipment and fabricating splints.

6. Participate equitably in cooperative group learning activities; actively participate in class discussions and as a member of a team.

7. Orally present information to groups of people.

8. Maintain attention for 2-4 hours; tolerate days when classes may last 8-10 hours.

9. Take and pass tests/quizzes in a variety of formats.

10. Complete written assignments and produce written documentation in standard and organized English.

11. Apply knowledge and judgment required to demonstrate ethical reasoning and behavior.

12. Apply safety knowledge and judgment to a variety of situations.

13. Comply with fieldwork site rules and regulations.

14. Demonstrate problem-solving skills and judgment necessary to modify evaluation or intervention methods when necessary to address the specific needs of client (behavioral, cultural, etc.), in order to maximize client performance.

15. Apply clinical reasoning and judgment necessary for interpretation of evaluation data and development of treatment plans.

16. Identify and select occupations that are goal-directed and motivate and challenge clients.

17. Demonstrate judgment necessary to establish priorities and develop and use strategies.

Student must possess sufficient **BEHAVIORAL/SOCIAL-COMMUNICATION-SKILLS, AND PROFESSIONAL BEHAVIORS** to:

1. Demonstrate positive interpersonal skills including, but not limited to, cooperation, flexibility, tact, sympathy and confidence.

2. Demonstrate respect for diversity, including but not limited to, socio-cultural, socioeconomic, spiritual and lifestyle choices.

3. Collaborate with classmates, clients, family members, significant others and team members.

4. Function successfully in supervisory and instructor-student relationships; change and adjust behavior and performance in the classroom, laboratory or clinic on the basis of instructor feedback.

5. Communicate in the English language effectively and clearly in oral and written forms, using proper spelling, punctuation and grammar to explain procedures and teach skills.
6. Use language appropriate to the recipient, with faculty, peers, clients and other health professionals from different social and cultural backgrounds to obtain information from clients, peers, faculty, supervisors and other professionals.

7. Use communication skills needed to practice safely.

8. Use therapeutic communication skills such as attending and active listening during therapeutic interactions and motivating and facilitating client behaviors in order to maximize client performance.

9. Communicate effectively both verbally and non-verbally; elicit and describe factual information and perceive information derived from verbal and nonverbal communication and social cues.

10. Be appropriately assertive as required to speak in class, initiate and guide the therapy process, establish limits as needed for the safety of self and clients and establish professional identity within complex systems.

11. Utilize the computer for communication and class assignments.

12. Exhibit professional demeanor including appropriate language and dress, and acceptance of responsibility for conduct.

13. Demonstrate organizational and time management skills and ability to prioritize activities effectively as needed to attend class and fulfill class requirements.

14. Exhibit flexibility and adapt to changing environments and expectations.

15. Cope with stresses encountered in the intensive educational process as well as clinical practice environments.

16. Demonstrate consistent work behaviors including initiative, preparedness, dependability, punctual attendance and work site maintenance.

17. Tolerate working in environments where there is exposure to disability, illness, pain and death.

18. Observe persons and scenarios and elicit relevant information for use in assessment and intervention.

19. Plan, guide and implement both individual and group interventions.

20. Maintain ethical standards including honesty, integrity and confidentiality at all times.

21. Produce the required volume of work in the expected time frame.

Student must possess sufficient PHYSICAL AND SENSORY (SENSORIMOTOR) skills to:

1. Tolerate sitting for up to two hours at a time, over an 8-10 hour period.

2. Tolerate periods of physical activity for up to 8-10 hours per day.

3. Demonstrate coordination, equilibrium and sensory functioning required to manipulate parts of, or whole bodies of, simulated and real clients for purposes of evaluation and treatment.

4. Demonstrate mobility and ability to move within environments adequately to access and maneuver within locations and destinations including classroom, laboratory and clinical settings.

5. Demonstrate sufficient postural control, neuromuscular control, eye/hand coordination, strength and integrated function of the senses of vision, hearing, tactile sense, vestibular (movement sense) and proprioception (sense of muscles
and joints) to manipulate and use common occupational therapy equipment, devices, materials and supplies, and demonstrate competency in the use of these objects within assessment and treatment procedures commonly used in occupational therapy practice.

6. Demonstrate motor skill capacities with sufficient levels of strength, endurance and fine and gross motor coordination to safely, accurately and effectively engage in a wide variety of therapeutic techniques, activities and occupations used in the occupational therapy assessment and intervention process including the ability to lift and move objects, adequate manual dexterity, arm and hand function needed to use tools and perform other manipulative activities, use of limbs and trunk in bending, twisting, squatting, kneeling, reaching, pushing, pulling, holding, extending and rotating.

7. Tolerate physical contact with others; tolerate manipulation of his/her own body by peers or instructors for instructional purposes.

8. Demonstrate sufficiently high degree of coordination of motor skills and vigilance to respond to emergency situations quickly and appropriately, including performance of CPR.

9. Travel to fieldwork site.

DEPARTMENT OF OCCUPATIONAL THERAPY FACULTY

Janice P. Burke, PhD, OTR/L, FAOTA
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Dean, Jefferson School of Health Professions

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Associate Professor
Fieldwork Coordinator

Susan Santalucia, MS, OTR/L
Instructor
ENTRY LEVEL AND COMBINED BS/MS OCCUPATIONAL THERAPY COURSE DESCRIPTIONS
Courses are described in numerical order. The number within parentheses following the course title indicates the number of semester credits assigned to each course.

OCCUPATIONAL THERAPY 300
Introduction to Applied Science (1)
This course provides an introduction to the application of knowledge in anatomy, kinesiology, and neuroscience to occupational therapy evaluation and treatment. Key concepts from the musculoskeletal, central and peripheral nervous systems and health conditions are reviewed to assist consolidation of learning from concurrent courses. Students develop analysis and problem solving skills, which are used as a basis for understanding the function and dysfunction of the musculoskeletal system, central and peripheral nervous systems and effect of dysfunction in these systems on engagement in occupation. A variety of learning activities and media are used to reinforce concepts introduced in other first semester courses taken concurrently. Assignments reinforce these concepts and the relationship to occupational therapy practice.
OCCUPATIONAL THERAPY 302
Applied Anatomy and Kinesiology (Lecture/Laboratory) (4)
This course provides an overview of human anatomy systems as well as principles of biomechanics and kinesiology. Study of the musculoskeletal and peripheral nervous systems regionally will facilitate the application of anatomical and biomechanical knowledge to clinical observation and activity analysis. Includes a laboratory class in surface anatomy, osteology, and kinesiology, with opportunities to practice special clinical screening tests. Lecture and laboratory.

OCCUPATIONAL THERAPY 308
Concepts in Neurodevelopment (Lecture/Laboratory) (4)
Provides an in-depth view of the functional components of the nervous system and their functions in human performance and behavior. Laboratory experience includes examination of the brain and nervous system and identification of major structures and functions in human specimens, as well as examination of the neurobiological substrates of behavior and learning. Lecture and laboratory.

OCCUPATIONAL THERAPY 311
Health and Health Conditions (4)
Examines common pathological conditions, diagnostic methods and medical and psychiatric treatment approaches commonly used with these disorders. Identifies the effects of disability, disease or traumatic injury to individuals and their ability to engage in occupations within the context of family and society.

OCCUPATIONAL THERAPY 321
Foundations of Occupation-Centered Practice I (Laboratory) (2)
This course introduces students to selected foundational skills used in occupation-centered practice. To develop basic competence, students engage in learning activities and practice in three modules - Basic Clinical Skills: manual muscle testing, goniometry, monitoring vital signs, transfers; Occupation and Early Development: occupational performance in infants and toddlers, influences on young children’s development; Interpersonal Foundations: group dynamics, communication, interviewing skills, Health Mentors InterProfessional teamwork, time management and life balance.

OCCUPATIONAL THERAPY 322
Foundations of Occupation-Centered Practice II (Laboratory) (2)
This course, a continuation of OT 321, emphasizes theoretical underpinnings and evidence based approaches within the context of occupational therapy practice. Students explore areas of occupation-based practice and relate new and innovative ideas to clinical practice. Opportunities are included to practice frequently used screening and evaluation measures and fabricate orthotic interventions for selected clinical conditions. Additionally, Health Mentors InterProfessional teamwork, occupation and typical development in children 2-7 years are included.

OCCUPATIONAL THERAPY 330
Using an Occupational Therapy Lens in the Clinic (2)
This course provides an introduction to occupational therapy in the hospital environment. Particular emphasis is placed on developing observation and professional writing skills while observing recipients of occupational therapy services in the hospital setting. Assignments promote integration of knowledge and skills presented during courses in the semester, including pathology, clinical observation skills, professional writing, professional behavior and utilization of medical data bases.

OCCUPATIONAL THERAPY 336
Occupation Through the Life Span (Lecture and Laboratory) (5)
This course examines participation in occupation as an organizing force throughout the life span and as a key determinant of health. The course emphasizes foundational skills and knowledge concerning the nature of occupation and ways that occupational performance is affected by individual and environmental contextual factors. Problem solving and analytical skills relative to activity analysis principles and the occupational therapy process are taught in conjunction with the Occupational Therapy Practice Framework. Students apply professional tools of analyzing, selecting, grading and adapting occupations, in order to address the impact of disability and dysfunction on occupational performance and participation.

OCCUPATIONAL THERAPY 340
Domains of Occupational Therapy Practice – Fieldwork Level I (2)
This course provides an understanding of the parameters of occupational therapy practice through guided observation and participation in clinical and/or community settings. Particular emphasis is placed on developing observation, clinical reasoning, therapeutic use of self and professional behavior skills while observing and participating with individuals in a variety of self-care, work, social participation and leisure/play activities.

OCCUPATIONAL THERAPY 341
Occupational Analysis and Evaluation – Fieldwork Level I (2)
This course provides opportunities for students to observe and/or participate in patient/client evaluation and treatment and to apply their understanding of the evaluation process, activity analysis and the use of occupation in therapeutic intervention. Each student is placed in an environment that offers an opportunity to integrate didactic and clinical knowledge. Students engage in supervised observation, evaluation and intervention activities with individuals across the lifespan with a variety of conditions. Students also continue to develop their professional communication and behavior skills, therapeutic use of self, and clinical reasoning.
Prerequisite: OT 340

OCCUPATIONAL THERAPY 357
Evaluation Process (Lecture/Laboratory) (4)
Occupational therapy evaluation of a client or patient requires a therapist to develop an occupational profile and to analyze the individual’s ability to perform occupations. This course provides students with the knowledge and skills needed for the client evaluation process according to the Occupational Therapy Practice Framework. Students learn about a range of tests and assessments that evaluate individual needs within a variety of clinical practice areas.
Course emphases include the use of skilled clinical observation and learning the principles of assessment selection, administration, interpretation and scoring. Using evaluation results for the purposes of planning occupational therapy intervention and establishing therapy goals will be covered. Opportunities for practicing evaluation and assessment skills are provided in the laboratory portion of the class.
Prerequisites: OT 311, OT 336

**OCCUPATIONAL THERAPY 440**
Occupational Therapy Interventions – Fieldwork Level I (2)
This course provides an in-depth understanding of the clinical intervention process from a problem-solving perspective. Each student is placed in an environment that offers an opportunity to integrate didactic and clinical knowledge and examine the process of clinical reasoning. Emphasis is placed on treatment planning and goal development, treatment implementation, and documentation of client-centered, occupation-based care. Students also continue to hone professional behavior, clinical reasoning, and clinical skills.
Prerequisite: OT 341

**OCCUPATIONAL THERAPY 441**
Theory in Practice and Group Program Development – Fieldwork Level I (2)
This course addresses the role of occupational therapy in providing psychosocial group program development and implementation in emerging practice settings. As occupational therapists move out of medical environments and into the community, they need to apply skills in needs assessment, program development, program evaluation, consultation and marketing, as well as the ability to work independently. Students engage in developing occupation based group programming in a variety of community settings where occupational therapy services are minimally or non-existent. Each student is placed in an environment, which offers an opportunity to integrate didactic and clinical knowledge. Emphasis is placed on developing, implementing and justifying theory-based psychosocial intervention at the group program level.
Prerequisite: OT 440 (previous to or concurrent with OT 558)

**OCCUPATIONAL THERAPY 467**
Health Service Administration and Professional Development (2)
This course focuses on how occupational therapists work within health, education, and social service systems. Issues addressed in this course include: supervision, staffing patterns, structure of organizations, management of programs, policies impacting practice, and ethical practice and professional development. These issues will be analyzed within the contexts of current occupational therapy environments of practice.

**OCCUPATIONAL THERAPY 480**
Fieldwork Level II A (6)
The full-time, 12 week supervised fieldwork experience emphasizes the application of the academically acquired body of knowledge. This clinical affiliation will provide an in-depth experience in the practice and application of the occupational therapy process with individuals who are experiencing deficits in occupational performance or are at-risk for occupational
dysfunction as a result of physical, psychosocial, developmental, learning or cognitive factors. Fieldwork placements will include traditional and/or community-based delivery systems.
Concurrent with OT 578

**OCCUPATIONAL THERAPY 482**
**Fieldwork Level II B (6)**
The full-time, 12 week supervised fieldwork experience emphasizes the application of the academically acquired body of knowledge. This clinical affiliation will provide an in-depth experience in the practice and application of the occupational therapy process with individuals who are experiencing deficits in occupational performance or are at-risk for occupational dysfunction as a result of physical, psychosocial, developmental, learning or cognitive factors. Fieldwork placements will include traditional and/or community-based delivery systems.
Pre requisite: OT 480
Concurrent with OT 578

**GRADUATE PROGRAM COURSES**

**OCCUPATIONAL THERAPY 552**
**Interventions: Enhancing Human Performance (Lecture/Laboratory) (5)**
Focuses on the development of knowledge and skills needed for the client intervention process as outlined in the Occupational Therapy Practice Framework (development of the intervention plan, intervention implementation and intervention review). Students will learn how to identify the need for occupational therapy services, develop intervention plans, goals and outcomes, review intervention and prepare for termination of services. Emphasis is placed on the selection and implementation of intervention methodologies that are clinically sound, stage-specific, client-centered, evidence-based, and theory-guided. The laboratory portion of the course allows students to practice and apply a broad range of intervention techniques utilizing therapeutic use of self, occupation-based activities, purposeful activities, preparatory methods and educational processes that can enhance the occupational performance and health of adults and children.
Prerequisites: OT 302, OT 308, OT 311, OT 336, OT 357

**OCCUPATIONAL THERAPY 555**
**Older Adults and Their Living Environments (3)**
Provides an in-depth understanding of older adults and the social, physical and virtual environments in which they live and interact, across the continuum of care. Students learn to evaluate different environments such as the home, senior centers and assisted living facilities for their supports and constraints on occupational performance of older adults with a range of physical and cognitive conditions. Analyzes interrelationships between client factors and environmental contexts using person-environment theoretical frameworks and examines implications for occupational therapy intervention and research.

**OCCUPATIONAL THERAPY 558**
**Enhancing Social Participation (3)**
This intervention based course encourages students to examine and build skills in psychosocial interventions used in occupational therapy. Students will analyze personal behavior and engage in dyadic learning, and small group interaction. Students also explore the theoretical basis and practice application of individual, group and consultation psychosocial interventions used by occupational therapists in traditional as well as community based settings within the constructs of the Occupational Therapy Practice Framework (OTPF II). In laboratory sessions, students will participate and reflect upon the development of activity-based groups. Student will collaborate, design and implement therapeutic activity groups that are developmentally sensitive to social participation while adhering to a theoretical base.

Concurrent with OT 441

**OCCUPATIONAL THERAPY 560**  
Environmental Competence (3)

This intervention course focuses on exploring the dynamic interaction between the person, the environment, and participation in occupations. Students analyze this interaction by assessing context, client factors, performance skills and patterns, & activity demands that enable participation in meaningful occupations. Students problem solve environmental modifications to enable all people to participate in meaningful occupations and promote health.

Prerequisites: OT311, OT 336
Concurrent with OT 561 and 562

**OCCUPATIONAL THERAPY 561**  
Environmental Competence Laboratory (1)

A laboratory course in which students problem-solve to create client-centered environmental adaptations in a variety of settings. Focus is on evaluation, selection, implementation and coordination of human and non-human environmental adaptations to enable occupational performance in accordance with roles, goals, motivation, interests, habits and abilities. Concepts of environmental adaptation are applied at the individual, community, and societal levels.

Prerequisites: OT 311, OT 336
Concurrent with OT 560 and 562

**OCCUPATIONAL THERAPY 562**  
Environmental Competence in Action (1)

Students work directly and collaboratively with an individual client in the community to apply concepts from OT 560 Environmental Competence. Students design, fabricate and implement environmental adaptations, and develop strategies to successfully incorporate these adaptations into the individual’s daily routines. Students develop their clinical reasoning and problem solving abilities as they are guided through this process by regular meetings with a faculty preceptor.

Prerequisites: OT311, OT 336
Concurrent with OT 560 and 561

**OCCUPATIONAL THERAPY 577**  
Historical Perspectives on Theory-Based Practice in Occupational Therapy (3)
This course offers students the opportunity to understand the relationship between social, cultural, economical, political and scientific forces in society and the profession of occupational therapy. Students will increase their awareness of how internal and external pressures have influenced the evolution of the field of occupational therapy in the past, present and into the future. Students will trace the development of selected occupational therapy paradigms, models and theories as evidenced in the occupational therapy literature using methods associated with theoretical analysis. Core concepts and constructs (such as occupation, competence, environment and adaptation) that form the basis of contemporary practice models and theories will be identified, as well as those that may emerge and influence the future directions of the field. Students will compare the values, knowledge and skills reflected in these concepts and critique evidence of practice based and research based application.

**OCCUPATIONAL THERAPY 578**

Evidence Based Practice (2)

Students analyze their clinical practice during Level II fieldwork through reflection, clinical reasoning and the application of best available evidence to solve clinical problems. Students develop skill in generating clinical questions, implementing search strategies, conducting in-depth literature reviews, critically analyzing literature and synthesizing best available evidence to answer clinical queries. Course is conducted through electronic classroom while students are participating in Level II fieldwork. Concurrent with OT 480 and 482

**OCCUPATIONAL THERAPY 600**

Occupational Therapy Professional Seminar (1)

This seminar introduces students into the professional community of occupational therapy as they explore their new role and identity within the profession. Broad professional concepts and challenges such as power, social justice, and health determinants are introduced for analysis and discussion. Students develop skills needed for critical analysis and synthesis of professional literature and evidence supporting occupational therapy practice.

**OCCUPATIONAL THERAPY 603**

Research Methods and Mentorship (4)

This course will address the interrelationships between theory, research and practice. Emphasis will be placed on the acquisition of methods for extending the scientific base of knowledge for advanced occupational therapy practice and for incorporating the use of evidence based practice into practice. Qualitative, quantitative, and mixed method research designs and related analytic techniques for appraising research evidence will be examined in terms of their appropriateness for advancing knowledge of occupation and for addressing various research problems in occupational therapy. Learning methods include class activities, readings, critique of published studies, literature search and data analysis.

**OCCUPATIONAL THERAPY 627**

Program Design and Evaluation (3)
The role of the healthcare provider as a program developer, evaluator and consultant is covered in this course. Students develop introductory knowledge and skill in the processes and techniques of program design and evaluation needed to add to services traditionally provided in a setting or to plan new programs.

**OCCUPATIONAL THERAPY 631**  
**Focus on the Child in Early Intervention and School Based Practice (3)**  
The occupational therapy process with infants, toddlers and the school-aged child within the context of his or her natural environment is examined. Students learn to use a family centered, interdisciplinary approach to early intervention and school-based practice. A variety of assessment and intervention strategies for the young and school-aged child are included. Students integrate and apply current literature related to the occupational therapy process, natural environments, legislation, school system policy and organization, the use of sensory integration and family-centered care.

**OCCUPATIONAL THERAPY 670**  
**Advanced Research Seminar (3)**  
In this course students will learn how to apply critical thinking and action to systematic inquiry. Students develop advanced understanding of important methodological considerations needed to design and complete projects for professional audiences through implementation of a professional level project. Students select from two different of project selections to develop and implement a specialized project to explore a clinical question relevant to occupational therapy.  
Prerequisites: Occupational Therapy 578, 603

**OCCUPATIONAL THERAPY 682**  
**Clinical Leadership (3)**  
Utilizes conceptual frameworks for guiding development as leaders in occupational therapy practice, research, education, advocacy and administration. Explores and expands the knowledge and skills necessary for occupational therapists to assume leadership roles in a wide range of practice and research arenas.

**DOCTORAL AND ADVANCED PRACTICE CERTIFICATE COURSES**  
All courses can be viewed at the following:  

**REFERENCES**  
Haugen (Eds.). Occupational therapy: Performance, participation and well-being (3rd ed). Thorofare, NJ: Slack Incorporated


Physical Therapy
DEPARTMENT OF PHYSICAL THERAPY

Physical therapy is a dynamic, multifaceted profession with an established theoretical and scientific base. Today’s physical therapists care for people across the lifespan, from premature infants to the elderly, to restore, maintain and promote optimal physical function. In addition to being experts in examination and treatment of musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary problems that affect people’s ability to function optimally, physical therapists are skilled in prevention and health maintenance techniques employed to assure maximum health, wellness and fitness.

The mission of the Department of Physical Therapy, which is congruent with the missions of the School and University, guide the strategic plan and faculty goals in the Department. The mission and goals of the Department of Physical Therapy bring an interprofessional emphasis to education, research, health care delivery and service to the community and profession:

- Educational Mission: To graduate highly competent self-reflective physical therapists that practice evidence-based physical therapy, who are patient advocates and leaders in the community and the profession, and who are prepared to treat a culturally diverse population of clients and pursue professional development opportunities.
- Research Mission: To add to the body of knowledge in physical therapy by conducting and disseminating research along a continuum from basic sciences to application
- Service Mission: To utilize physical therapy knowledge and skills to benefit the community and the profession

DOCTOR OF PHYSICAL THERAPY DEGREE PROGRAM

The Doctor of Physical Therapy Degree Program is a post-baccalaureate program based upon a clinical problem-solving approach and integrated with a health and wellness model. In addition to preparing physical therapists that can recognize and apply the concept of individual responsibility for personal health in health promotion and disease, the DPT program strives to prepare life-long learners who utilize evidence-based practice to treat clients with optimal physical therapy interventions. Students are expected to integrate theory, practice and research within a problem-solving approach employing scientific knowledge, humanistic values, critical analysis and a systematic approach to making clinical decisions. The DPT program places a strong emphasis on teaching skills that better prepare students to adapt to a rapidly changing healthcare environment and professional behaviors that embody those advocated in the APTA Code of Ethics and Professional Conduct.

Upon successful completion of the program, students are awarded the Doctor of Physical Therapy degree.

PROGRAM ACCREDITATION

The entry-level DPT program is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), American Physical Therapy Association (APTA). A listing of other agencies and addresses that accredit the academic programs of the School may be found in the “SCHOOL”
section of this catalog under the heading “ACCREDITATION.” For information about CAPTE rules and procedures regarding any DPT program accreditation concerns, such as making formal complaints, go to the CAPTE website (www.apta.org/capte) and select the link for the Accreditation Handbook to view the table of contents or the link for Frequently Asked Questions (FAQs).

PROGRAM AFFILIATIONS
The Department has established agreements with a variety of types of clinical facilities for the entry-level DPT program in order to maximize students’ clinical exposure and experience. Students are responsible for providing their own transportation, room and board and the costs associated with these for their clinical affiliations.

REQUIREMENTS FOR ADMISSION (DPT)
Earned Bachelor’s degree and the following coursework:

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy and Physiology*</td>
<td>8</td>
</tr>
<tr>
<td>Biology (General, with Laboratory)*</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry (General, with Laboratory)*</td>
<td>8</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Humanities (including 3 credits of composition/writing and preferably Ethics or Philosophy)</td>
<td>9</td>
</tr>
<tr>
<td>Mathematics (College Algebra/Trigonometry, Pre-Calculus or Calculus)</td>
<td>3</td>
</tr>
<tr>
<td>Physics (with Laboratory, need not be calculus based)*</td>
<td>8</td>
</tr>
<tr>
<td>Social Sciences (including 6 credits of Psychology; Developmental and Abnormal preferred)</td>
<td>9</td>
</tr>
</tbody>
</table>

**TOTAL** 56

*These courses must meet requirements for science majors.

CURRICULUM (DPT)
First Year

**FALL SEMESTER (15-16 wks: Sept – Dec)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT 503</td>
<td>Advanced Human Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>PT 506</td>
<td>Biomechanics and Kinesiology</td>
<td>4</td>
</tr>
<tr>
<td>PT 511</td>
<td>Clinical Physiology I</td>
<td>3</td>
</tr>
<tr>
<td>PT 531</td>
<td>Clinical and Professional Skills I</td>
<td>4</td>
</tr>
<tr>
<td>PT 541</td>
<td>Physical Therapists as Learners and Teachers</td>
<td>3</td>
</tr>
</tbody>
</table>

   **17**

**SPRING SEMESTER (15-16 wks: Jan – May)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT 504</td>
<td>Advanced Anatomy Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>PT 512</td>
<td>Clinical Physiology II</td>
<td>3</td>
</tr>
<tr>
<td>PT 516</td>
<td>Neuroscience</td>
<td>3</td>
</tr>
<tr>
<td>PT 526</td>
<td>Critical Inquiry I</td>
<td>2</td>
</tr>
<tr>
<td>PT 532</td>
<td>Clinical and Professional Skills II</td>
<td>4</td>
</tr>
<tr>
<td>PT 607</td>
<td>Musculoskeletal Physical Therapy I</td>
<td>3</td>
</tr>
</tbody>
</table>
## Second Year

**PRE-FALL SEMESTER (10 wks: ½ June – August)**

- **PT 553 Modalities and Physical Agents**  3
- **PT 611 Cardiovascular and Pulmonary Physical Therapy**  4
- **PT 613 Pharmacology**  2
- **PT 680 Integrated Clinical Affiliation (didactic)**  1

**TOTAL**  10

**FALL SEMESTER A (8 wks: Sept – Oct)**

- **PT 681 Integrated Clinical Affiliation**  4

**TOTAL**  4

**FALL SEMESTER B (8 wks: Nov – Dec)**

- **PT 521 Motor Function Throughout the Lifespan**  3
- **PT 608 Musculoskeletal Physical Therapy II**  2
- **PT 626 Critical Inquiry II**  2
- **PT 661 Physical Therapy for the Integumentary System**  2

**TOTAL**  9

**SPRING SEMESTER (12 wks: January – March)**

- **PT 601 Rehabilitation: Continuum of Care**  3
- **PT 609 Musculoskeletal Physical Therapy III**  2
- **PT 616 Neuromuscular Physical Therapy I**  4
- **PT 631 Healthcare Delivery Systems**  2

**TOTAL**  11

**PRE-SUMMER SESSION (8 wks: April - May)**

- **PT 682 Integrated Clinical Affiliation II**  4

**TOTAL**  4

## Third Year

**PRE-FALL / FALL A SEMESTER (14 wks: July - ½ October)**

- **PT 627 Critical Inquiry III**  3
- **PT 646 Clinical Physiology III**  3
- **PT 674 Physical Therapy Clinical Decision Making in Pediatrics**  3
- **PT 716 Neuromuscular Physical Therapy II**  3

**TOTAL**  12

**FALL SEMESTER B (10 wks: ½ October – December)**

- **PT 781 Integrated Clinical Affiliations III**  5

**TOTAL**  5

**SPRING SEMESTER (15-16 wks: January – April)**

- **PT 651 Applied Exercise Physiology**  3
- **PT 670 Prosthetics and Orthotic Interventions**  3
PT 736  Business and Leadership in Physical Therapy Practice  3
PT 741  Comprehensive PT Clinical Decision Making  4
PT 774  Physical Therapy Clinical Decision Making in Geriatrics  3

SUMMER SESSION (10 wks: May – August)
PT 782  Integrated Clinical Affiliation IV  5

Credit Summary
First-Year Professional Credits  35
Second-Year Professional Credits  38
Third-Year Professional Credits  38
Total Credits for Doctor of Physical Therapy Degree Program  111

Descriptions for the courses listed above are located at the end of this section of the Catalog.

SPECIAL PROGRAM REQUIREMENTS (DPT)
1. Any student whose cumulative grade point average (CGPA) falls below 3.0 will be placed on Departmental academic probation. The student will have two consecutive semesters to bring the CGPA back above 3.0. Students may be dismissed from the Doctor of Physical Therapy Program if the student:
   - Does not successfully attain the standards as outlined in the Physical Therapy Department’s Academic Standards policy. These academic standards include:
     - Failure of one academic or clinical course.
     - Failure to achieve a cumulative GPA of 3.0 at the end of the second semester of academic probation.
   - Does not meet the standards as outlined in the Repeating Courses policy and procedure as contained in the Department of Physical Therapy Student Handbook.
   - Violates the Physical Therapy Department’s Professional Development policy including the University Student Code of Conduct.
   - Does not meet the requirements for academic and/or professional behavior as outlined in a Learning Contract.
2. A student who has been dismissed from the program is eligible to apply for readmission. The Student Affairs Committee (SAC) of the Department of Physical Therapy will recommend to the Department Chairperson whether a student should be readmitted and his/her level of re-entry. The Department Chairperson will make the final decision regarding readmission. The members of the SAC are appointed by the Department Chair and consist of faculty members in the Physical Therapy Department.
3. Students readmitted or returning (due to any reason including leave of absence, withdrawal, remediation) to the to the Doctor of Physical Therapy program may be required to repeat specified courses and/or demonstrate academic preparedness to progress to subsequent academic and clinical experiences. Readmission requirements are not limited to but may include: repeating courses; completing an independent
study; completing a student initiated or self-directed clinical experience (as a volunteer or paid); and/or passing a comprehensive practical exam. Recommendations will be made on a case by case basis in the best interest of achieving student learning and performance needs. Students will not be permitted to progress in didactic or clinical coursework until all readmission requirements are successfully completed. Coursework will be completed as per the University’s academic calendar and the Department of Physical Therapy’s curricular sequence. The dates of the clinical affiliations are subject to the availability of placements. An academic course or clinical affiliation may be repeated only once during a student’s tenure at Thomas Jefferson University and it must be repeated within the academic year immediately following readmission. If a repeated course is not successfully completed as defined by the Department Chair or if the CGPA is not successfully improved by repeating the required course, the student will be dismissed from the Physical Therapy program.

4. Students are required to have a CGPA of 3.0 or higher in order to be eligible for graduation.

5. It is the expectation that each student will conduct himself or herself in a manner compatible with the Code of Conduct as outlined in the Jefferson School of Health Professions Student Handbook.

6. School policies and procedures on academic regulation such as promotion, withdrawal, grade appeal protocol and criteria for graduation are described in detail in the Academic Regulations section of the Jefferson School of Health Professions Student Handbook.

PERFORMANCE REQUIREMENTS FOR DEGREE PROGRAMS IN PHYSICAL THERAPY

The information below delineates the cognitive, affective and psychomotor skills deemed essential to completion of the Physical Therapy degree programs at Thomas Jefferson University and to perform as a competent generalist physical therapist.

If a student cannot demonstrate the following skills and abilities, it is the responsibility of the student to request an appropriate accommodation. The University will provide reasonable accommodations, which may include accommodations that do not fundamentally alter the nature of the program offered and do not impose undue hardship, such as those that are unduly costly or are disruptive to the educational process.

Cognitive Skills

The student must demonstrate the following abilities:

1. Receive, interpret, remember, reproduce and use information in the cognitive, psychomotor and affective domains of learning to solve problems and generate new ways of processing or categorizing information as listed in course objectives.

2. Perform a physical therapy examination, including analysis of physiologic, biomechanical, behavioral, cultural and environmental factors, in a timely manner that is consistent with the norms of clinical settings.
3. Use examination findings to execute a plan of care in a timely manner that is appropriate to the problems identified and consistent with the acceptable norms of clinical settings.

Psychomotor Skills

The student must demonstrate the following abilities:

1. Locomotion
   a. Get to lecture, laboratory and clinical locations and move within rooms as necessary to change groups, partners and workstations.
   b. Physically maneuver in required clinical settings to accomplish assigned tasks.

2. Manual skills:
   a. Maneuver another person’s body parts to perform examination and treatment techniques effectively.
   b. Manipulate common tools used for screening and examination tests, e.g., sphygmomanometer, goniometer, cotton balls, safety pins, reflex hammer.
   c. Safely and effectively guide, facilitate, inhibit and resist movement and motor patterns through physical facilitation and inhibition techniques, including the ability to give urgent verbal feedback.
   d. Safely manipulate another person’s body in transfers, gait, positioning and exercise and mobilization techniques.
   e. Manipulate examination and intervention equipment and safely and accurately apply to patients.
   f. Manipulate bolsters, pillows, plinths, mats, gait assistive devices and other supports or chairs to aid in positioning, moving or treating a patient safely and effectively.
   g. Competently perform and supervise cardiopulmonary resuscitation (CPR) using guidelines issued by the American Heart Association or the American Red Cross.

3. Fine motor skills:
   a. Legibly record/document examinations, patient care notes, referrals, etc. in standard medical charts in clinical settings in a timely manner and consistent with the acceptable norms of the clinical setting.
   b. Legibly record thoughts for written assignments and tests.
   c. Sense changes in an individual’s muscle tone, skin quality, joint play, kinesthesia and temperature to gather accurate objective information in a timely manner and sense that individual’s response to environmental changes and treatment.
   d. Safely apply and adjust therapeutic modalities.
   e. Use a telephone.

4. Visual acuity to:
   a. Receive visual information from classmates, faculty and patients regarding movement, posture, body mechanics and gait necessary for comparison to normal standards for purposes of examination and evaluation of movement
dysfunctions.

b. Receive visual information from the treatment environment, including but not limited to dials on modalities and monitors, assistive devices, furniture, flooring and structures.

5. Communication:
   a. Effectively communicate with other students, faculty, patients, peers, staff and personnel to ask questions, explain conditions and procedures, teach home programs and for safety in a timely manner and within the acceptable norms of academic and clinical settings.
   b. Receive and interpret written communication in both academic and clinical settings in a timely manner.
   c. Receive and send verbal communication in life threatening situations in a timely manner and within acceptable norms of clinical settings.

Affective Skills
The student must be able to:

1. Demonstrate appropriate affective behaviors and mental attitudes in order not to jeopardize the emotional, physical, mental and behavioral safety of clients and other individuals with whom they interact in the academic and clinical settings.
2. Comply with the ethical standards of the American Physical Therapy Association.
3. Sustain the mental and emotional rigors of a demanding educational program in physical therapy, which includes academic and clinical components that occur within set time constraints.
4. Acknowledge and respect individual values and opinions in order to foster harmonious working relationships with colleagues, peers and patients.


CLINICAL SITES
The Department of Physical Therapy uses Thomas Jefferson University Hospital as a clinical site. More than 300 additional clinical sites around the country are available for clinical affiliations. Information about the clinical sites can be found in the Physical Therapy Department. Though specialty clinical sites are available, placement in any particular specialty site cannot be guaranteed due to individual site availability from year to year.
DEPARTMENT OF PHYSICAL THERAPY FACULTY

Core Faculty
Susan Flannery Wainwright, PT, PhD
  Associate Professor and Chair
Margaret Rinehart Ayres, PT, PhD
  Associate Professor
Susan V. Duff, PT, OT, EdD
  Associate Professor
Paul D. Howard, PT, PhD, OCS
  Associate Professor
Therese Johnston PT, PhD, MBA
  Associate Professor
Marcia Levinson, PT, MFT, PhD
  Associate Professor
Christine Wade, PT, RN, EdD
  Associate Professor
Leigh Ann Hewston, PT, MEd
  Assistant Professor
Louis N. Hunter, PT, MS
  Assistant Professor
Laura Krisa, PhD
  Assistant Professor
Carl Pitts, PT, DPT
  Assistant Professor

Associated Faculty
Leonard Eisenman, PhD
  Professor
Richard R. Schmidt, PhD
  Professor
Gina DeSevo, PharmD
  Assistant Professor
Robert Cullen, PT, MBA, JD
  Clinical Assistant Professor
Shannon McLaughlin PT, DPT, DCS
  Clinical Assistant Professor
Guiyun Zhang MD, PhD
  Instructor
Timothy Bayruns, PT, DPT, OCS, CSCS
  Teaching Associate
Lisa Goodfriend, PT, MPT, CWS, FACCWS
  Teaching Associate
Maria Lucas, PT, BSPT
PHYSICAL THERAPY COURSE DESCRIPTIONS
Courses are described in numerical order. The number within parentheses following the course title indicates the number of semester credits assigned to each course. For the Doctor of Physical Therapy program, all courses have as a prerequisite requirement academic good standing according to the Special Program Requirements in addition to those prerequisites listed following the course descriptions.
PHYSICAL THERAPY 503
Advanced Human Anatomy (3)
This course represents the lecture portion of Advanced Human Anatomy and precedes the dissection portion which follows in the succeeding term. Students will be exposed to a rigorous academic experience in which they will obtain a firm and thorough foundation in basic human gross anatomy. Students will also approach the study of human anatomy utilizing several imaging modalities, e.g., CT, MRI and radiographic films. Lecturers will be from the Division of Anatomy in the Department of Pathology, Anatomy & Cell Biology and from the Department of Physical Therapy in the Jefferson School of Health Professions.

PHYSICAL THERAPY 504
Advanced Anatomy Laboratory (3)
In-depth study of the human body with emphasis on providing an anatomical foundation as a basis for normal and abnormal function for the physical therapist of the future. Laboratory experience is linked to PT 503. Includes a short review of the anatomical region/area prior to laboratory experiences, which will focus primarily on directed cadaver dissection, with examination of skeletal materials, anatomical models and imaging. Emphasizes the musculoskeletal system and the importance of the structural interrelationships. Covers the thoraco-abdominal viscera and the head and neck regions to provide the necessary background for integration and a more complete appreciation of the human body.
Prerequisite: Physical Therapy 503

PHYSICAL THERAPY 506
Biomechanics and Kinesiology (4)
The purpose of this course is to examine the basic principles of human motion based on anatomy, physiology, physics and mechanics. The course has been designed to closely correlate with the gross anatomy sequence. Students will examine the static and dynamic relationship between structure and function of the neuromusculoskeletal system under normal and abnormal conditions. Topics include basic biomechanical principles, tissue response to biomechanical forces, muscle and joint mechanics and kinetic and kinematic concepts of motion analysis as they apply to a specific joint region and/or whole body movement patterns. Changes throughout the life span as they apply to biomechanics and kinesiology will be examined at a very basic level. The laboratory portion of this course includes participation in both qualitative and quantitative movement analyses at each joint complex and of the entire body during functional activities such as reaching, manipulating objects, stair climbing, lifting and gait. Qualitative movement analysis will be performed via palpation and observation of movement. Quantitative movement analysis will be performed primarily by solving biomechanical problems. Students will also be introduced to quantitative analysis systems in our Human Performance Laboratory (HPL). Students will utilize case studies to apply biomechanical principles and functional anatomy to a diverse selection of case studies. The laboratory portion of the course reinforces basic biomechanical and kinesiological principles to functional tasks and patient problems. Students will also develop and improve problem solving and clinical decision-making skills through application of kinesiological and biomechanical
principles to case studies. Students work in small groups analyzing an activity and share their findings with the class.

PHYSICAL THERAPY 511
Clinical Physiology I (3)
It is important for practicing physical therapists to recognize common diseases and conditions that may be present for a given client or situations that may require modification of physical therapy evaluation, progression or program. In order to fully appreciate the consequence of common diseases or conditions one must understand basic physiology and how it is altered with pathology. This course is structured to first present basic physiologic principles and then to integrate these principles with pathologic processes. Topics are organized according to systems including relevant lab values and pharmacology. Clinical cases are periodically presented to reinforce the relevance to physical therapy practice.

PHYSICAL THERAPY 512
Clinical Physiology II (3)
It is important for practicing physical therapists to recognize common diseases and conditions that may be present for a given client or situations that may preclude physical intervention. In order to fully appreciate the consequence of common diseases or conditions one must understand basic physiology and how it is altered with pathology. This course is structured to first present basic physiologic principles, and then to integrate these principles with pathologic processes. Topics are organized according to systems including relevant lab values and pharmacology. Clinical cases are periodically presented to reinforce the relevance to physical therapy practice.
Prerequisite: Physical Therapy 511

PHYSICAL THERAPY 516
Neuroscience (3)
This course is an introduction to regional neuroanatomy combined with the relevant physiology and function of the central and peripheral nervous systems. Clinical correlations will be periodically introduced into the course to assist the students in the understanding of related applications to Physical Therapy. Information will be presented in a series of lectures and laboratory sessions. Labs will consist of inspection of neural tissue including gross specimens, digital images of histological slides, neuroscience computer programs from the Learning Resources Center and external links from internet sources.

PHYSICAL THERAPY 521
Motor Function Throughout the Lifespan (3)
This course will examine motor function from conception through old age. Theories of motor development and motor control will be discussed and applied to clinical decision making. Anthropometric, physiological, and psychosocial changes that typically occur across the lifespan and the impact of these changes on motor function will be discussed. This course is aimed at focusing the student on the question as to what factors underlie the change of motor behavior across the lifespan. Developmental systems perspective is supported. Students will participate
in a variety of direct observations in natural settings to learn firsthand the relationship between the developing person and the changing environment.

**PHYSICAL THERAPY 526**  
**Critical Inquiry I (2)**
This course is designed to present research design and statistical analysis with the intent to assist the student in critically evaluating the primary literature. Common research methods and designs are discussed and applied to clinical problems. Statistical analysis will be reviewed with the goal of comprehension and interpretation.

**PHYSICAL THERAPY 531**  
**Clinical and Professional Skills I (4)**
This foundation course explores the multifaceted role of the physical therapist in the health care delivery system. It introduces the student to basic clinical skills, procedures, and problem solving applications that will build a foundation for future course work. Professionalism, ethics, and safety will be emphasized throughout the course. Through the application of basic evaluation tools and intervention strategies the students will become more aware of how physical therapy practice can influence health care.

**PHYSICAL THERAPY 532**  
**Clinical and Professional Skills II (3)**
This course will focus on basic examination and evaluation of the neuromusculoskeletal system and the development and implementation of therapeutic interventions based on data obtained during the examination process. Clinical reasoning, time management, and documentation will be emphasized throughout the course. Students will have the opportunity to develop their own examination and treatment programs and will be introduced to several examples of common treatment protocols for conditions such as LBP, TKA, THA, and ACL reconstruction. Students will be exposed to a variety of therapeutic interventions in order to better enable them to make appropriate exercise prescriptions and carry out appropriate therapeutic interventions. The history and evolution of therapeutic exercise will be examined.
Prerequisite: Physical Therapy 531

**PHYSICAL THERAPY 541**  
**Physical Therapists as Learners and Teachers (3)**
Students will learn principles of knowledge and teaching and the application of learning principles. They will explore their individual learning styles understanding various types of intelligences. They will learn how to work effectively as a member of a collaborative, problem-based learning team, will recognize attributes and functions of managers and leaders in others and themselves and will understand and be able to manage change. Students will learn to teach motor skills and effectively communicate with individual patients/clients, families and related professionals in a manner sensitive to cultural diversity. They will be prepared to assume the role of a clinical instructor with physical therapy students learning the attributes of supervisors and leaders in their profession. Students will be introduced to the role of advocate and community health educator.
PHYSICAL THERAPY 553
Modalities and Physical Agents (3)
The Physical Agents and Electrical Modalities course is required by all physical therapy students. This course provides knowledge of the principles, technology, and general applications of thermal agents, intermittent pneumatic compression and electrotherapy. Indications and contraindications for the management of clinical conditions including pain, edema, inflammation, wounds, decreased range of motion, and muscle weakness will be discussed. Clinical decision-making will be emphasized in lecture, small group activities, and laboratory sessions.

PHYSICAL THERAPY 601
Rehabilitation: Continuum of Care (3)
Studies the examination, evaluation, treatment and rehabilitation of patients across the continuum of care using the patient with a spinal cord injury as the patient model. Examines the role of the physical therapist in acute care through rehabilitation, discharge and follow-up care in the community. Emphasizes a team approach to care.

PHYSICAL THERAPY 607
Musculoskeletal PT I (3)
Examination and intervention approaches for the lumbar spine, sacroiliac region, hip, knee, and ankle/foot will be presented. There is a major emphasis on soft tissue examination and manual therapy techniques.
Prerequisites: Physical Therapy 503, 506, 531

PHYSICAL THERAPY 608
Musculoskeletal PT II (2)
Various physical therapy approaches to examination and intervention for musculoskeletal disorders related to the temporomandibular joint, cervical spine, thoracic spine, and pelvic diaphragm will be discussed and critically analyzed in this course. A major emphasis of this course is to instruct students in methods of teaching patients how to effectively treat/manage their orthopaedic disorders and prevent reoccurrence. Soft tissue examination and manual therapy provide the foundation for this course.
Prerequisite: Physical Therapy 607

PHYSICAL THERAPY 609
Musculoskeletal PT III (2)
Various physical therapy approaches to examination and intervention for disorders related to the shoulder, elbow, wrist, and hand will be discussed and critically reviewed in this course. A major emphasis of this course is to instruct students in methods of teaching patients how to effectively manage their orthopaedic disorders and prevent reoccurrence. Soft tissue examination and manual therapy techniques provide the foundation for this course.
Prerequisite: Physical Therapy 608
PHYSICAL THERAPY 611
Cardiovascular and Pulmonary Physical Therapy (4)
Students are instructed in basic examination, evaluation, intervention, diagnosis, and outcome assessment skills of the cardiopulmonary and lymphatic system. Particular attention is focused on exercise prescriptions, patient management in various clinical settings, current medical and surgical procedures, and guidelines and education for inpatient and outpatient rehabilitation. Students will use evidence based practice to guide decisions for developing a plan of care.

PHYSICAL THERAPY 613
Pharmacology (2)
Provides an overview of drug classifications, the physiologic basis for their actions and examines the synergistic and/or adverse effects to patient’s rehabilitation goals.

PHYSICAL THERAPY 616
Neuromuscular Physical Therapy I (4)
Physical Therapy management of adults with central nervous system dysfunction (CNS), including client examination, evaluation, diagnosis, prognosis and intervention to improve neuromotor function and minimize disability.

PHYSICAL THERAPY 626
Critical Inquiry II (2)
This is the second in a series of three courses where students are introduced to the process and the implementation of critical inquiry as related to clinical practice. In this course students are instructed on the importance of critical inquiry to effective Physical Therapy practice. The students are presented with instruction on how to practice using evidence, methods for searching the literature, principles of measurement, uses and usefulness of results as presented in published studies, and the creation of a personal library of critically appraised topics. This is accomplished via lectures, assignments and individual projects. This class will be offered asynchronously in an on-line format.
Prerequisite: Physical Therapy 526

PHYSICAL THERAPY 627
Critical Inquiry III (3)
Guides students through the process of developing a Systematic Review of the Literature, on a topic to be selected by the faculty. Students learn to apply principles of research to the clinical decision making process and to document clearly and objectively the critique and recommendations for practice, based on their review of the literature. Introduces common methods of analysis for evidence-based practice and for synthesis of multiple studies. Instructs students on creation of practice guidelines.
Prerequisite: Physical Therapy 626
PHYSICAL THERAPY 631
Health Care Delivery Systems (2)
Advances students’ knowledge of physical therapy practice by synthesizing knowledge about health care as an established social institution. Emphasizes examination of the health care delivery system. Explores issues and trends associated with health care and the implications for physical therapy practice.

PHYSICAL THERAPY 646
Clinical Physiology III (3)
It is important for practicing physical therapists to recognize common diseases and conditions that may be present for a given client or situations that may preclude physical intervention. In order to fully appreciate the consequence of common diseases or conditions one must understand basic physiology and how it is altered with pathology. This course is structured to present basic physiologic principles, and then to integrate these principles with pathologic processes. Topics are organized according to systems including relevant lab values and pharmacology. Clinical cases are periodically presented to reinforce the relevance to physical therapy practice.
Prerequisite: Physical Therapy 512

PHYSICAL THERAPY 651
Applied Exercise Physiology (3)
This course applies the principles of Medical Physiology and other clinical courses in which conditions/diseases are discussed in relation to the exercise as an intervention. The principles of exercise physiology (metabolic, cardiovascular, pulmonary, muscular), already addressed in Medical Physiology will be included with additional detail and in special populations. Students will practice both submaximal exercise testing and pulmonary function testing in the laboratory as well as participating in a core training exercise class. Exercise prescription and goal setting will be practiced for patients with selected pathologies; students will be assisted in developing unique programs for those populations by clinical advisors by working through case histories. Concepts of normal nutrition and its impact on pathology are discussed relative to athletes as well as selected patient populations.
Prerequisite: Physical Therapy 646

PHYSICAL THERAPY 661
Physical Therapy for the Integumentary System (2)
The integumentary system is an integral part of neuromuscular, musculoskeletal and cardiopulmonary practice. Because of this widespread influence, physical therapists should be well informed regarding how the integumentary system fits into all phases of practice. This course is structured to provide the student with basic knowledge of the integumentary system, what to examine and how to intervene when pathology is present. Selected modalities are reviewed and discussed as specific interventions for the integumentary system. The content is primarily delivered in lecture format and analysis of selected cases presented to the student. Common pathologic integumentary conditions are presented in relation to other
musculoskeletal, neuromuscular, and cardiovascular pathologies. Students are also exposed to common skin conditions and cancer.

**PHYSICAL THERAPY 670**  
**Prosthetic and Orthotic Intervention (3)**  
Examines the application of prosthetic and orthotic components, alignment, fabrication, and fitting, gait analysis and exercise programs. Students learn to integrate new information with previous knowledge to enable them to select appropriate examination tests and measures, evaluate, diagnose, prognose, create functional goals, and create a comprehensive plan of care for patients or clients who use a prosthesis or orthosis.

**PHYSICAL THERAPY 674**  
**Physical Therapy Clinical Decision Making in Pediatrics (3)**  
Students develop a complete physical therapy plan of care for a number of patients from neonate through age 21 in a variety of practice circumstances and practice settings such as NICU, school system, acute care, home or institution. Students practice the psychomotor and communication skills involved in working with children in laboratory and centers.

**PHYSICAL THERAPY 680**  
**Clinical Education Seminar (1)**  
Classroom instruction to prepare students for the clinical education experience. Students learn about professionalism, communication, planning and developing educational presentations, and self and peer evaluation. Students also develop an understanding of health care regulations as it relates to physical therapy practice.

**PHYSICAL THERAPY 681**  
**Clinical Affiliation I (4)**  
This is the first full time, eight-week clinical affiliation and provides the student the opportunity to work under the direction of a licensed physical therapist to master the beginning competencies in the foundations of physical therapy practice. This affiliation takes place during the academic year and serves to integrate the academic point in the curriculum.

**PHYSICAL THERAPY 682**  
**Clinical Affiliation II (4)**  
Classroom instruction related to the clinical experiences, self and peer evaluations and educational presentations is followed by an eight-week clinical affiliation in a variety of clinical settings (i.e. rehabilitation, orthopedics, neurology, geriatrics, acute care). Incorporates advanced coursework and clinical skills. Students practice and perfect treatment techniques, skills and knowledge previously acquired and utilized in the clinical setting.

**PHYSICAL THERAPY 716**  
**Neuromuscular Physical Therapy II (3)**  
This course prepares students to provide physical therapy for complex patients with central nervous system dysfunction (e.g., traumatic brain injury, multiple sclerosis, vestibular system
dysfunction, and dyskinesia’s). Strategies for clinical decision-making will be refined. The impact of perceptual changes, cognitive changes, and behavioral changes, as well as changes in motor output will be discussed, and the interface of the client with the environment will be addressed. Students will evaluate and treat a patient with brain injury in a rehab setting, and will make three visits to the home of an individual with multiple sclerosis to assess and modify the home and teach strategies for functioning within the home.

Prerequisite: Physical Therapy 616

**PHYSICAL THERAPY 736**  
**Business and Leadership in Physical Therapy Practice (3)**  
Introduction to the organization and management of health care providers and programs with emphasis on physical therapy. Examination of the internal and external environmental forces which drive the delivery of health care today.

**PHYSICAL THERAPY 741**  
**Comprehensive Clinical Decision Making in Physical Therapy (4)**  
With an increasing number of states allowing clients to directly access Physical Therapy (PT) without a physician referral, therapists must be able to identify signs and symptoms of disease that can mimic neuromuscular or musculoskeletal dysfunction. Given a clinical environment in which therapists are more frequently expected to assume the role of independent practitioner, this course seeks to aide integration of didactic knowledge, clinical problem solving, and the intuitive process into a scheme useful in the formation of a PT clinical diagnosis and intervention program. Furthermore, the course is designed to assist the student in the development of clinical reasoning skills to determine a client’s appropriateness for PT interventions and to identify when a patient should instead, be referred to an appropriate practitioner. Utilizing the PT interview as a foundation, this course will incorporate lectures and discussions of the issues related to Vision 2020, and a review of systems to guide students through an examination scheme that will assist them in making treatment vs. referral decisions. Some topics and systems will be reviewed more thoroughly than others depending on current emphasis in the DPT curriculum.

**PHYSICAL THERAPY 774**  
**Physical Therapy Clinical Decision Making in Geriatrics (3)**  
This course will examine the effects of age on physiological, psychological and social function and how these changes impact health management. The course will consist of didactic and practical components. One practicum will involve experiencing aging issues with participants at a community senior center. The didactic component will provide knowledge needed to manage geriatric issues in physical therapy and the health care delivery system.

**PHYSICAL THERAPY 781**  
**Clinical Affiliation III (5)**  
Classroom instruction related to clinical experiences, self and peer evaluations and educational presentations is followed by a ten-week clinical affiliation in a variety of clinical settings (i.e. rehabilitation, orthopedics, neurology, geriatrics, acute care, pediatrics, etc.). This affiliation
incorporates advanced coursework and clinical skills. Students practice and perfect therapeutic interventions, skills and knowledge previously acquired and utilized in the clinical setting. Students are expected to have their own caseload, to assist with the supervision of physical therapist assistants and aides and to develop comprehensive patient care plans.

**PHYSICAL THERAPY 782**  
**Clinical Affiliation IV (5)**  
Classroom instruction related to the clinical experiences, self and peer evaluations, and educational presentations is followed by a ten-week clinical affiliation in a variety of clinical settings (i.e. rehabilitation, orthopedics, neurology, geriatrics, acute care, pediatrics, home health, etc.). This affiliation incorporates advanced coursework and clinical skills. Students practice and perfect therapeutic interventions, skills and knowledge previously acquired and utilized in the clinical setting. Students are expected to have their own caseload, to assist with the supervision of physical therapist assistants and aides to develop comprehensive patient care plans and to function as an entry-level physical therapist.
Physician Assistant Studies
PHYSICIAN ASSISTANT STUDIES
A physician assistant (PA) is a medical professional who works as part of a team with a physician. After graduating from an accredited PA educational program, PAs become nationally certified and state-licensed to practice medicine with the supervision of a physician. All 50 states and the District of Columbia allow PAs to practice and prescribe medications. PAs work in all areas of medicine, ranging from family practice to surgical subspecialties such as neurosurgery, and they perform physical examinations, diagnose and treat illnesses, order and interpret lab tests, perform procedures, assist in surgery, provide patient education and counseling, and make rounds in hospitals and nursing facilities.

The Jefferson School of Health Professions is currently developing a physician assistant program. **It is expected that the first class will matriculate in Pre-Fall 2014.** In this 27-month master’s level program, students will spend 15 months in didactic training and 12 months in clinical training. Didactic courses will include anatomy, clinical medicine, pathophysiology, physiology, pharmacology and laboratory medicine. Students will complete clinical rotations in internal medicine, primary care, pediatrics, women’s health, behavioral medicine, emergency medicine, surgery and electives.

Upon successful completion of the program, students will be awarded the Master of Science in Physician Assistant Studies (MSPAS) degree.

The TJU Department of Physician Assistant Studies has applied for Accreditation-Provisional from the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA). The TJU Department of Physician Assistant Studies anticipates matriculating its first class in Pre-Fall 2014, pending Accreditation - Provisional at March 2014 ARC-PA meeting. Accreditation - Provisional is an accreditation status for a new PA program that has not yet enrolled students, but at the time of its initial accreditation review, has demonstrated its preparedness to initiate a program in accordance with the accreditation Standards. If Accreditation-Provisional is not awarded at the March 2014 ARC-PA meeting, TJU will not be permitted to enroll the class anticipated to matriculate in Pre-Fall 2014.
Professional and Continuing Studies
DEPARTMENT OF PROFESSIONAL AND CONTINUING STUDIES
The Department of Professional and Continuing Studies has two primary roles in its service to Thomas Jefferson University. First, it supports the University’s mission to educate healthcare professionals by providing general undergraduate courses in the arts and sciences that serve as prerequisites or foundations for admission to the School of Health Professions’ upper division programs in bioscience technologies, nursing, occupational therapy, physical therapy and radiological sciences. In direct support of these health professions programs, the Department also offers an array of specialized graduate and undergraduate courses, including minors in management, information systems and education, oversees the School’s interdisciplinary courses and provides coursework required for the Bachelor of Science Degree in Health Studies.

Second, the Department serves the Jefferson and greater Philadelphia community by providing part-time or flexible college-level educational programs in healthcare designed specifically for the professional, academic and personal development of the working adult. Toward this end, the Department offers a Bachelor of Science degree program with three majors [health services management (HSM), Health Professions Management (HPM) and health services management information systems (HSMIS)] and associate degree programs in liberal arts, science, business, information systems and medical practice management. Students completing an associate degree in arts or science may transfer credits to Jefferson’s BS-HSM/HPM/HSMIS, to an upper-division health professions program or to another academic institution for upper-division study.

In addition to baccalaureate and associate degree programs, the Department offers pre-baccalaureate certificate programs in medical coding, medical practice management, human resources management, English as a second language (ESL) professional communication, and healthcare management information systems.

JEFF-AT-NIGHT
The bachelor and associate degrees, pre-baccalaureate certificates, and graduate and undergraduate Prerequisite courses are offered by Jeff-at-Night, Jefferson’s designation for the evening, online and weekend programs offered through the Department of Professional and Continuing Studies. Non-matriculating students, i.e., those not pursuing a degree or enrolled in a certificate program, may take Professional and Continuing Studies courses for enrichment, transfer, or to enhance specific skills. While Jeff-at-Night courses and program offerings serve primarily Jefferson employees and students, they are open to everyone in the Greater Philadelphia community.

Classes are offered year-round in fall, spring and summer sessions, and students may begin their course of study at any time. Evening classes convene in the early evening and end by 8 p.m., Monday through Thursday. Some courses are offered at lunchtime or on weekends. In addition, a significant number of courses throughout the year are offered in the online format using the University Course Management System, Blackboard.com.
Several courses in the BS-HSM/HPM/HSMIS and associate degree programs in business, information systems and medical practice management as well as the Certificate in Health Care Education are accelerated, which means that they can be completed in seven weeks instead of the usual 14 weeks that comprise the traditional semester. There are six accelerated sessions in each academic year.

**ACADEMIC ADVISING**
Students who wish to enroll in the baccalaureate, associate or certificate programs offered through the Department should schedule an appointment with an academic advisor ((215) 503-8414) as the first step in the application process. The advisor will answer questions, review high school and college transcripts and help in the selection of an appropriate academic program. Students who are unsure of their academic goals or qualifications for study are welcome to schedule an advising appointment.

**NON-MATRICULATION AND CHANGE OF STATUS**
Students who wish to take selected courses through the Department of Professional and Continuing Studies but do not wish to pursue a degree are classified as non-matriculated. Should they subsequently wish to pursue a degree, they may apply transferable academic credits they have earned as non-matriculated students toward their degree requirements. Degree-seeking students enrolled as non-matriculants are encouraged to apply for admission when they have successfully earned 15 credits at Jefferson or another accredited institution of higher education. Students may earn a maximum of 30 credits as non-matriculants, at which point they must matriculate in order to continue taking courses toward a degree at Thomas Jefferson University. However, the Department’s degree and certificate programs are designed for adult students who work full-time; therefore, matriculation does not mean that students must register continuously from semester to semester.

**CREDIT BY EXAMINATION**
Challenge examinations are available for selected courses. (A full list of offerings is available on the Jeff-at-Night website www.jefferson.edu/jeff-at-night/). A challenge examination is equivalent to a comprehensive final examination in a course and may be taken for courses that apply to a program, prerequisite or requirement in the Jefferson School of Health Professions and has the approval of the Department Chair. A grade of B or better must be obtained on all challenge examinations; such examinations may only be taken one time.

Opportunities for credit are also awarded through CLEP, the College Level Examination Program sponsored by the College Board. (For detailed information concerning challenge examination and CLEP policies and procedures, see the catalog section on Academic Regulations).

**SENIOR CITIZEN AUDITS**
Space permitting, senior citizens 65 years of age or older may audit courses offered through the Department of Professional and Continuing Studies for $50 per course. Senior citizen auditors
are responsible for all applicable course expenses, including laboratory or technology fees, books and supplies. (See the policy on auditing courses in the Academic Regulations section of this catalog.)

COURSE DROP/ADD AND WITHDRAWALS
For a limited time after registration, students may adjust their schedules, i.e., drop or add courses. They may do this by filling out the appropriate Student Schedule Change Form available in the University Office of the Registrar. The last day to drop or add a course is printed in the official academic calendar for each academic term. If a student drops a course on or before this date, he or she is not responsible for paying course tuition.

A student may withdraw from a course after the drop/add deadline. However, the student is responsible for tuition payment and will receive a grade of W, WP or WF, depending on the date of the withdrawal and the student’s academic circumstances at the time of the withdrawal. A student who, for whatever reason, stops going to class without submitting the Schedule Change Form will receive a grade of F for the course and will be billed the full amount of the tuition. Informing the instructor of the withdrawal is not sufficient, for proper withdrawal procedure documentation must be completed and submitted in a timely fashion.

Students who are Jefferson employees who use their tuition assistance benefit to take courses through Jeff-at-Night are responsible for payment of the full tuition if they withdraw from the course after the official drop/add deadline.

Exceptions for tuition payment may be made under extreme mitigating circumstances (e.g., severe personal illness, death in the immediate family), but only after presenting a summary of the circumstances in writing to the Chair of the Department of Professional and Continuing Studies.

EMPLOYEE TUITION BENEFITS
Through benefits and special discounts, full-time Jefferson employees (Thomas Jefferson University, Thomas Jefferson University Hospitals, Inc., and Jefferson University Physicians) can receive tuition assistance, up to a certain yearly limit, that usually covers 100% of tuition expenses for courses taken through Jeff-at-Night. Eligibility is determined by the Department of Human Resources.

Upon completion of the probationary period, full-time, non-bargaining Jefferson employees are eligible to receive tuition assistance in the form of internal tuition support. Employees will receive financial support at the rate of 90% of eligible expenses for undergraduate courses up to a maximum of $5,000 and 90% of expenses for graduate courses up to a maximum of $7,500. With a 10% tuition discount provided by the Jefferson School of Health Professions for undergraduate courses taken through Jeff-at-Night to compensate for the employee’s 10% co-pay, all eligible tuition expenses are covered up to the respective maximums for Jefferson employees who wish to begin or continue their higher education at Thomas Jefferson University.
To qualify for employee tuition assistance, an employee must complete the course and receive a passing grade of C or higher. Employees who fail to do so will be required to reimburse the University. Employees who leave Jefferson employment voluntarily within 12 months of the completion of the course will be required to reimburse the University. To receive tuition assistance, employees must submit the appropriate form from the Human Resources Office and sign an agreement acknowledging full responsibility for these fees if they withdraw from the course(s) or do not receive a minimum grade of C. Tuition assistance is provided for challenge examinations, library fees, technology fees, and laboratory fees, but no tuition assistance is provided for courses taken on an audit basis. Similarly, fees for other charges, including schedule changes, application, late registration and graduation, are the responsibility of the employee and are not included in Jefferson tuition assistance.

DISTRICT 1199C AND LOCAL 830 EMPLOYEES
Employees who are members of District 1199C of the National Union of Hospital and Healthcare Employees may also be eligible for tuition assistance through the Union’s Training and Upgrading Fund. Employees who are members of Local 830 are eligible for tuition assistance consistent with contract provisions.

NON-ELIGIBLE EMPLOYEES
Jefferson employees who are not eligible for tuition assistance are welcome to enroll in courses at their own expense.

FINANCIAL AID
Students who are matriculated in degree programs may be eligible for state or federal financial aid, depending on the number of credits attempted. For more information concerning financial aid, or to determine their eligibility, students should contact the University Office of Financial Aid.

INDEPENDENT STUDY
Under appropriate faculty supervision, matriculated students may study an area or topic not included in the formal curriculum. After consulting with the Department Chair, a student wishing to engage in independent study needs to obtain a faculty sponsor and, in collaboration with the sponsor, agree upon a study plan. To be eligible for independent study, the student must have completed at least 15 semester credits in the Jefferson School of Health Professions, have a minimum GPA of 3.00 and secure the final approval of the Chair of the Department of Professional and Continuing Studies.

DEAN’S LIST
Part-time students enrolled in degree programs are eligible for inclusion on the Dean’s List for Distinguished Academic Achievement if they complete a minimum of 12 credits within a twelve
month period (September 1 to August 31) and have a GPA of 3.50 or higher for that period. The Dean's List for matriculated part-time students is published once a year in September.

ALPHA SIGMA LAMBDA HONOR SOCIETY
Founded in 1945 at Northwestern University, Alpha Sigma Lambda is a national honor society devoted to recognition and encouragement of adult students’ academic achievement while they fulfill their many responsibilities of family, work and community service. Membership is restricted to matriculated students in the bachelor and associate degree programs who have completed a minimum of 30 credit hours, who have achieved a grade point average of 3.20 or higher, and who rank in the highest ten percent of all eligible students. Induction into Alpha Sigma Lambda takes place annually at Class Night ceremonies prior to spring commencement.

ACADEMIC PROBATION AND SUSPENSION
Academic records of all matriculated students are reviewed by the Chair of the Department at the conclusion of each semester to determine academic status. The academic work of a degree-seeking student is considered unsatisfactory whenever the grade point average falls below 2.00. Based on the following criteria, the Chair will determine whether or not students in academic difficulty will be allowed to continue on a probationary basis or will be suspended from study for the subsequent academic year:

- A student who has attempted at least 12 credit hours and whose cumulative average is below 1.60 will be placed on academic probation.
- A student who has attempted at least 24 credit hours and whose cumulative average is below 1.70 will be placed on probation or may be suspended if previously on probation.
- A student who has attempted at least 36 credit hours and whose cumulative average is below 1.85 will be placed on probation or may be suspended if previously on probation.
- A student who has attempted at least 48 credit hours and whose cumulative average is below 2.00 will be placed on probation or may be suspended if previously on probation.
- A student whose cumulative average falls below 1.20 or whose semester average falls below 0.50 may be suspended. Academic probation for Department students is defined as limiting a student to no more than one course per semester.

A part-time student may continue on probation for no more than three consecutive semesters, after which the student will be suspended for one academic year. During the suspension, the part-time student will not be permitted to take courses at the College.

Students who are suspended for academic reasons and who desire to submit extenuating circumstances for consideration may appeal in writing to the Committee on Student Affairs.

BACHELOR OF SCIENCE (123 CREDITS)
Health Services Management (HSM)
Health Services Management Information Systems (HSMIS)
Health Professions Management (HPM)
The Department of Professional and Continuing Studies offers a Bachelor of Science degree program with three majors designed specifically for working adults: Health Services Management (HSM), Health Services Management Information systems (HSMIS) and Health Professions Management (HPM).

These majors prepare individuals for entry-level management positions in a wide variety of healthcare settings – hospitals, nursing homes, insurance companies, health maintenance organizations, clinics, ambulatory care centers, welfare departments, rehabilitation centers and public health agencies. Managers within these organizations plan, organize, coordinate and supervise the delivery of healthcare services, including information systems. Healthcare managers include generalists who administer, manage or help to manage entire facilities or systems, and specialists who manage clinical departments or services specific to the healthcare industry. Whether generalist or specialist, healthcare managers deal with finances, budgets, personnel, computer systems, laws and legal requirements, program planning and evaluation and organizational behavior, including politics and conflict. While the HSM and MSMIS majors prepare highly qualified generalists and information systems specialists who can serve in a wide variety of healthcare settings, the HPM aims to prepare working clinicians for management and leadership positions within their health professions.

The bachelor’s degree comprises a total of 123 credits, including an internship, and is designed as a degree completion program. Students majoring in health services management and health services management information systems must complete at least 15 college credits prior to matriculation. Students majoring in health professions management, a curriculum designed for licensed and credentialed healthcare professionals who have not completed a bachelor’s degree, may receive 33-39 credits for their previous clinical training. Students may transfer up to 60 appropriate credits (including those awarded for previous clinical training) into the program. At least 30 credits of the degree program must be earned at Thomas Jefferson University. To graduate with majors in Health Services Management and Health Services Management Information Systems, students must achieve an overall minimum GPA of 2.0 and a minimum GPA of 3.0 for all course designated as major requirements. To graduate with a major in Health Professions Management, students must achieve an overall minimum GPA of 2.0 and a minimum GPA of 3.0 for all courses designated as major requirements.

### Health Services Management (HSM) (123 credits)

#### General Education Requirements (36-39 credits)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>6</td>
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<tr>
<td>Art</td>
<td>3</td>
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<tr>
<td>Recommended:</td>
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<tr>
<td>ART 101 Art Appreciation or</td>
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<tr>
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<tr>
<td>HUMN 111 Philadelphia and the Arts</td>
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<tr>
<td>United States History</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics*</td>
<td>3</td>
</tr>
</tbody>
</table>
Natural Science 3
   From one of the following disciplines: biology, chemistry, physics
   Recommended:
   BIOL 200 Body Form and Function
Health/Wellness 3
   Recommended:
   HLTH 101 Personal Health and Wellness
   or
   HLTH 302 Mindfulness-Based Stress Reduction
Social Science 12
   From four of the following disciplines: anthropology, communications, political science, psychology, sociology, religious studies.
   Recommended:
   POSC 101 Government of the United States
   PSYC 101 Introduction to Psychology
   SOC 101 Introduction to Sociology
   ANTH 101 Cultural Anthropology
   COMM 101 Interpersonal Communications
   REL 104 World Religions
Computer Applications or demonstration of computer competency 3
* College algebra or higher (Students demonstrating college-level algebra proficiency may take pre-calculus or calculus to satisfy both the General Education and Foundation mathematics requirements; they may take a free elective in its place)

Foundation Requirements (30 credits) credits
ACCT 101 Financial Accounting 3
ACCT 102 Managerial Accounting 3
ECON 201 Principles of Macroeconomics 3
ECON 202 Principles of Microeconomics 3
FIN 101 Principles of Finance 3
HCA 300 Health Services Delivery and Organization 3
HUMN 315 Methods of Effective Thinking 3
MATH 102 Precalculus 3
MATH 301 Statistics 3
MGMT 101 Principles of Management and Organizational Behavior 3

Major Requirements (39 credits) credits
ECON/HCA 401 Healthcare Policy and Economics 3
HCA 303 Business and Healthcare Law 3
HCA 350 Principles of Public Health & Epidemiology 3
HCA 351 Strategic Planning & Marketing for HSOs 3
HCA 412 Compliance, Quality & Outcomes Analysis in HSOs 3
HMIS 310 Management Information Systems in Healthcare 3
HMIS 420    Informatics Analysis and Utilization in HSOs 3
MGMT 102    Human Resources Management 3
MGMT 304    Management & Organizational Theory in HSOs 3
MGMT 407    Financial Management of HSOs 3
MGMT 408    Program Planning & Evaluation in HSOs 3
MGMT 410    Leadership and Strategy: Advanced Seminar 3
PHIL 301    Healthcare Ethics 3
Internship (MGMT 411) 3
Free Electives 15

Progression through the Curriculum

• Students entering the program with fewer than 60 credits are required to complete at least nine (9) of the required 13 General Education courses before proceeding on to Foundation courses.
• Students should complete all General Education courses before proceeding on to major courses.
• Foundation courses generally serve as prerequisites for Major requirements and should be completed before courses required for the major.
• MGMT 410: Leadership and Strategy, is taken at the end of the curriculum and in conjunction with the internship. (MGMT 411)

Admission Requirements

Pre-application advising session through the Department of Professional and Continuing Studies
Completion of 15-60 transferable college credits (grade of C or higher) with approximate GPA of 3.0 prior to enrollment in the program
Submission of official transcripts

Health Services Management Information Systems (HSM-IS) (123 credits)

<table>
<thead>
<tr>
<th>General Education Requirements (36-39 credits)</th>
<th>credits</th>
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</thead>
<tbody>
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<td>English Composition</td>
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</table>

  Recommended:
  ART 101 Art Appreciation or
  MUSC 101 Music Appreciation or
  HUMN 111 Philadelphia and the Arts

United States History 6
Mathematics (College algebra or higher)* 3
Natural Science 3
  From one of the following disciplines: biology, chemistry, physics
  Recommended:
  BIOL 200 Body Form and Function
Health/Wellness 3
Recommended:
HLTH 101 Personal Health and Wellness
or
HLTH 302 Mindfulness-Based Stress Reduction

Social Science 12
From four of the following disciplines: anthropology, communications, political science, psychology, sociology, religious studies.
Recommended:
POSC 101 Government of the United States
PSYC 101 Introduction to Psychology
SOC 101 Introduction to Sociology
ANTH 101 Cultural Anthropology
COMM 101 Interpersonal Communications
REL 104 World Religions

Computer Applications or demonstration of computer competency 3
* College algebra or higher (Students demonstrating college-level algebra proficiency may take pre-calculus or calculus to satisfy both the General Education and Foundation mathematics requirements; they may take a free elective in its place)

Foundation Requirements (30 credits)  
<table>
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<tr>
<th>Course</th>
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<td>ACCT 101</td>
<td>Financial Accounting</td>
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</tr>
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<td>Principles of Macroeconomics</td>
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<td>MATH 301</td>
<td>Statistics</td>
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<td>MGMT 101</td>
<td>Principles of Management and Organizational Behavior</td>
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Major Requirements (39 credits)  
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<tbody>
<tr>
<td>CMST 212</td>
<td>Database Management</td>
<td>3</td>
</tr>
<tr>
<td>HCA 303</td>
<td>Business and Healthcare Law</td>
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</tr>
<tr>
<td>HCA 350</td>
<td>Principles of Public Health &amp; Epidemiology</td>
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<td>HCA 351</td>
<td>Strategic Planning &amp; Marketing for HSOs</td>
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<td>HMIS 310</td>
<td>Management Information Systems in Healthcare</td>
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<td>Informatics Resources &amp; Technology for Health Services</td>
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<td>HMIS 401</td>
<td>Network Management</td>
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Progression through the Curriculum

- Students entering the program with fewer than 60 credits are required to complete at least nine (9) of the required 13 general education courses before proceeding on to foundation courses.
- Students should complete all general education courses before proceeding on to major courses.
- Foundation courses generally serve as prerequisites for major requirements and should be completed before courses required for the major.
- MGMT 410: Leadership and Strategy is taken at the end of the curriculum and in conjunction with the internship experience. (HMIS 411)

Admission Requirements

Pre-application advising session through the Department of Professional and Continuing Studies
Completion of 15-60 transferable college credits (grade of C or higher) with approximate GPA of 3.0 prior to enrollment in the program
Submission of official transcripts

Health Professions Management (HPM) (123 credits)

The major in health professions management (HPM) is designed for licensed and credentialed healthcare professionals who have not completed a bachelor’s degree. Upon review of their credentials, these healthcare professionals may receive 33-39 credits for their previous clinical training. Licensed or credentialed individuals from the following healthcare fields may be eligible for these professional credits:

- Cardiovascular Technology
- Dental Assistant
- Dental Hygiene
- Diagnostic Medical Sonography
- Electroneurodiagnostic Technology
- EMT-Paramedic
- Medical Laboratory Technology
- Nuclear Medicine Technology
- Physical Therapy Assistant
- Radiation Therapy
- Radiologic Technologies (MRI, CT)
- Respiratory Therapy
- Surgical Technology
- Veterinary Technology
### General Education Requirements (30-33 credits)

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<tr>
<td>Social Science</td>
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<td></td>
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<tr>
<td>Computer Applications or demonstration of computer competency</td>
<td>3</td>
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</tbody>
</table>

### Foundation Requirements (27 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101 Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 102 Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201 Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202 Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 101 Principles of Finance</td>
<td>3</td>
</tr>
<tr>
<td>HCA 300 Health Services Delivery and Organization</td>
<td>3</td>
</tr>
<tr>
<td>HUMN 315 Methods of Effective Thinking</td>
<td>3</td>
</tr>
<tr>
<td>MATH 301 Statistics</td>
<td>3</td>
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<tr>
<td>MGMT 101 Principles of Management and Organizational Behavior</td>
<td>3</td>
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### Major Requirements (30 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HCA 303 Business and Healthcare Law</td>
<td>3</td>
</tr>
<tr>
<td>HCA 350 Principles of Public Health &amp; Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>HCA 351 Strategic Planning &amp; Marketing for HSOs</td>
<td>3</td>
</tr>
<tr>
<td>HCA 412 Compliance, Quality &amp; Outcomes Analysis in HSOs</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 102 Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 304 Management &amp; Organizational Theory in HSOs</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 407 Financial Management of HSOs</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 408 Program Planning &amp; Evaluation in HSOs</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 410 Leadership and Strategy: Advanced Seminar</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 301 Healthcare Ethics</td>
<td>3</td>
</tr>
</tbody>
</table>
Health Professions Credits 33-39
Internship (MGMT 411) 3

Progression through the Curriculum

- Students entering the program with fewer than 60 credits are required to complete at least nine (9) of the required 13 general education courses before proceeding on to foundation courses.
- Students should complete all general education courses before proceeding on to major courses.
- Foundation courses generally serve as prerequisites for major requirements and should be completed before courses required for the major.

Admission Requirements

Pre-application advising session through the Department of Professional and Continuing Studies
Submission of proof of current healthcare license or credential
Completion of at least 9 college credits with minimum GPA of 2.75
Submission of official transcripts

Bachelor of Science in Health Studies

The Bachelor of Science in Health Studies degree is intended for students who cannot or do not wish to complete the graduate component of their health professions program. Students can begin the health studies curriculum after completing three semesters or at least 44 credits of the undergraduate portion of the graduate program. In most instances, students take courses required for the BS-HS in the spring and/or summer semesters of their senior year, enabling them to earn the degree after approximately two years at Jefferson.

The 120 credits required for the Bachelor of Science in Health Studies comprises four core courses (12 credits), three elective courses (9 credits) in health services or related field, a minimum of 44 credits earned in one of the School’s health professions programs and 55 credits from prerequisite courses transferred into the health professions program from other institutions. If applicable, students may transfer as many as nine (9) credits from previous institutions to satisfy core or elective requirements. These nine transferred credits, however, may not be ones that were used to meet entrance requirements of the health profession program.

Curriculum

Core courses (12 credits) credits
IDSC 302 Understanding Research Principles and the Scientific Method or departmental equivalent 3
HCA 300 Healthcare Delivery and Organization 3
MGMT 101 Principles of Management and Organizational Behavior or 3
MGMT 304 Management & Organizational Theory in Health Services Organizations
PHIL 301* Healthcare Ethics 3
Elective courses related to health care or healthcare services

The following are recommended:

CMST 201 Technology Applications in Health Care 3
GNST 120 Comprehensive Medical Terminology 4
HCA 302 Healthcare Classification Systems 3
HCA 303 Business and Healthcare Law 3
HCA 350 Principles of Public Health and Epidemiology* 3
HCA 351 Strategic Planning and Marketing for Health Services Organizations* 3
HCA/ECON 401 Healthcare Policy and Economics* 3
HCA 410 Medical Practice Management* 3
HCA 412 Quality Measurement and Outcomes Analysis in Health Care* 3
HMIS 310 Management Information Systems in Health Care* 3
MGMT 407 Financial Management of Health Services Organizations* 3
MGMT 408 Program Planning and Evaluation in Health Services Organizations* 3
MGMT 420 Informatics Analysis and Utilization in Health Service Organizations * 3
NUTR 301 Current Concepts in Nutrition 3
PHRM 301 Introduction to Pharmacology 3
PSYC 323 Psychology of Adulthood and Aging 3
PSYC 424 An Interdisciplinary Approach to Promoting Successful Aging 3

*courses have prerequisites

Health Professions Credits 44

Prerequisite courses transferred into a JSN, JSP or JSHP health professions program from other institutions 55
ASSOCIATE DEGREE PROGRAMS
Liberal arts (AA)
Science (generic) (AS)
Business (AS-B)
Information systems (AS-IS)
Medical practice management (AS-MPM)
Emergency medical services (AS-EMS)

The Department of Professional and Continuing Studies offers associate degree programs in the following areas: liberal arts (AA), science (generic) (AS), business (AS-B), information systems (AS-IS), medical practice management (AS-MPM) and emergency medical services (AS-EMS). The number of credits required depends on the area of specialization. The associate in arts and the generic associate in science degrees require 60 and 61 credits respectively. The associate degrees in business and information systems require completion of 63 credits, the associate degree in medical practice management requires 64 credits and the associate degree in emergency medical services requires 69 credits.

Depending on the program specialization, 30–34 credits may be transferred from other accredited institutions. The last 30 credits of the degree program, however, must be earned at Thomas Jefferson University.

Associate in Arts (60 credits)
The Associate in Arts degree is awarded upon satisfactory completion of the following courses, including a minimum grade of C in six designated core courses (in bold):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 101</td>
<td>Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ART 101</td>
<td>Art Appreciation or HUMN 111 Philadelphia and the Arts or MUSC 101 Music Appreciation</td>
<td>3</td>
</tr>
<tr>
<td>COMM 101</td>
<td>Interpersonal Communications or COMM 201 Intercultural Communications</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 101,102</td>
<td>Composition I &amp; II</td>
<td>6</td>
</tr>
<tr>
<td>Foreign Language* (Elementary)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>HIST 111,112</td>
<td>United States History or HIST 101,102 World Civilization</td>
<td>6</td>
</tr>
<tr>
<td>MATH 101</td>
<td>College Algebra</td>
<td>3</td>
</tr>
<tr>
<td>POSC 101</td>
<td>Government of the United States</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 101</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Computer Studies Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Humanities Elective*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Free Electives</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>
* Humanities include courses in art, English, history, philosophy, religion and certain areas of communications.

**Admission Requirements - Associate in Arts**

- Advising session through the Department of Professional and Continuing Studies.
- Minimum of 15 transferable credits from Thomas Jefferson University or other accredited institution of higher education with a minimum GPA of 2.0. Note: Only courses with a grade of C or higher are eligible for transfer into the Associate in Arts degree program. In transferring science and certain other courses, it is preferable that these courses be taken no more than 10 years prior to the date of application to Thomas Jefferson University.
- Submission of official transcripts of college credits earned elsewhere.

**Associate in Science-Generic (61 credits)**

The Associate in Science degree is awarded upon satisfactory completion of the following courses, including a minimum grade of C in five designated core courses (in bold):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 101</td>
<td>Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ART 101</td>
<td>Art Appreciation or</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MUSC 101 Music Appreciation or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HUMN 111 Philadelphia and the Arts</td>
<td></td>
</tr>
<tr>
<td>BIOL 101, 102</td>
<td>General Biology I &amp; II</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 101, 102</td>
<td>General Chemistry I &amp; II</td>
<td>8</td>
</tr>
<tr>
<td>COMM 101</td>
<td>Interpersonal Communications or</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COMM 201 Intercultural Communications</td>
<td></td>
</tr>
<tr>
<td>ENGL 101, 102</td>
<td>Composition I &amp; II</td>
<td>6</td>
</tr>
<tr>
<td>HIST 111, 112</td>
<td>United States History or</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>HIST 101, 102 World Civilization I &amp; II</td>
<td></td>
</tr>
<tr>
<td>MATH 101</td>
<td>College Algebra</td>
<td>3</td>
</tr>
<tr>
<td>POSC 101</td>
<td>Government of the United States</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 101</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Computer Studies Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Humanities Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Free Electives</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

* Humanities include courses in art, English, history, philosophy, religion, and certain areas of communications.

**Admission Requirements - Associate in Science (Generic)**

Advising session through the Department of Professional and Continuing Studies.
Minimum of 15 transferable credits from Thomas Jefferson University or other accredited institution of higher education, with a minimum GPA of 2.0. Note: Only courses with a grade of C or higher are eligible for transfer into the associate in science (generic) degree program. In transferring science and certain other courses, it is preferable that these courses be taken no more than 10 years prior to the date of application to Thomas Jefferson University. Submission of official transcripts of college credits earned elsewhere.

### Associate in Science in Business (63 Credits)

#### General Education Courses (33 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 101</td>
<td>Art Appreciation or</td>
<td>3</td>
</tr>
<tr>
<td>MUSC 101</td>
<td>Music Appreciation or</td>
<td></td>
</tr>
<tr>
<td>HUMN 111</td>
<td>Philadelphia and the Arts</td>
<td></td>
</tr>
<tr>
<td>BIOL 200</td>
<td>Body Form and Function</td>
<td>3</td>
</tr>
<tr>
<td>COMM 101</td>
<td>Interpersonal Communications or</td>
<td>3</td>
</tr>
<tr>
<td>COMM 201</td>
<td>Intercultural Communications</td>
<td></td>
</tr>
<tr>
<td>ENGL 101</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 102</td>
<td>Composition II or</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 103</td>
<td>Business and Technical Writing</td>
<td></td>
</tr>
<tr>
<td>HLTH 101</td>
<td>Personal Health and Wellness or</td>
<td>3</td>
</tr>
<tr>
<td>HLTH 302</td>
<td>Mindfulness Based Stress Reduction</td>
<td></td>
</tr>
<tr>
<td>HIST 111</td>
<td>United States History to 1865</td>
<td>3</td>
</tr>
<tr>
<td>HIST 112</td>
<td>United States History Since 1865</td>
<td>3</td>
</tr>
<tr>
<td>MATH 101</td>
<td>College Algebra or</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102</td>
<td>Precalculus</td>
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<tr>
<td>POSC 101</td>
<td>Government of the United States</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology or</td>
<td>3</td>
</tr>
<tr>
<td>SOC 101</td>
<td>Introduction to Sociology</td>
<td></td>
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</table>

#### Major Related Courses (30 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101</td>
<td>Financial Accounting</td>
<td>3</td>
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<tr>
<td>ACCT 102</td>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>CMST 201</td>
<td>Technology Applications in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 202</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 101</td>
<td>Principles of Finance</td>
<td>3</td>
</tr>
<tr>
<td>HCA 303</td>
<td>Business and Healthcare Law</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 101</td>
<td>Principles of Management and Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 102</td>
<td>Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 201</td>
<td>Principles of Marketing</td>
<td>3</td>
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</table>
Admission Requirements - AS Business

- Advising session through the Department of Professional and Continuing Studies.
- Minimum of 15 transferable credits from Thomas Jefferson University or other accredited institution of higher education, with an approximate GPA of 2.5.
  Note: Only courses with a grade of C or higher are eligible for transfer into the AS-Business degree program. In transferring science and certain other courses, it is preferable that these courses be taken no more than 10 years prior to the date of application to Thomas Jefferson University.
- Submission of official transcripts of college credits earned elsewhere.

Associate in Science in Information Systems (63 Credits)

General Education Courses (33 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 101</td>
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<td>Music Appreciation or</td>
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<td>HUMN 111</td>
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<td>BIOL 200</td>
<td>Body Form and Function</td>
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<tr>
<td>COMM 101</td>
<td>Interpersonal Communications or</td>
<td>3</td>
</tr>
<tr>
<td>COMM 201</td>
<td>Intercultural Communications</td>
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<tr>
<td>ENGL 101</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 102</td>
<td>Composition II or</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 103</td>
<td>Business and Technical Writing</td>
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</tr>
<tr>
<td>HIST 111</td>
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<td>Personal Health and Wellness or</td>
<td>3</td>
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<td>HLTH 302</td>
<td>Mindfulness Based Stress Reduction</td>
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</tr>
<tr>
<td>MATH 101</td>
<td>College Algebra or</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102</td>
<td>Precalculus</td>
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<tr>
<td>POSC 101</td>
<td>Government of the United States</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology or</td>
<td>3</td>
</tr>
<tr>
<td>SOC 101</td>
<td>Introduction to Sociology</td>
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Major Related Courses (30 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CMST 101</td>
<td>Essentials of Computing (or advised elective)</td>
<td>3</td>
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<tr>
<td>CMST 201</td>
<td>Technology Applications in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>CMST 212</td>
<td>Database Management</td>
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<tr>
<td>HCA 300</td>
<td>Health Services Delivery and Organization</td>
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<tr>
<td>HMIS 310</td>
<td>Management Information Systems in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>HMIS 311</td>
<td>Informatics Resources and Technology for Health Services</td>
<td>3</td>
</tr>
<tr>
<td>HMIS 401</td>
<td>Network Management</td>
<td>3</td>
</tr>
<tr>
<td>HMIS 402</td>
<td>Systems Design</td>
<td>3</td>
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<tr>
<td>MATH 301</td>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 101</td>
<td>Principles of Management and Organizational Behavior</td>
<td>3</td>
</tr>
</tbody>
</table>
Admission Requirements - AS Information Systems

- Advising session through the Department of Professional and Continuing Studies
- Minimum of 15 transferable credits from Thomas Jefferson University or other accredited institution of higher education, with an approximate GPA of 2.5.
  Note: Only courses with a grade of C or higher are eligible for transfer into the AS-Information Systems degree program. In transferring science and certain other courses, it is preferable that these courses be taken no more than 10 years prior to the date of application to Thomas Jefferson University.
- Submission of official transcripts of college credits earned elsewhere

Associate in Science in Medical Practice Management (64 Credits)

General Education (33 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 101</td>
<td>Art Appreciation or</td>
<td>3</td>
</tr>
<tr>
<td>MUSC 101</td>
<td>Music Appreciation or</td>
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<tr>
<td>COMM 201</td>
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<td></td>
</tr>
<tr>
<td>ENGL 101</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 102</td>
<td>Composition II or</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 103</td>
<td>Business and Technical Writing</td>
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<td>HLTH 302</td>
<td>Mindfulness Based Stress Reduction</td>
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</tr>
<tr>
<td>MATH 101</td>
<td>College Algebra or</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102</td>
<td>Precalculus</td>
<td></td>
</tr>
<tr>
<td>POSC 101</td>
<td>Government of the United States</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology or</td>
<td>3</td>
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<tr>
<td>SOC 101</td>
<td>Introduction to Sociology</td>
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</tbody>
</table>

Major Related Courses (31 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101</td>
<td>Financial Accounting **</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 102</td>
<td>Managerial Accounting **</td>
<td>3</td>
</tr>
<tr>
<td>CMST 201</td>
<td>Technology Applications in Health Care **</td>
<td>3</td>
</tr>
<tr>
<td>GNST 120</td>
<td>Comprehensive Medical Terminology **</td>
<td>4</td>
</tr>
<tr>
<td>HCA 300</td>
<td>Health Services Delivery and Organization **</td>
<td>3</td>
</tr>
<tr>
<td>HCA 302</td>
<td>Healthcare Classification Systems **</td>
<td>3</td>
</tr>
<tr>
<td>HCA 303</td>
<td>Business and Healthcare Law **</td>
<td>3</td>
</tr>
<tr>
<td>HCA 410</td>
<td>Medical Practice Management **</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 101</td>
<td>Principles of Management and Organizational Behavior **</td>
<td>3</td>
</tr>
<tr>
<td>MGMT102</td>
<td>Human Resources Management **</td>
<td>3</td>
</tr>
</tbody>
</table>

** Also required for Certificate in Medical Practice Management
Admission Requirements - AS Medical Practice Management

- Advising session through the Department of Professional and Continuing Studies
- Minimum of 15 transferable credits from Thomas Jefferson University or other accredited institution of higher education, with an approximate GPA of 2.5.
- Note: Only courses with a grade of C or higher are eligible for transfer into the associate in arts degree program. In transferring science and certain other courses, it is preferable that these courses be taken no more than 10 years prior to the date of application to Thomas Jefferson University.
- Submission of official transcripts of college credits earned elsewhere.

PRE-BACCALAUREATE CERTIFICATE PROGRAMS

Medical Coding
Medical Practice Management
Human Resources Management
English as a Second Language
Professional Communication
Healthcare Management Information Systems

The Department of Professional and Continuing Studies offers pre-baccalaureate certificate programs in Medical Coding, Medical Practice Management, Human Resources Management, English as a Second Language, Professional Communication and Healthcare Management Information Systems. These certificate programs are part of Thomas Jefferson University’s efforts to provide employees and others in the community with learning opportunities for career enhancement and upward career mobility. With academic advising and proper planning, students may apply credits earned through a certificate toward completion of an associate or baccalaureate degree at Jefferson or another college or university.

Medical Coding (18 credits)

Medical Coding is an essential function in the management of information that permits hospitals and other health care facilities to receive timely and accurate payment for services. Its importance extends far beyond the functions of billing and reimbursement. Accurate and precise medical information, acquired through the coding process, is used in patient care management, quality and utilization reviews, and research and planning in every aspect of the healthcare industry: primary medical research, public health, or marketing of services and facilities. Today’s coding specialist works in acute care hospitals, insurance companies, health maintenance organizations, pharmaceutical companies, consulting firms and in nontraditional healthcare settings such as ambulatory surgical centers, physicians’ offices and clinics, and home health agencies.

The Certificate in Medical Coding requires satisfactory completion of eight (8) college-level courses (18 credits). Successful completion of the program prepares graduates for professional certification examinations in CPT-4/HCPCS (Current Procedural Terminology-4/Health Care Finance Administration Common Procedural Coding System) and/or ICD-10-CM (International Classification of Diseases, Tenth Revision, Clinical Modification).
Classification of Disease, 10th Revision, Clinical Modification). Credits earned through the Certificate may be transferable to the Bachelor of Science program in health information administration or management.

**Curriculum**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNST 120</td>
<td>Comprehensive Medical Terminology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>Body Form and Function</td>
<td>3</td>
</tr>
<tr>
<td>CODP 201</td>
<td>Human Disease and Treatment</td>
<td>2</td>
</tr>
<tr>
<td>CODP 202</td>
<td>ICD-10-CM Coding</td>
<td>2</td>
</tr>
<tr>
<td>CODP 203</td>
<td>CPT Coding Concepts</td>
<td>2</td>
</tr>
<tr>
<td>CODP 204</td>
<td>Application of CPT Coding Concepts</td>
<td>2</td>
</tr>
<tr>
<td>CODP 205</td>
<td>ICD 10—PCS Coding</td>
<td>2</td>
</tr>
<tr>
<td>CODP 206</td>
<td>ICD 10 Principles/Application</td>
<td>1</td>
</tr>
</tbody>
</table>

Students are required to complete all eight of the required courses with a minimum grade of C or higher. Courses with grades less than C (C-, D+, D, F) must be retaken.

Students may transfer credits from other accredited institutions for the following courses: GNST 120, BIOL 110 and 111, and BIOL 402. A maximum of 12 credits may be transferred into the certificate program (grade of C or better).

**Admission Requirements**

- Advising session through Department of Professional and Continuing Studies
- High school diploma or General Education Diploma (GED)
- Demonstration of ability to perform college work: successful completion (grade of C or higher) of at least six (6) credits of college-level work at Thomas Jefferson University or another accredited institution of higher education
- Demonstration of satisfactory computer skills (competency equivalent to introductory college-level computer course). Note: Students who do not meet minimum computer proficiency will be required to complete CMST 101: Essentials of Computing.

**Medical Practice Management (37 credits)**

The certificate in Medical Practice Management provides a comprehensive and intensive preparation for the management and administration of day-to-day operations of a medical or other health professions practice. Courses offered for this certificate are directly transferable to the associate degree in medical practice management and the Bachelor of Science degree in health services management.

**Curriculum**

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<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>ACCT 101</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 102</td>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>CMST 201</td>
<td>Technology Applications for Health Care</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 101</td>
<td>Composition I</td>
<td>3</td>
</tr>
</tbody>
</table>
Admission Requirements

- Advising session through the Department of Professional and Continuing Studies
- High school diploma or General Education Diploma (GED)
- Demonstration of satisfactory computer skills (competency equivalent to introductory college-level computer course). Note: Students who do not meet minimum computer proficiency will be required to complete CMST 101: Essentials of Computing.
- Satisfactory completion (grade of C or higher) of at least one three-credit course required for the Certificate

Human Resources Management (15 credits)
The Jefferson Human Resources Certificate is intended to enhance management and leadership skills.

Curriculum

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<tbody>
<tr>
<td>MGMT 101</td>
<td>Principles of Management and Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 102</td>
<td>Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 304</td>
<td>Management &amp; Organizational Theory in Health Services Organizations</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 306</td>
<td>Legal Aspects of Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 307</td>
<td>Motivation and Reward Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Admission Requirements

- Advising session through the Department of Professional and Continuing Studies
- High school diploma or General Education Diploma (GED)
- Satisfactory completion (grade of C or higher) of at least one three-credit course required for the Certificate

English as a Second Language (8-16 credits)
The English as a Second Language Certificate of Proficiency assists non-English speaking members of the Jefferson community in attaining levels of English proficiency that are adequate to support their professional and work-related needs and enhance their mobility within Jefferson and the larger community. The program is designed to help students develop functional ability in English in both receptive (listening and reading) and productive (speaking and writing) skills. The curriculum addresses instruction in all four of these skills. The certificate
is awarded upon achievement of required language competencies in these skills at the advanced level.

To be eligible for enrollment in the certificate program, students must demonstrate adequate language competencies in specific reading/writing and oral (speaking/listening) skills required for the intermediate level of ESL instruction. Students who do not meet these criteria will take the introductory ESL courses as a prerequisite for the courses in the certificate program. They may then enroll with the intent to complete all necessary levels.

**Curriculum**
- ESL 301 Intermediate Oral Skills (Listening and Speaking)
- ESL 302 Intermediate Written Skills (Reading and Writing)
- ESL 401 Advanced Oral Skills (Listening and Speaking)
- ESL 402 Advanced Written Skills (Reading and Writing)

**Prerequisites:**
- ESL 101 Introductory Oral Skills A (Listening and Speaking)
- ESL 102 Introductory Written Skills A (Reading and Writing)
- ESL 201 Introductory Oral Skills B (Listening and Speaking)
- ESL 202 Introductory Written Skills B (Reading and Writing)

**Admission Requirements**
- Advising session through the Department of Professional and Continuing Studies
- Achievement of intermediate level scores on comprehensive placement test in speaking, listening, reading and writing skills; or enrollment in any of the prerequisite courses with the intent to complete all necessary levels.
- NOTE: The English as a Second Language program is currently under revision. Interested persons should call (215) 503-8414 to obtain the most recent information and procedures.

**Professional Communication (19 credits)**
Jefferson’s Certificate in Professional Communication comprises six courses (18 credits) and one one-credit workshop and stresses three areas of competence: written, oral/interpersonal and technological communication. Credits earned in this certificate may be transferred to associate and baccalaureate degree programs in management and business administration.

**Curriculum**
- ENGL 101 Composition I 3
- ENGL 103 Business and Technical Writing 3
- CMST 101 Essentials of Computing 3
- COMM 101 Interpersonal Communications 3
- COMM 102 Effective Speech Communication 3
- MGMT 101 Principles of Management and Organizational Behavior 3
- Workshop Applied Communications Skills for the Workplace 3
Admission Requirements

- Advising session through the Department of Professional and Continuing Studies
- High school diploma or General Education Diploma (GED)
- Satisfactory completion (grade of C or higher) of at least one three-credit course required for the Certificate

Healthcare Management Information Systems (21 credits)

The certificate program in Healthcare Information Systems aims to provide competency in key areas of healthcare information. Credits earned in the certificate may be transferred to associate and baccalaureate programs in information systems offered through Jefferson. The certificate also demonstrates general competencies for students who already hold a degree in an unrelated area.

Curriculum

[Prerequisite: CMST 101: Essentials of Computing or equivalent]

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HCA 300</td>
<td>Health Services Delivery and Organization</td>
<td>3</td>
</tr>
<tr>
<td>HMIS 420</td>
<td>Informatics Analysis &amp; Utilization in HSOs</td>
<td>3</td>
</tr>
<tr>
<td>HMIS 310</td>
<td>Management Information Systems in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>CMST 212</td>
<td>Database Management</td>
<td>3</td>
</tr>
<tr>
<td>HMIS 311</td>
<td>Informatics Resources and Technology for Health Services</td>
<td>3</td>
</tr>
<tr>
<td>HMIS 401</td>
<td>Network Management</td>
<td>3</td>
</tr>
<tr>
<td>HMIS 402</td>
<td>Systems Design</td>
<td>3</td>
</tr>
</tbody>
</table>

Admission Requirements and Procedures

- Advising session through the Department of Professional and Continuing Studies
- High School diploma or General Education Diploma (GED) *
- Satisfactory (grade of C or higher) completion of a least one three-credit course required for the certificate *
- Completion of Application for Certificate Candidacy
- Payment of application fee

* Waived for students with AA/AS degree or higher.

COMPLEMENTARY MINORS FOR HEALTH PROFESSIONS PROGRAMS

The Department of Professional and Continuing Studies offers minors in management, information systems and education to complement the curriculum of certain health professions programs. Each minor comprises 21 credits and can be completed simultaneously with the health professions curriculum.

Minor in Health Services Management (27 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ID 302</td>
<td>Understanding Research Principles and the Scientific Method</td>
<td>3</td>
</tr>
<tr>
<td>ID 303</td>
<td>Advanced Research Project</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>HCA 300</td>
<td>Health Services Delivery and Organization</td>
<td>3</td>
</tr>
<tr>
<td>HCA 303</td>
<td>Business and Healthcare Law</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 101</td>
<td>Principles of Management and Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 304</td>
<td>Management &amp; Organizational Theory in Health Services Orgs</td>
<td>3</td>
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<tr>
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<td>Financial Accounting</td>
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<td>ACCT 102</td>
<td>Managerial Accounting</td>
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</tr>
<tr>
<td>PHIL 301</td>
<td>Healthcare Ethics</td>
<td>3</td>
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**Minor in Health Services Management Information Systems (27 credits)**

<table>
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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>CMST 212</td>
<td>Database Management</td>
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<tr>
<td>IDSC 302</td>
<td>Understanding Research Principles and the Scientific Method</td>
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</tr>
<tr>
<td>HMIS 420</td>
<td>Informatics Analysis and Utilization in Health Service Organizations</td>
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**Minor in Education (24 credits)**

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<tbody>
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<td>IDSC 302</td>
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<td>IDSC 303</td>
<td>Advanced Research Project</td>
<td>3</td>
</tr>
<tr>
<td>CMST 201</td>
<td>Technology Applications for Healthcare</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 301</td>
<td>Methods of Teaching</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 301</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 307</td>
<td>Concepts and Techniques in Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 401</td>
<td>Technology and Instruction</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 409</td>
<td>Curriculum Design and Evaluation</td>
<td>3</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF PROFESSIONAL AND CONTINUING STUDIES FACULTY***

Debra S. Zelnick, MS, OTR/L
   Interim Department Chair

Lee E. Bryant, MEd
   Director, Undergraduate Programs
   Adjunct Instructor

Bruce Fenderson, PhD
   Adjunct Associate Professor

Catherine N. Shelton, PhD
   Adjunct Assistant Professor

Paula Gussman, EdD
   Adjunct Instructor
*An active listing of all adjunct faculty at the rank of lecturer is on file in the Office of Professional and Continuing Studies

PROFESSIONAL AND CONTINUING STUDIES COURSE DESCRIPTIONS
Courses are described in alphabetical order within course level (undergraduate, graduate).

Undergraduate Courses
ACCOUNTING 101
Financial Accounting (3)
Discusses classification of accounts and interrelationships as they affect external reports of the business entity. Emphasizes development and application of generally accepted accounting principles in the preparation of financial statements.
Prerequisite: Mathematics 101 or higher

ACCOUNTING 102
Managerial Accounting (3)
Accounting and information decision-making. Emphasizes internal reports and plans such as income statements, capital budgets, cost-volume-profit relationships, pricing of products and services and variance analysis. Discusses potential ethical concerns in making business decisions.
Prerequisite: Accounting 101

ANTHROPOLOGY 101
Cultural Anthropology (3)
Explores fundamentals of culture, regardless of where and when people have lived. Discusses contemporary issues such as health and illness, resource distribution and comparative family structures.

ANTHROPOLOGY 369
Medical Anthropology (2-3)
Examines socio-cultural and bio-cultural approaches and applications beginning with the social context of health and healing. Uses readings, class discussions, videos and research.

ART 101
Art Appreciation (3)
Investigates painting, sculpture, architecture and graphics. Examines techniques and subject matter. Includes field trips.

BIOLOGY 101
General Biology I (3)
Introduces principles of biology, including the function, evolution and morphology of animals. Integrates lecture with laboratory sessions.
BIOLOGY 101L
General Biology I Laboratory (1)
Laboratory session to accompany BIOLOGY 101

BIOLOGY 102
General Biology II (3)
Continues the investigation of human biological principles and structures begun in Biology 101. Integrates lecture and laboratory sessions throughout the course.
Prerequisite: Biology 101

BIOLOGY 102L
General Biology II Laboratory (1)
Laboratory session to accompany BIOLOGY 102

BIOLOGY 110
Human Anatomy and Physiology I (3)
Examines the human body with emphasis on structure and function of the skeletal, muscular and nervous systems. Investigates each system at the cellular level. Recommended: Biology 101, 102

BIOLOGY 110L
Human Anatomy and Physiology I Laboratory (1)
Laboratory session to accompany BIOLOGY 110.

BIOLOGY 111
Human Anatomy and Physiology II (3)
Examines structure and function of the endocrine, cardiovascular, respiratory, digestive, urinary and reproductive systems. Emphasizes interrelationships and maintenance of a stable internal environment.
Prerequisite: Biology 110.

BIOLOGY 111L
Human Anatomy and Physiology II Laboratory (1)
Laboratory session to accompany BIOLOGY 110.

BIOLOGY 200/CODP 200
Body Form and Function (3)
A basic but comprehensive introduction to the anatomy and physiology of the human body intended for non-medical and non-health professional personnel. Examines structure and function of skeletal, muscular, nervous, endocrine, cardiovascular, respiratory, digestive, urinary and reproductive systems.

BIOLOGY 315
Microbiology (3)
Examines microorganisms including bacteria, viruses, fungi and parasites. Emphasizes microorganisms responsible for human disease. Presents topics in immunology and therapeutic agents used to combat infectious diseases.

BIOLOGY 316
Microbiology Laboratory (1)
Examines topics in conjunction with those discussed in lecture. Includes use of the microscope and other equipment, observation of laboratory safety rules, ability to isolate organisms and ability to perform Gram stains. Presents microscopic and macroscopic specimens for identification, description or discussion.

BIOLOGY 402
Human Pathology (3)
Investigates the Pathophysiology of human diseases. Emphasizes common disease processes that affect patients and the diagnostic test/procedures that are utilized in the clinical setting.

CHEMISTRY 100
Introduction to Chemistry (3)
Introduces important concepts and reviews basics of chemistry, including fundamental theories of inorganic chemistry and forms of chemical calculations and reactions. Prepares students for Chemistry 101/102.

CHEMISTRY 101
General Chemistry I (3)
Examines theories of inorganic chemistry, such as atomic structure, nuclear processes, chemical bonding, kinetic molecular theory, energy and equilibria, gas laws, liquids and solids, oxidation and reduction, solutions, acids and bases, electrolytes and bioinorganic chemistry.

Chemistry 101L
General Chemistry I Laboratory (1)
Laboratory sessions to accompany Chemistry 101.

CHEMISTRY 102
General Chemistry II (3)
Continuation of Chemistry 101 with emphasis on organic compounds: halogenated hydrocarbons, alcohols, phenols and ethers, aldehydes and ketones, organic acids and derivatives, amines and derivatives, com-pounds of sulfur and phosphorus, and polymers. Prerequisite: Chemistry 101

Chemistry 102L
General Chemistry II Laboratory (1)
Laboratory sessions to accompany Chemistry 102.
CHEMISTRY 103
Introduction to Organic Chemistry (3)
Examines structure and reactions of organic compounds in relation to modern chemical theories.
Prerequisite: Chemistry 102

CHEMISTRY 110
General Chemistry (4)
Examines areas of inorganic, organic and biological chemistry to reveal relationships among the three disciplines. Demonstrates chemistry’s importance in normal biochemical function of the cell; normal functions of the body when the chemistry goes wrong; action of drugs on the body; and chemistry’s role in alleviating disease and suffering.

CHEMISTRY 303
Biochemistry Laboratory (1)
Illustrates major principles and techniques in biochemistry. Treats and analyzes topics such as spectroscopy, chemical properties of carbohydrates, titration of amino acids, paper chromatography of amino acids, protein electrophoresis and bivrut reaction, and identification of anaerobic bacteria on the basis of acid metabolites by gas-liquid chromatography.

CHEMISTRY 304/CHEMISTRY 504
Biochemistry Lecture (3)
Examines structure and function of biological macromolecules -- polysaccharides, proteins and nucleic acids; lipids; enzymes and metabolism; bioenergetics; control mechanisms; hormones; body fluids; nutrition and biochemical pathology.
Prerequisites: Biology 111, Chemistry 102

CHEMISTRY 305
Advanced Biochemistry (3)
An accelerated review of biochemical principles. Emphasizes the structure, function and metabolism of biomolecules and the relationship between biochemical processes and biological structure.
Prerequisites: Biology 111, Chemistry 102

CHINESE 201
Conversational and Medical Chinese (3)
Basic conversational skills and medical terminology used in Mandarin. Emphasis on spoken language, selected appropriate written characters.

CODING
CODP 200
Structure and Function of the Human Body (3)
A basic but comprehensive introduction to the anatomy and physiology of the human body. Examines structure and function of skeletal, muscular, nervous, endocrine, cardiovascular, respiratory, digestive, urinary and reproductive systems.
CODP 201
Human Disease and Treatment (2)
Most common diseases and disorders of the body systems. Cause, diagnosis, treatment and applicable surgical procedures are explained, as well as their relationship to specific anatomy and physiology.
Prerequisites: GNST 120 Comprehensive Medical Terminology, BIOL 200 Body Form and Function

CODP 202
ICD-10-CM Coding Concepts (2)
Assignment of ICD-10-CM codes from Volumes I, II and III. Coding and sequencing guidelines for both inpatient and outpatient care settings.
Prerequisites: CODP 201 Human Disease and Treatment (can be taken concurrently)

CODP 203
CPT Coding Concepts (2)
Assignment of CPT/HCPCS codes which are utilized in the outpatient hospital and physician office settings. Evaluation and management services, Medicine, Anesthesia and various surgical sub-specialties, including any applicable procedural terminology.
Prerequisites: CODP 201 Human Disease and Treatment (can be taken concurrently)

CODP 204
Application of CPT-4 Coding Concepts (2)
Building on concepts learned in CODP 203 CPT Coding Concepts, learners will advance coding skills by assigning valid procedure codes for a variety of complex case studies and clinical scenarios.
Prerequisite: CODP 203 CPT Coding Concepts

CODP 205
ICD-10-PCS Coding (2)
Learn coding concepts utilized by the ICD-10-PCS coding system, to include definitions of Root Operations, approaches, and Devices and the application of the Body Part Key. Coding exercises and operative reports will be used to demonstrate conventions and guidelines associated with ICD-10-PCS.
Prerequisites: CODP 201 Human Disease and Treatment

CODP 206 (1)
ICD-10-Principles/Application (1)
Builds on ICD-10-CM coding skills learned in previous classes by utilizing redacted patient records and coding scenarios. A review of Present On Admission guidelines, as well as reimbursement concepts prevalent in the healthcare industry, such as, DRGs, APR-DRGs, APCs, etc.
Prerequisite: Completion of all CODP courses in certificate program or by permission of instructor.

COMMUNICATIONS 101
Interpersonal Communications (3)
Presents theory and its application in the area of informal, interpersonal communication. Uses career-related workshop approach to study effective one-to-one and small group communication. Examines self-disclosure, risk, trust and other influences in human interaction.

COMMUNICATIONS 102
Effective Speech Communication (3)
Examines oral communication principles, including verbal and nonverbal language, listening, group dynamics and public speaking.

COMMUNICATIONS 103
Introduction to Photographic Communication (3)
Presents fundamentals and capabilities of photography, including camera function, formats, film characteristics, equipment accessories, subject content, lighting, composition and visual treatment. Demonstrates that photography communicates as a medium of aesthetic expression as well as a working tool for AV and print media.

COMMUNICATIONS 201
Intercultural Communications (3)
An experiential approach to developing intercultural awareness. Presents three aspects of intercultural communication: (1) knowledge of culture and cultural differences; (2) attitudes and feelings about those who are culturally different; and (3) skills or new behaviors to improve effective communication when living and/or working with people of other cultures. Uses videos, classroom guests and field trips to ethnic museums, restaurants and festivals, as well as in-class exercises, readings and discussions.

COMMUNICATIONS 301
Rhetoric and Debate (1-3)
Teaches use of logic and rhetoric through exploration and discussion of current political and world issues.

COMPUTER STUDIES 100
Basic Computer Utilization (3)
Computer laboratory-based class experience designed for individuals with little familiarity with the computer. Presents basic components of the computer, input and output devices, word processing, file creation, modem and Internet access. Cannot be used to fulfill degree or certificate requirements.

COMPUTER STUDIES 101
Essentials of Computing (3)
Computer laboratory-based class experience designed for individuals with basic knowledge of
the computer. Practice in word processing, spreadsheet applications, PowerPoint and Internet
searching and utilization. Exercise-driven laboratory sessions enable participants to produce a
portfolio demonstrating acceptable mastery of popular computer applications.

COMPUTER STUDIES 103
Computing Essentials (1)
Accelerated version of Essentials of Computing. Computer laboratory-based class experience
designed for individuals with basic knowledge of the computer. Practice in word processing,
spreadsheet applications, PowerPoint and Internet searching and utilization.

COMPUTER STUDIES 201
Technology Applications for Healthcare (3)
Computer laboratory-based class experience designed for individuals with substantial
knowledge of the computer. Case-based approach provides the opportunity to apply
knowledge and skills to a wide variety of scenarios in healthcare delivery, management or
analysis. Requires knowledge of common applications such as Microsoft Word, ACCESS, EXCEL,
PowerPoint.
Prerequisite: Computer Studies 101 or equivalent

COMPUTER STUDIES 212
Database Management (3)
Presents design and application of databases as information tools. Provides practice in
generation of reports, forms and other concepts relating to the use of organized information.
Emphasizes ACCESS and EXCEL as software examples in the creation of efficient databases.
Prerequisite: Computer Studies 101 or equivalent

COMPUTER STUDIES 381
Advanced Data Analysis (3)
Examines and applies the essential analytical and technical skills needed to conduct data
analysis using SYSTAT software, a statistics and interactive graphics program for research in
medicine, psychology, and environmental and biological sciences. Assignments result in
completion of a small research project using SPSS applications.
Prerequisites: Computer Studies 201, 212 or their equivalent, knowledge/study of statistics or
permission of the facilitator

ECONOMICS 201
Principles of Macroeconomics (3)
Examines the operation of the aggregate economic system. Compares capitalistic and socialistic
economics and considers the role of government in each. Emphasizes U.S. economy and
macroeconomic factors that determine employment, inflation, the gross national product and
money supply. Compares Classical, Keynesian and post-Keynesian perspectives.
ECONOMICS 202
Principles of Microeconomics (3)
Examines economic behavior and problems of the individual consumer and the individual business firm. Includes theory of consumer behavior, production costs and price and output determination in pure competition, pure monopoly, monopolistic competition and oligopoly.

ECONOMICS 401/HEALTHCARE ADMINISTRATION 401
Healthcare Policy and Economics (3)
Applies economic analytical techniques to critical issues in health care and health policy (e.g., growth of healthcare expenditures, intended and unintended consequences of Medicare reform). Examines demand side considerations for health and medical care as well as for health insurance. Explores supply side considerations such as managed care and markets for healthcare professionals and hospital services. Identifies socio-cultural factors, demographic changes, legal and governmental regulations, technological advances and their impact on the economics of healthcare delivery.
Prerequisites: Healthcare Administration 300, Economics 202

EDUCATION 111
Parenting Education for Emotional Growth I (3)
Examines physical, social, emotional, cognitive and psychological development in children from infancy through six years of age. Emphasizes emotional/psychological growth from a psychodynamic perspective. Analyzes techniques and strategies for optimizing childhood development through effective parenting.

EDUCATION 112
Parenting Education for Emotional Growth II (3)
Continuation of Education 111 with focus on children after age six.

EDUCATION 301
Methods of Teaching (3)
Discusses factors and conditions relevant to effective teaching and learning with special consideration given to the adult learner. Provides practice in the techniques of individual and group teaching, lesson planning and presentation, classroom management, use of teaching aids and evaluation procedures.

EDUCATION 307
Concepts and Techniques in Assessment (3)
Presents concepts of evaluation/assessment and principles of statistical procedure used in determining successful evaluations. Examines and constructs selected evaluation instruments tailored to specific course objectives. Develops an evaluation philosophy and model for evaluating multiple levels of performance in both didactic and clinical instruction.

EDUCATION 401
Technology and Instruction (3)
Examines theoretical and practical approaches to integration of technological advances in educational course delivery. Investigates impact of technology on curricular development, including electronic and virtual classroom formats.

**EDUCATION 409**  
**Curriculum Design and Evaluation (3)**  
Examines principles and practices for developing and evaluating curricula from the programmatic to the course level. Matches curricular requirements to expected end-product learner outcomes. Presents techniques for assuring completeness. Examines essential processes such as syllabus construction and competency-based decision making.

**EDUCATION MSED 500**  
**Graduate Study Online Orientation (0)**  
Required for all entering learners, this course provides didactic and practical experience in navigating through an online course. Specific attention is directed toward discussion boards, online publications, bibliographic and resource searching and web 2.0 applications of educational experience. Orientation to requirements at the breadth, depth and application levels is included with required example themes.

At the close of this learning experience, participants will be enabled to:  
- Effectively navigate and participate in an online course experience,  
- Provide challenging Discussion Board responses to posted inquiries and exercises,  
- Apply interactive skills in synchronous discussions when established

**EDUCATION MSED 501**  
**The Adult Learner (3)**  
Theory and foundations of adult education and individual learning. Review of philosophical concepts and their application to the practice of educating adults. Implications of adult development theories for education with specific attention to increasing numbers of adult learners in health care settings.

At the close of this learning experience, participants will be enabled to:  
- Interpret and apply the knowledge base for adult education theory and concepts of adult development and adult learning,  
- Identify and incorporate implications of adult developmental theories for adult learning in the health care setting,  
- Practically merge adult learning theory and practice to promote excellence in patient care,  
- Apply theory and practices inherent to the Adult Enablement Halo in the delivery of learning experiences.

**EDUCATION MSED 502**  
**Psychology of Learning (3)**

At the close of this learning experience, participants will be enabled to:

- Apply principles of effective learning theory based upon learning assessment,
- Determine effective learning strategies after group and individual analyses,
- Construct and implement evaluation exercises appropriate to a learning task

EDUCATION MSED 503
Methods in Health Care Education (3)
Examination of three categories of practice: knowledge, synthesis, and performance. Positive aspects of lecture, demonstration, practical inquiry, feedback monitoring and strategy maximization. Case based approach to health care tasks inherent to several care venues. Analysis of the breadth, depth and application levels of teaching.

At the close of this learning experience, participants will be enabled to:

- Integrate performance tasks with learning activities,
- Identify learning needs and tailor appropriate strategies to maximize learning,
- Develop and implement a case analysis technique suited to effective learning and demonstration of clinical competencies

EDUCATION MSED 504
Instructional Technology (3)
Use of technological tools for instruction; for teaching, training, and clinical/didactic learning; for presentation and development; and for administration and management. Incorporates technical aspects of online delivery procedures and effective planning for the use of instructional technology in a health care environment. Survey of simulation modalities and costing methods in educational laboratory development.

At the close of this learning experience, participants will be enabled to:

- Recognize value and contribution of selected technological tools in the delivery of instruction,
- Adapt current technology to specific needs in practical and didactic learning settings,
- Develop a “make or buy” model for utilization of instructional technology,
- Practice construction of a multi-purpose learning laboratory

EDUCATION MSED 505
Research Design and Method (3)
Research methods, study design and data analytical formats suited to educational projects and problem solving challenges. Scientific method. Identification of an educational research project, creation of a research proposal tailored to an educational need. Incorporation of appropriate measurements suited to the nature of the data.
At the close of this learning experience, participants will be enabled to:
- Identify the major elements of a research proposal,
- Practice framing a proposal in research design and scientific method format,
- Apply a hypothesis to a sample research proposal project.

EDUCATION MSED 506
Online Course Development and Delivery (3)
Application level experience in that learners create an online course. Elements of syllabus construction, navigation techniques, discussion board elements, wikis and blogs, final project submissions and other elements. Utilization of Web 2.0 elements. Development of intermediate familiarity with the Learning Management System known as Blackboard.

At the close of this learning experience, participants will be enabled to:
- Construct and evaluate an online course,
- Create challenging interactive activities such as Discussion Boards, Wiki’s and educational Blogs,
- Tailor the online model to health care settings conducive to asynchronous delivery methods

EDUCATION MSED 520
Methods and Materials in Simulation (3)
Development of skills in medical simulation, assistive technologies, and productivity tools for enhancing health care understandings at all levels. Learners employ one of these technologies in creating a learning unit for a clinical discipline OR health care administrative training setting. Develop material and methods for utilization of simulation laboratories, onsite course delivery, and single-day course settings.

At the close of this learning experience, participants will be enabled to:
- Design a learning laboratory congruent with an identified set of learning objectives in the clinical setting,
- Identify simulation methods of choice for economical and effective teaching in the health care setting,
- Develop a learning plan implementing a series of simulation-based activities

EDUCATION MSED 521
Clinical Education Methods (3)
Builds on concepts begun in MSED 503, Methods in Health Care Education, this course provides an opportunity for exploration of resources available for qualitative and effective clinical or organizational learning. Strategies and methods suited to specific needs of a health care unit. Case-based final product incorporating an educational need and problem and method based solution.

At the close of this learning experience, participants will be enabled to:
• Apply advanced diagnostic educational techniques to delivery of selected clinical activities,
• Conduct a group and on-site evaluation of a specific unit educational need,
• Structure a case demonstrating how a specific clinical education need may be resolved by instructional methodology suited to a specific population or patient care setting.

EDUCATION MSED 522
Precepting (3)
Focus on helping new or existing preceptors to gain the teaching, communication, and evaluation skills required to effectively convey key information about roles, responsibilities, and the organizational expectations of a health care unit. Attention to strategies in confidence building, learning activities, feedback and performance review. Special practice in team building for maximization of clinical learning.

At the close of this learning experience, participants will be enabled to:
• Apply an effective precepting model,
• Identify special skills needed by effective preceptors,
• Develop a useable “tool kit” for prospective and existing preceptors and clinical mentors
• Establish a knowledge base for practicing preceptors.

EDUCATION MSED 523
Sustainability Instructional Methods and Materials (3)
Instructional emphasis on teaching ways to use innovative products, services, and production processes that alleviate detrimental social or environmental conditions in health care facilities. Instructional activities that promote efficient use of energy and harness renewable resources that save costs, lower risks, and are less harmful to society in the overall health care environment. Incorporates sustainability theory with techniques of practice change through effective education.

At the close of this learning experience, participants will be enabled to:
• Identify key sustainability instructional resources,
• Assist in the development of a culture change model,
• Structure educational activities which promote and clarify sustainability efforts

EDUCATION MSED 524
Library Resources in Instruction (3)
Methods of conveying awareness of physical and electronic resources in problem solving, research and related areas. Inclusion of automatic linkages to library resources in an online course. Complex searching methods; database linking. Collaborative techniques with resource personnel.

At the close of this learning experience, participants will be enabled to:
• Demonstrate skill in data linkages in all formats of course development,
• Identify ways learners may effectively use and manage data sources in the processes of both teaching and learning,
• Recognize and develop methods of utilizing and improving information retrieval for problem solving and evidence-based patient care.

EDUCATION MSED 525
Faculty Development (3)
Construction and delivery of materials for instructional staff development. Maintenance of existing skills; techniques of both active and passive learning activities designed to improve instruction. Program development and outcomes measurement; continuous quality monitoring of methods of staff education.

At the close of this learning experience, participants will be enabled to:
• Construct a workshop series for maximization of faculty development efforts,
• Identify ways of monitoring faculty performance related to program goals,
• Develop learning activities in person and online designed to maintain existing skills and promote new care techniques and emerging trends.

EMERGENCY MEDICAL SERVICES 101
Emergency Medical Technician – Basic (EMT-B) (3)
Prepares students to handle emergencies using basic-life support equipment in accordance with objectives of the US Department of Transportation National Standard Curriculum. Prepares students for the Pennsylvania Department of Health Emergency Medical Technician-Basic (EMT-B) examination process. Includes American Heart Association (AHA) Basic Cardiac Life Support (BCLS).

ENGLISH 100
Fundamentals of Writing (3)
Addresses the most common writing problems. Develops skills in grammar and usage, clarity, effective wording, sentences and paragraphs, punctuation and mechanics. Focuses on practical writing situations like essays, essay exams, research papers and business correspondence. Prepares students for English 101. Cannot be used to fulfill degree or certificate requirements.

ENGLISH 101
Composition I (3)
Develops basic writing skills, including a review of grammar. Includes frequent writing assignments.

ENGLISH 102
Composition II (3)
Continuation of English 101. Applies principles of effective written communication. Introduces the methodology of the research paper.
Prerequisite: English 101
ENGLISH 103  
**Business and Technical Writing (3)**  
Applies skills of written communication to specific forms that professional and technical personnel are called upon to write reports, abstracts, processes, proposals and correspondence.

ENGLISH 221  
**Understanding Literature (3)**  
Examines three prominent forms of literary expression — fiction, poetry and drama — with attention to literary devices and cultural context of selected works of world literature from the classics to the modern era. Provides experience in discussion, written analysis and interpretation of literature. Builds on critical writing skills learned in college composition. Assumes basic mastery of fundamentals of writing, including rhetoric, grammar and basic mechanics.  
Prerequisite: English 102

ENGLISH 315  
**Understanding Poetry (1-3)**  
Studies poetry from many cultures and historic eras, including strategies for analysis and appreciation.

ENGLISH 362  
**Death and Dying in Literature (3)**  
Provides a humanistic approach to the subject of death and dying. Discusses noted works of world literature (short stories, poems and novels) to develop a more life-enhancing, value-oriented perspective on this topic. Promotes the general goal of literature as well as the specific goals of medicine.

ENGLISH AS A SECOND LANGUAGE 101  
**Introductory Oral Skills A (Listening and Speaking)  3**  
Introductory course for students whose first language is not English. Aims to develop all four language skills – listening, speaking, reading and writing, with emphasis on listening comprehension and speaking.  
Prerequisite: ESL placement test

ENGLISH AS A SECOND LANGUAGE 102  
**Introductory Written Skills A (Reading and Writing)  3**  
Aims to develop all four language skills – listening, speaking, reading, and writing, with emphasis on reading and writing.  
Prerequisite: ESL placement test and/or English as a Second language 101

ENGLISH AS A SECOND LANGUAGE 201  
**Introductory Oral Skills B (Listening and Speaking)  3**  
Aims to develop all four language skills – listening, speaking, reading, and writing, with emphasis on listening comprehension and speaking.  
Prerequisite: ESL placement test and/or English as a Second Language 101
ENGLISH AS A SECOND LANGUAGE 202
Introductory Written Skills B (Reading and Writing) 3
Aims to develop all four language skills – listening, speaking, reading, and writing, with emphasis on reading and writing.
Prerequisite: ESL placement test and/or English as a Second Language 102 or 201

ENGLISH AS A SECOND LANGUAGE 301
Intermediate Oral Skills (Listening and Speaking) 3
Develops and strengthens fluency and accuracy when speaking and understanding spoken English. Students are exposed to authentic English discourse and academic lecture material so as to develop both conversational and academic oral skills; refines critical thinking skills such as synthesizing information and reacting to different viewpoints.
Prerequisite: ESL placement test and/or English As A Second Language 101 or 201

ENGLISH AS A SECOND LANGUAGE 302
Intermediate Written Skills (Reading and Writing) 3
Instructs students in the basic elements of academic reading and writing. Includes reading strategies for academic texts, colloquial materials and culturally-based selections to help students read with increased comprehension and speed, vocabulary expansion and development of critical thinking skills. Reviews grammar, sentence structure and punctuation used in academic writing skills.
Prerequisite: ESL placement test or English As A Second Language 102 or 202

ENGLISH AS A SECOND LANGUAGE 401
Advanced Oral Skills (Listening and Speaking) 3
Assists students in developing the listening and speaking proficiency required in advanced academic settings. Students are taught methods of question and response and will learn how to effectively manage particularly problematic areas such as interpretation of social and cultural norms, non-verbal language, and question and answer sessions following oral presentations.
Prerequisite: ESL placement test or English as a Second Language 301

ENGLISH AS A SECOND LANGUAGE 402
Advanced Written Skills (Reading and Writing 3
Offers students the opportunity to practice a variety of advanced writing tasks, including abstracts, reviews, critical analysis and synthesis, and research.
Prerequisite: ESL placement test or English as a Second Language 302

ENGLISH AS A SECOND LANGUAGE 410
Accent Reduction (3)
Assists learners in improving overall intelligibility through accent modification. Targets individual pronunciation problems to achieve improvements in English speech and communications. Builds confidence in social and academic speaking situations.
Prerequisite: ESL 301 or Departmental permission.
FINANCE 101
Principles of Finance (3)
Examines principles of financial management in five major areas: (1) financial analysis and planning (ratio analysis, cash budgeting, pro-forma financial statements, and operating and financial leverage); (2) working capital management (the financing decision, sources of short-term financing and controlling assets including cash, receivables, and inventory); (3) capital budgeting (time value of money, annuities, determining investment yields, valuation of securities, rates of return, cost of capital, risk and methods of evaluating capital expenditure alternatives; (4) long-term financing (structure of capital markets, public and private placements, debt and lease financing, common and preferred stock as financing methods); (5) review of mergers and acquisitions; international-financial management concepts.
Prerequisites: Accounting 101, Economics 201

FRENCH 101
Elementary French I (3)
Introduces grammar, syntax, phonetics and practical vocabulary of French. Provides opportunities for students to develop their understanding and speaking of French.

FRENCH 102
Elementary French II (3)
Continues practice in understanding, speaking and reading French. Stresses phonetics, vocabulary, idioms and useful sentence structure.
Prerequisite: French 101

PROFESSIONAL AND CONTINUING STUDIES 110
Basic Study Skills (1) (Pass/Fail)
Discusses memory improvement and planning for successful use of study time. Covers study skill areas such as comprehension of non-fiction materials, the application of the Cornell note-taking system, the use of signal words to illustrate important points and the SQ3R approach to analyzing texts and articles. Includes extensive instruction in test-taking skills and dealing with test anxiety. Cannot be used to fulfill degree or certificate requirements.

PROFESSIONAL AND CONTINUING STUDIES 120
Comprehensive Medical Terminology (4)
Introduces a comprehensive medical vocabulary arranged according to body systems. Presents medical terms for organs, diseases, symptoms, diagnostic procedures, treatments and surgical procedures. Introduces a method for defining medical terms by dividing them into roots, prefixes and suffixes. Includes practice in building medical terms.

PROFESSIONAL AND CONTINUING STUDIES 233
Career Management for Adults in Transition (3)
Provides working adults with the skills needed to make informed career decisions that address present and future job realities. Discusses a career development process model that enables
individuals to make career choices based on assessment of their interests, skills and values coupled with up-to-date occupational and industry information and resources. Displays typical reactions to significant change and transition, and shows how these reactions can be managed effectively.

PROFESSIONAL AND CONTINUING STUDIES 499
Independent Study (1 to 3)
The student, under faculty supervision, designs and studies an area or topic not included in the formal curriculum. Emphasizes individual study and research. Requires the student to obtain faculty sponsorship.
Prerequisite: Completion of 15 semester credits at Jefferson with a minimum grade point average of 3.00 and approval of Department Chair

HEALTH 101
Personal Health and Wellness (3)
Provides an overview of wellness concepts and theories from interdisciplinary perspectives. Develops skills, attitudes, beliefs and habits by providing learning experiences that will assist in the achievement of an optimal level of wellness through self-responsibility. Students plan and implement wellness activities for individuals and family units.

HEALTH 302
Mindfulness Based Stress Reduction for Personal and Professional Wellness (3-4)
Examines stress physiology, the influence of stress on disease processes, and the substantial evidence-based research that documents health benefits of MBSR and other mindfulness-based interventions. Includes the practice of formal mindfulness techniques in weekly sessions and an optional one-day (one credit) mindfulness retreat. Promotes personal and professional wellness and creates a foundation for further exploration of mindfulness-based interventions for those interested in integrating mindfulness into their professional practice.

HEALTHCARE ADMINISTRATION 300
Health Services Delivery and Organization (3)
Examines the structure, process and outcome of healthcare delivery in the U.S., both historically and in the present, with special emphasis on current systems of managed care and integration. Discusses organizational patterns, facilities, reimbursement and manpower in the context of social, political, ethical and economic forces driving the system. Compares the U.S. system to other systems.

HEALTHCARE ADMINISTRATION 301
Current Issues in Healthcare Delivery (3)
Reviews and examines critical health issues currently affecting the delivery of health care in the United States and selected countries. Focuses on alternative means of financing and delivering these health services as well as on new developments in the field.
HEALTHCARE ADMINISTRATION 302
Healthcare Classification Systems (3)
Provides an overview of the classification systems used for reimbursement with emphasis on physician practices and the billing process. Covers basic coding of diseases and procedures based on the principles of ICD-9-CM and procedural coding based on CPT-4. Enables people without hands-on experience in healthcare coding and billing to gain a working knowledge of the fundamentals of healthcare reimbursement.

HEALTHCARE ADMINISTRATION 303
Business and Healthcare Law (3)
Identifies and examines relevant substantive areas of business law and health law that impact the operations of healthcare facilities, academic medical centers, and related businesses. Provides thorough understanding of the legal implications of running a healthcare business, including basic principles of business law such as torts and contracts, risk management and medical malpractice, ethical issues and regulatory compliance.
Prerequisite: Healthcare Administration 300

HEALTHCARE ADMINISTRATION 350
Principles of Public Health and Epidemiology (3)
Examines disease prevention and infection control undertaken by federal, state and local governments. Delineates roles and responsibilities of public health officers and public health departments, governmental standards, oversight of contagious disease, air and water safety, emergency situations, and health education and behaviors. Considers the limits and strengths of epidemiology in containing and limiting high-risk substances and disease. Cites models of collaboration between public and private sectors to effect positive change toward healthier communities. Discusses role of public health services in light of bioterrorism.
Prerequisite: Healthcare Administration 300

HEALTHCARE ADMINISTRATION 351
Strategic Planning and Marketing for Health Services Organizations (3)
Introduces essential principles and aspects of marketing as applied to the healthcare business marketplace. Presents provider and non-provider activities, marketing strategies and tools. Uses examples from profit and nonprofit health businesses to describe key marketing concepts. Analyzes Internet marketing strategies, including use as a distribution channel and communications forum; business-to-business Internet marketing; shopping on the Internet and on-line selling.
Prerequisite: Management 304 or permission of the Instructor/Chair

HEALTHCARE ADMINISTRATION/ECONOMICS 401
Healthcare Policy and Economics (3)
Applies economic analytical techniques to critical issues in health care and health policy (e.g., growth of healthcare expenditures, intended and unintended consequences of Medicare reform). Examines demand side considerations for health and medical care as well as for health insurance. Explores supply side considerations such as managed care and markets for
healthcare professionals and hospital services. Identifies socio-cultural factors, demographic changes, legal and governmental regulations, technological advances and their impact on the economics of healthcare delivery. Provides a framework for a rational assessment of healthcare policy.
Prerequisites: Healthcare Administration 300, Economics 202

HEALTHCARE ADMINISTRATION 410
Medical Practice Management (3)
Presents major components of medical practice management administration, including staffing patterns, selecting and updating practice management systems, information reporting, accounts receivable, contract negotiations, quality assurance, identifying and complying with regulatory requirements, space planning and management, fee schedules, reimbursement monitoring and other organizational issues. Prerequisite: Healthcare Administration 302

HEALTHCARE ADMINISTRATION 412
Quality Measurement and Outcomes Analysis in Health Care (3)
Examines various quality measures essential to safe, timely and thorough delivery of health care. Considers models for quality measurement in various settings and applies these models to case examples. Enables students to apply quality measurement and outcomes analysis to the healthcare workplace.
Prerequisites: Management 304, Mathematics 301

HEALTHCARE MANAGEMENT INFORMATION SYSTEMS 310
Management Information Systems in Health Care (3)
Examines elements within a management information systems design for health services institutions and organizations. Examines elements of analysis, design, implementation and control through cases, system analysis procedures and effective evaluation modalities.
Prerequisites: Healthcare Administration 300, Computer Studies 201

HEALTHCARE MANAGEMENT INFORMATION SYSTEMS 311
Informatics Resources and Technology for Health Services (3)
Examines resources available in on-line databases, public and private web-based offerings, methods for integration of existing resources, evaluation criteria for determining appropriateness of self-development of technological resources and contracting or purchasing.
Prerequisite: Healthcare Management Information Systems 310

HEALTHCARE MANAGEMENT INFORMATION SYSTEMS 401
Network Management (3)
Presents principles and practices of developing, implementing and maintaining local area networks (LAN), wide-area networks (WAN), and intranets. Includes system requirement analysis, architectural principles, acquisition processes, installation and maintenance.
Prerequisite: Healthcare Management Information Systems 310

HEALTHCARE MANAGEMENT INFORMATION SYSTEMS 402
Systems Design (3)
Analyzes, designs, implements and evaluates information systems in medium-sized and large organizations, including personal and technological interaction, determination of inputs and outputs as required by end users, hardware match and comprehensive systems integration.
Prerequisite: Healthcare Management Information Systems 310

HEALTHCARE MANAGEMENT INFORMATION SYSTEMS 410
Information and the Health Services Organization: Advanced Seminar in Health Services Information Systems (3)
Capstone seminar for BS-HSMIS taken concurrently with the internship (HMIS 411). Integrates theory and practice of healthcare management information systems, including maximization of resources, integration elements, determination of need, systems assessment, team integration and personnel selection in comprehensive HIS oversight. Reviews practical management principles applied to technological and informatics resources. Students prepare research projects relevant to their internship.
Prerequisite: Completion of all major course requirements for the BS-HSMIS

HEALTHCARE MANAGEMENT INFORMATION SYSTEMS 411
Internship (3)
Supervised fieldwork in an approved healthcare facility/organization under the direction of an approved preceptor in that facility/organization. Serves as a practicum in which students carry out responsibilities related to health services information systems management.
Prerequisite: Completion of all major course requirements for the BS-HSMIS. Taken concurrently with HMIS 410: Leadership and Strategy: Advanced Seminar

HISTORY 101
World Civilization to 1500 (3)
Surveys origins and diffusion of civilization from antiquity to the late fifteenth century. Emphasizes environmental and cross-cultural influences on the development of the major civilizations of Eurasia, Africa and the Americas. Develops critical thinking and communication skills by analyzing, evaluating and summarizing historical data.

HISTORY 102
World Civilization Since 1500 (3)
Surveys interactions among the major centers of civilization from the European voyages of discovery through the late 20th century. Emphasizes technological, economic and demographic influences on the emergence of a global community. Develops critical thinking and communication skills by analyzing, evaluating, and summarizing historical data.
Prerequisite: History 101

HISTORY 111
United States History to 1865 (3)
Surveys U.S. political and economic development from colonial times to the end of the Civil War. Emphasizes emergence and consolidation of the American union and the evolution of national institutions.
HISTORY 112
United States History Since 1865 (3)
Surveys the political and economic development of the United States from end of the Civil War to the present. Emphasizes impact of industrialization and urbanization on national policy and institutions. Discusses emergence of the United States as a major world power in the 20th century. Develops and enhances critical thinking and communication skills by analyzing, evaluating and summarizing historical data.
Prerequisite: History 111

HUMANITIES 111
Philadelphia and the Arts (3)
Studies the humanities through the museums, theaters, architecture and art of Philadelphia. Supplements lectures and class discussions with visits to artistic sites.

HUMANITIES 301
Problems of Pain and Suffering (3)
Examines the problem of human pain and suffering from a multidisciplinary perspective. Analyzes the roles of literature, religion, philosophy and sociology in the pain/suffering experience. Provides a basic understanding of pain, clinically emphasizing pain management modalities.

HUMANITIES 311
Human Values (2-3)
Examines human values such as truth, beauty, love, power and wealth. Western, non-western and indigenous texts are drawn from historical and contemporary sources in philosophy, literature and the mass media.

HUMANITIES 315
Methods of Effective Thinking (3)
Provides a conceptual framework and practical “tools” for understanding complex human systems, e.g., families, work teams, organizations, and larger societal institutions. Designed to hone skills and provide practice in critical and systemic thinking.

IDSC 302
Understanding Research Principles and the Scientific Method (3)
Introduces research methodologies applicable to health care and the health professions. Emphasizes research methodologies (from qualitative and descriptive to quasi-experimental and experimental), the application of research approaches to health professions-based research questions, and the analysis of reported research. Prepares and requires students to conduct literature searches relevant to the department or researchable questions and appropriate research designs and to become critical consumers.

IDSC 303
Advanced Research Project Analysis
Real time research on a topic selected during ID 302 or determined in consultation with the instructor. Participants refine a comprehensive proposal, conduct a pilot study to form a research hypothesis and present findings in a final seminar session.
Prerequisite: IDSC 302 or equivalent

IDSC 402
Interdisciplinary Clinical Care Planning (1 or 3)
Prepares students for active roles in interdisciplinary healthcare planning. Emphasizes principles of group dynamics and familiarization with the roles and functions of the health professions. Enables teams of students to develop interdisciplinary planning skills and to develop comprehensive healthcare plans for simulated patient situations.

ITALIAN 101
Elementary Italian I (3)
Introduces the grammar, syntax, phonetics and practical vocabulary. Emphasizes listening comprehension, speaking, reading and writing. Provides opportunities to develop understanding and speaking of Italian through videos, tapes and written materials that focus on Italian culture. Adapted specifically for the adult learner.

ITALIAN 102
Elementary Italian II (3)
Continued presentation of grammar, syntax, phonetics and vocabulary at the elementary level. Emphasizes listening, comprehension, speaking, reading and writing. Utilizes videos, tapes and written materials that focus on Italian culture. Specifically, for the adult learner.
Prerequisite: Italian 101

ITALIAN 103
Intermediate Italian (3)
Continuation and enhancement of grammar, syntax and vocabulary introduced in Elementary Italian I and II.
Prerequisite: Italian 102 or equivalent

ITALIAN 104
Intermediate Italian (4)
Continuation and enhancement of grammar, syntax and vocabulary introduced in Italian 103.
Prerequisite: Italian 103 or equivalent

MANAGEMENT 101
Principles of Management and Organizational Behavior (3)
Examines organizational behavior as an academic discipline and develops skills necessary for successful practice of management. Examines the effect individuals, groups and organizational structure have on behavior within an organization. Applies the knowledge gained to make organizations operate more efficiently. Ultimate functional applications include improving
productivity and the creation of an environment that fosters a high quality of work life and concomitant job satisfaction.

**MANAGEMENT 102**
**Human Resources Management (3)**
Discusses principles, policies and practices of rational systems for management of human resources in organizations. Covers human resource planning, fair employment practice, staffing organizations, career development, performance appraisal, training and development, compensation and employee benefits and services. Uses case analysis, films and student reports to promote application of the material.
Prerequisite: Management 101

**MANAGEMENT 201**
**Principles of Marketing (3)**
Provides an overview of marketing concepts and principles applicable to businesses and organizations. Covers marketing environment and buyer behavior, market segmentation and targeting, product development, pricing, promotion and distribution for target markets.

**MANAGEMENT 304**
**Management and Organizational Theory in Health Services Organizations (3)**
Explores the structure and function of healthcare delivery organizations with respect to challenges presented by contemporary socio-cultural considerations, demographic changes, government and legal regulations and technological advances. Analyzes the effect of these environmental factors on traditional roles, communication patterns, financial strategies and organizational structure. Identifies methods to assess the organization's ability to provide and monitor quality healthcare services and to meet the requirements set by both internal and external bodies.
Prerequisites: Management 101, Healthcare Administration 300

**MANAGEMENT 306**
**Legal Aspects of Human Resources Management (3)**
Examines components of human resources management and the impact of pertinent legislation. Examines history, intent and application of laws and regulations governing the employer/employee relationship. Utilizes case studies and class discussion.
Prerequisites: Management 102, 304

**MANAGEMENT 307**
**Motivation and Reward Systems (3)**
Investigates through lecture, discussion and presentations, theories of motivation and behavior, methods of compensation to reward behavior and external and internal influences that impact the delivery of these rewards.
Prerequisites: Management 102, 304

**MANAGEMENT 321**
Introduction to Operations Management (3)
Introduces a quantitative approach to problems associated with management of modern organizations, including forecasting, inventory control, scheduling, productivity measurement and quality control.

MANAGEMENT 407
Financial Management of Health Services Organizations (3)
Combines selected topics of accounting and finance to understand the process of quantifying, analyzing and managing financial resources in the unique environment of health-care. Introduces quantitative techniques used to appropriately allocate financial resources, accounting information used in such techniques, as well as strategies for financial management based upon these analyses. Emphasizes the role of managed care in the financial decision making process. Considers the hospital, the largest institutional component of the industry; extends application beyond the hospital setting through discussions, readings and case materials.
Prerequisites: Accounting 102, Economics 202, Finance 101, Management 304, Mathematics 301 or equivalent

MANAGEMENT 408
Program Planning and Evaluation in Health Services Organizations (3)
Presents the foundations of health planning, its historical evolution, current planning issues and evaluation techniques, and the dynamic relationship between the free market system and government regulation. Reviews the methodology of planning effectively for healthcare services. Incorporates use of data systems for forecasting and identifying problems as well as the process of strategic planning, setting priorities, developing projects and allocating resources.
Prerequisites: Healthcare Administration 300, Management 304, 407

MANAGEMENT 410
Leadership and Strategy: Advanced Seminar in Health Services Management (3)
Capstone seminar for BS-HMS taken concurrently with Management 411 Internship. Integrates theory and practice of health services management. Students prepare research papers in areas of health services management relevant to their field experience (internship).
Prerequisite: Completion of all major course requirements for the BS-HSM degree

MANAGEMENT 411
Internship (3)
Supervised fieldwork in an approved healthcare facility/organization under the direction of an approved preceptor in that facility/organization. An exercise in applied healthcare management, students carry out responsibilities related to health services management.
Prerequisite: Completion of all major course requirements for the BS-HSM degree. Concurrent with MGMT 410: Leadership and Strategy: Advanced Seminar

MATHEMATICS 100
INTRODUCTION TO COLLEGE ALGEBRA (3)
Provides ample drill and practice to prepare students for college algebra. Includes operations with real numbers, solutions of linear and quadratic equations, graphs of linear equations and problem-solving skills. Employs a scientific calculator both as a tool in concept development and an aid in computation. Portrays algebra as a logical extension of arithmetic. Cannot be used to fulfill degree or certificate requirements.

MATHEMATICS 101
College Algebra (3)
Presents operations with real and complex numbers, graphing first- and second-degree equations, solutions of equations (linear, quadratic and logarithmic). Portrays algebra as a logical extension of arithmetical processes and as a powerful tool for analyzing relationships in the natural and social sciences.
Prerequisite: Mathematics 100 or equivalent

MATHEMATICS 102
Precalculus (3)
Includes a review of algebra with an emphasis on techniques necessary for calculus, solutions of inequalities and equations (linear, quadratic, exponential, logarithmic and trigonometric), techniques for graphing functions (polynomial, exponential, and trigonometric) as well as the conic sections (analytic geometry), vectors and polar equations in preparation for a calculus course.
Prerequisite: Mathematics 101 or equivalent

MATHEMATICS 103
Calculus (3)
Includes limits, differentiation and integration of a single variable in order to analyze polynomial, rational, exponential and logarithmic functions. Portrays calculus as a logical extension of algebraic processes and a powerful tool for modeling relationships in managerial, life and social sciences.
Prerequisite: Mathematics 101 or equivalent

MATHEMATICS 301
Statistics (3)
Surveys basic techniques and principles of statistical analysis, both descriptive and analytical. Descriptive statistics includes univariate measures of central tendency and dispersion, bivariate cross-tabulation and correlation and regression analysis. Inferential statistics includes point and parameter estimation and hypothesis testing techniques. Emphasizes health-related examples and incorporates the latest software technology in the health field.
Prerequisite: Mathematics 101 or higher; Mathematics 102 recommended

MATHEMATICS 311
Econometrics (3)
Presents techniques that allow quantitative measurement and analysis of economic phenomena and prediction of future economic trends in various areas including health care. Employs current PC software for linear regression analysis and combines skills from economics, mathematical functions, and elementary statistics. Prerequisite: Mathematics 101, 301 or equivalent. Helpful but not required are Economics 201 and/or 202

MUSIC 101
Music Appreciation (3)
Explores fundamental concepts of music appreciation and listening and develops specific listening techniques. Examines various masterworks and composers from earliest times to the present, placing them in the context of their times and assessing their impact on society, then and in the future. Requires outside attendance at two musical events.

NUTRITION 301
Current Concepts in Nutrition (3)
Explores the relationships of essential nutrients and dietary substances to health maintenance and disease prevention. Discusses factors that influence food choices. Analyzes dietary intake and eating habits. Emphasizes personal nutrition education and how to evaluate nutrition information found in the media and consumer marketplace.

PHILOSOPHY 101
Introduction to Philosophy (3)
Introduces problems and methods of philosophic thought, including the influence of philosophy in everyday life. Examines the thinking of great philosophers on the nature of reality, human freedom, foundations of knowledge, standards of values and the existence of God.

PHILOSOPHY 201
Philosophy of the Human Person (3)
Encourages students to understand and formulate a unified theory of the human person through discussion of selected works of various thinkers from classical antiquity to the present day. Presents various approaches to the study of the human person and the mystery of the human person. Compares and contrasts Eastern and Western views of the human person.

PHILOSOPHY 301
Healthcare Ethics (3)
Examines moral questions arising from advances in technology, life sciences, medicine, nursing and other health professions. Defines moral theories, principles, virtues, rights and obligations relevant to bioethical concerns such as informed consent, human experimentation, allocation of medical resources, truth-telling and death. Analyzes case studies and current news reports for bioethical issues. Prerequisite: Healthcare Administration 300

PHILOSOPHY 401
Decision Making in Health Care (3)
Provides methods for identifying problems, possible solutions and justification of conclusions by the use of elementary logic and linguistic analysis as applied to actual problems occurring in the health professional’s daily work.

PHYSICS 301
Introduction to Physics (3)
Presents fundamental principles of physics. Includes relevant topics in basic mathematics, mechanics, electricity, magnetism, electromagnetism and modern physics. Lecture.

POLITICAL SCIENCE 101
Government of the United States (3)
Examines principles of democracy and presents background, description and analysis of the national government of the United States.

PSYCHOLOGY 101
Introduction to Psychology (3)
Introduces basic principles and major theoretical approaches used in the scientific study of human behavior. Emphasizes understanding and application of theories as they relate to individuals and the human environment. Presents attitudes and methods employed by the psychologist in understanding normal and abnormal behavior.

PSYCHOLOGY 102
Developmental Psychology (3)
Explores patterns of human development throughout the life span. Discusses concepts important to maturation and learning. Covers attachment, childhood aggression, parenting styles, effects of the peer group, blended families, the development of self-esteem, social influences on identity, love and marriage, issues of mid-life, adjustment to late adult-hood, death and dying. Includes recent social trends and their impact on human development. Prerequisite: Psychology 101

PSYCHOLOGY 301
Educational Psychology (3)
Introduces psychology bases of instructional systems. Examines development and learning of children, adolescents and adults; teacher behavior and other applications of psychology to education. Covers construction, validation and use of classroom measurement and diagnostic procedures. Prerequisite: Psychology 101

PSYCHOLOGY 323
Psychology of Adulthood and Aging (3)
Describes the interaction of biological, psychological and sociological factors on adult development and aging. Covers significant developmental theories and the role of families,
work, sex differences and personality from young adulthood to death and dying. Discusses stereotypes and self-concept as factors in coping with the biological process of aging.

**PSYCHOLOGY 324**  
**Psychosocial Dynamics of Substance Abusers (3)**  
Moves addiction treatment beyond the disease model. Examines psychosocial, sociological, economic and political factors apparently associated with initiation and continuation of substance abuse such as poverty, violence, incest and familial substance abuse.

**PSYCHOLOGY 325**  
**Treating the Substance Abuser (3)**  
Presents various mechanisms for assessing client problems upon entry into addiction treatment facilities; provides information on appropriate services matched to client problem areas and evaluating client outcomes.  
Prerequisite: Psychology 324

**PSYCHOLOGY 361**  
**Abnormal Psychology (3)**  
Surveys principal forms of behavior disorders, including theories of origin, symptoms, developments and treatment.  
Prerequisite: Psychology 101

**PSYCHOLOGY 422**  
**Psychology of Personal Growth (3)**  
Applies psychological principles for constructive living, including coping skills, communication, good interpersonal relationships and self-development and adjustment.

**PSYCHOLOGY 423**  
**Current Issues in Human Sexuality (3)**  
Present contemporary issues in human sexuality and how they affect and are affected by life-cycle development. Integrates three major areas: sexuality issues through the life cycle; the sexual spectrum and diversity; and sexual traumas and conflicts. Examines students’ values and attitudes toward sexual issues.

**PSYCHOLOGY 424**  
**An Interdisciplinary Approach to Promoting Successful Aging (3)**  
Identifies needs that arise as a consequence of, or in relation to, growing older and explores methods of meeting those needs. Applies an interdisciplinary perspective to the health care of the older adult. Focuses on the current status of the elderly, identifies deficiencies and addresses strategies for solving problems in a variety of settings.

**RELIGION 104**  
**World Religions (3)**  
Investigates religious ideas and practices in major world religions including: Judaism, Christianity, Islam, Hinduism, Buddhism and Native American traditions. Defines religion and
interprets its significance for human communities. Analyzes each tradition and presents comparisons.

**SOCIOLOGY 101**
*Introduction to Sociology (3)*
Studies society through a social or group perspective by reexamining issues such as welfare, street crime and the homeless. Covers social structure, basic human institutions, analysis of social processes and major social forces, including the family, deviance, health, education, social change, and social and cultural diversity.

**SOCIOLOGY 302**
*Introduction to Group Dynamics (3)*
Introduces general principles of behavior processes and their applications within established groups and organizations.

**SOCIOLOGY 305**
*Marriages and Families Affected by Substance Abuse (3)*
Provides constructs of the functional versus dysfunctional family system. Presents a multicultural perspective of the development of marriage and family in the United States. Readings relate to family development, gender relations and crisis and change.

**SOCIOLOGY 322**
*The Victimization of Women and Children (3)*
Covers relevant social aberrations: wife abuse, child battering, neglect, incest and abuse of the elderly. Focuses on causes of this violence, the victim of the offense, the characteristics of the abuser, and the social, legal and treatment issues that arise as a result of this social problem.

**SOCIOLOGY 401**
*Sociology of Health (3)*
Reviews health and health services delivery systems as viewed by the social scientist, including factors affecting mortality, morbidity and demography of health. Addresses the influences of values, culture and customs on health and health-seeking behavior, as well as roles and relationships of the patient, the health professional and others in the care giving process.

**SPANISH 100**
*Basic Spanish for Healthcare Professionals (3)*
Conversational course. Stresses useful phrases, grammar and conversational tools that facilitate everyday communication with Spanish-speaking patients. Emphasizes medical vocabulary, including medications, procedures, body parts and foods, as well as grammar geared toward dialogue in medical situations.

**SPANISH 101**
*Elementary Spanish I (3)*
Introduces grammar, syntax, phonetics and practical vocabulary. Provides ample opportunities for understanding and speaking of Spanish.

SPANISH 102
Elementary Spanish II (3)
Continues practice in understanding, speaking and reading Spanish. Stresses phonetics, vocabulary, idioms and useful sentence structure.
Prerequisite: Spanish 101

SPANISH 103
Spanish for the Medical and Health Professions I (3)
Strengthens listening comprehension, speaking, reading and writing skills. Reviews grammar. Expands vocabulary through materials dealing with medical, hospital and clinical situations. Enables students to acquire practical and aural-oral proficiency.
Prerequisite: Spanish 102 or equivalent

SPANISH 104
Spanish for the Medical and Health Professions II (3)
Continues the development of skills learned in Spanish 103.
Prerequisite: Spanish 103

SPANISH 201
Intermediate Spanish I (3)
Reinforces and enhances students’ comprehension of grammar and vocabulary learned in elementary Spanish. Incorporates more complex grammar, vocabulary and phrases and sentence structures in conversations and writings. Students read and discuss Spanish articles and write essays and compositions.
Prerequisite: Spanish 102

GRADUATE INTERDISCIPLINARY COURSES
IDSC 501
Pharmacology in Rehabilitation (3)
Provides an overview of major classes of drugs with an emphasis on their mechanisms of action, rationale underlying therapeutic uses, adverse reactions and drug interactions. Includes written assignments in students’ areas of interest.

IDSC 502
Mindfulness Based Stress Reduction for Personal and Professional Wellness (3-4)
Examines stress physiology, the influence of stress on disease processes, and the substantial evidence-based research that documents the health benefits of MBSR and other mindfulness-based interventions. Includes practice of formal mindfulness meditation techniques in weekly sessions and an optional one-day mindfulness retreat. Promotes personal and professional wellness and creates a foundation for further exploration of mindfulness-based interventions for those interested in integrating mindfulness into their professional practice.
IDSC 510
Accent Reduction (3)
Assists learners in improving overall intelligibility through accent modification. Targets individual pronunciation problems to achieve improvements in English speech and communications. Builds confidence in social and academic speaking situations. Prerequisite: ESL 301 or Departmental permission.

IDSC 512
Current Topics in Healthcare Law (3)
Introduces working concepts of the American legal process and techniques of their implementation. Broadly covers tort liability and considers applications of medical professional liability via negligence theory. Emphasizes resource allocation and the healthcare dollar to illustrate constraints and choices in a consumer society of limited resources.

IDSC 513
Managing People (3)
Explores supervisory issues in healthcare settings for professionals who are new (less than two years) to supervisory positions. Presents theories of supervision and provides skill development in problem solving, conflict management, leadership, group process and interpersonal relations.

IDSC 514
Organization Development (3)
Presents a social-psychological perspective of the study of organizations. Presents strategies of organizational change, organization development as an independent concept and specific skills needed by organization development consultants. Addresses formal and informal power in organizations. Applies strategies effective to real-life situations.

IDSC 515
Neurobiology and Endocrinology (3)
Advances knowledge of the nervous system and its physiological mechanisms. Topics include how sensory information is perceived and transmitted, pattern recognition and central processing of information, learning and memory, and how behavior is generated and organized. Combines information with basic neurochemistry and neuropharmacology to apply it to selected neurological disorders.

IDSC 516
Designing Client-Centered Health Promotion Web Sites (3)
Provides information and practical experiences related to interactive health communication in order to design an e-health promotion website for an underserved population. Students work in interdisciplinary teams and apply interactive health communication knowledge to construct an interdisciplinary health promotion website for homeless individuals with chronic mental and
physical health conditions; the website will assist in the management of their chronic health conditions on an ongoing basis.
Prerequisite: ID 310 or an equivalent health informatics course

IDSC 517
Introduction to Pharmacology (3)
Provides an overview and synthesis of basic mechanisms of drug action and the ways in which drugs interact with biological tissue. Emphasizes drug receptors, agonists and antagonists and predictability of many drug actions and side effects. Covers routes of administration, absorption, distribution and elimination, receptor theory, the nervous system and each major class of drugs.

IDSC 520
Issues in Physiology (3)
Discusses current issues in physiology involving the major organ systems. Explores these issues in depth at the metabolic, cellular and systemic levels. Integrates the knowledge and material at these different levels. Enables the student to better appreciate the field of physiology while preparing the individual for further study.

IDSC 521
Adult Development: Continuity and Change (3)
Explores the nature of adult development as influenced by external factors such as work, family and social systems and internal factors such as personality, identity and defense mechanisms. Prerequisite: Psychology 323 or equivalent

IDSC 522
Marketing Healthcare Services and Programs (3)
Presents an overview of marketing techniques specific to healthcare services and programs. Explores the use of market research data in making strategic decisions. Applies techniques to the current healthcare environment through case studies and projects.

IDSC 523
Cardiac/Renal Physiology (3)
Provides a detailed analysis of physiological and biophysical processes that regulate cardiovascular and renal function. Develops understanding of the interrelationship between these two organ systems in health and disease. Emphasizes structure as it relates to function, electrophysiology, muscle mechanics, bloodrheology, countercurrent theory and cellular transport. Employs journal articles to illustrate current research in special areas of cardiorenal physiology.

IDSC 524
Psychosocial Aspects of Disability (3)
Studies psychological, social and behavioral concepts related to disability as they apply to allied health professionals. Emphasizes importance of patient motivation, social support systems and
psychosocial developmental needs in the rehabilitation process. Discusses role of the helping person with regard to value and authority/power dynamics.

**IDSC 526**  
**Accounting and Finance for Managers (3)**  
Introduces roles of accounting and finance in the healthcare industry. Covers basic concepts and their practical applications. Exposes students to a variety of financial professionals.

**IDSC 527**  
**Statistics, Epidemiology and Inference in the Health Sciences (3)**  
Presents fundamental concepts and methods of biostatistics and epidemiology. Emphasizes implications of various analytic approaches and their impact on decision-making and inference in the health sciences. Includes research design; concepts of probability, risk and sampling; measures of disease impact; screening procedures; analysis of treatment effects; and factors affecting the distribution of disease. Prerequisite: Mathematics 301

**IDSC 540**  
**Launching New Ventures: An Entrepreneurial Approach (3)**  
Approaches the process of launching a new organizational venture from a wholly practical standpoint. Starts with the premise that successful businesses are built before they ever open their doors. Facilitates the pre-venture planning process through such mechanisms as feasibility plans, business plans, marketing plans, operational plans, incorporation checklists and new product checklists.

**IDSC 550**  
**Care of the Elderly: An Interdisciplinary Approach (3)**  
Using a team approach and person-environmental theories, students design and field-test comprehensive services for individuals and their caregivers incorporating formal and informal social systems.

**IDSC 560**  
**Advanced Pharmacotherapeutics (3)**  
Examines selected topics in contemporary pharmacotherapeutics such as hypertension, diabetes, infectious diseases and women’s health issues. Selects appropriate drug therapy for patients presenting with one of the selected disease states and develops a monitoring and outcome pharmacotherapeutic plan for the patient. Emphasizes rational decision-making skills in selecting drug therapy for patients of various social, economic and cultural backgrounds.

**IDSC 570**  
**Financial Management of Healthcare Organizations (3)**  
Examines the financial environment of healthcare institutions, including sources of revenue such as Blue Cross/Blue Shield, Medicare/Medicaid and HMO’s (health maintenance organizations). Examines alternate methods of financial capital investment in conjunction with capital expenditure controls.
Prerequisites: ID 514, 526

IDSC 580
Providing Community Consultation in Health Care (3)
Teaches healthcare providers how to structure and deliver health services as a consultant in the community. Presents various consultation models and explores how they shape professional behavior and focus. Introduces health intervention techniques and provides opportunities to observe and practice these techniques in the classroom and on-site in community locations.

IDSC 585
Interdisciplinary Team-based Health Services for Underserved Populations I (3)
Provides information and experiences that meet both cognitive and affective learning objectives related to working as part of an interdisciplinary team providing community-based services to an underserved population. Develops team-building skills, integrating discipline-specific knowledge into an interdisciplinary framework, expanding key concepts on the biological, psychological and social aspects of underserved populations, and participating in interdisciplinary community-oriented services, including health promotion and restoration for homeless individuals.

IDSC 586
Interdisciplinary Team-based Health Services for Underserved Populations II (3)
Continuation of ID 585. Didactic experiences assist students in: a) improving and refining team skills through ongoing evaluation, b) implementing and evaluating interdisciplinary team-based health care, c) generalizing strategies of health care for individuals who are homeless to other underserved populations, and d) understanding linkages among theory-based practice, research, and health policy in the development and delivery of community-based health care to underserved populations. Practicum provides the opportunity to a) function as members of an interdisciplinary healthcare team, b) participate in case management and consultation, c) implement and test interdisciplinary team-based strategies of health care, and d) design solutions to current legal, ethical or public policy issues regarding care of individuals who are homeless, and to discuss these solutions with service providers and health policy makers.

IDSC 589
Human Services Techniques (3)
Advances essential interpersonal skills for helping people with emotional, developmental, social or physical problems, both inside and outside the organized human service delivery system. Applies these skills to various therapeutic, supportive and preventive settings. Presents skills training in interviewing, counseling, stress management and group work. Enables health professionals from all specialties to learn about themselves and how they relate to others.

IDSC 590
Family Systems and Health Care: A Multicultural Perspective (3)
Presents a family-centered approach to the psychosocial needs of families dealing with chronic and life-threatening health problems in children and adults. Examines families from a multicultural perspective as they move through a variety of contexts. Challenges and guides the student health clinician’s own beliefs and assumptions to promote healthy family functioning.

**IDSC 595**  
**Ethics and Scientific Method (3)**  
Examines the ethical character of scientific medicine. Explores ethical values and visions of medical researchers and how racial, social and scientific prejudices affect the design of experiments and implementation of research.

**IDSC 627**  
**Approaches to Management and Supervision (3)**  
Explores strategies for effective supervision, including personal and group communication skills, program development, strategic planning, problem-solving and staff evaluation, coaching, supervision and discipline. Using the adult learning continuum, students analyze their learning and supervisory style, develop a program change strategy, deal with and resolve conflict, empower staff members to participate in department management and effect change in a specific program.

**IDSC 630**  
**Applied Exercise Physiology (3)**  
Applies principles of Medical Physiology and other clinical courses in which conditions/diseases are discussed in relation to exercise as an intervention. Presents principles of exercise physiology (metabolic, cardiovascular, pulmonary, muscular) along with information or nutritional considerations. Demonstrates practical applications of spirometry and submaximal exercise testing in the laboratory. Exposes students to how exercise prescription is directed when selected pathology is present and assists them in developing unique exercise programs for those pathologies.  
Prerequisite: CPR certified, BIOL 110, 111 or permission of the instructor

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DEPARTMENT OF RADIOLOGIC SCIENCES

The Department of Radiologic Sciences prepares students for careers in diagnostic medical imaging, radiation therapy and medical dosimetry. As the radiologic sciences field has become more advanced and complex, a need exists for proficient, multi-skilled professionals. A radiologic sciences professional operates sophisticated equipment to produce optimal diagnostic images or treatments, has the knowledge to identify normal and abnormal anatomy and physiology, and is responsible for the well-being of patients in his/her care.

To meet the challenges of the present and future of health care, the diagnostic medical imager, radiation therapist or medical dosimetrist must function competently and compassionately in an expanding, multi-faceted role. Recent trends and advances in the delivery of health care indicate that the radiologic sciences curriculum must provide the student with opportunities to develop skills in more than one modality. Of equal importance is the need for the graduate to understand the relationships of the various imaging and therapy specialties to patient care. Graduates have the opportunity to pursue careers in a variety of areas, including clinical practice, education, management, sales and research in the radiologic sciences.

Graduates of the Multicompetency and Advanced Placement programs are eligible to take the associated certification examinations of the American Registry of Radiologic Technologists (ARRT), American Registry of Diagnostic Medical Sonographers (ARDMS), Cardiovascular Credentialing International (CCI), Medical Dosimetrist Certification Board (MDCB) and Nuclear Medicine Technology Certification Board (NMTCB), as applicable. Students who pass these examinations receive national certification.

MISSION

The Department of Radiologic Sciences provides excellence and leadership in all aspects of radiologic sciences, by teaching, undertaking research and providing exemplary clinical practice skills in the broad field covered by this discipline.

The mission of the Department of Radiologic Sciences is to provide a comprehensive education preparing students for entry-level practice in radiologic and imaging sciences as competent, caring members of the health care team, cultivating professionalism and life-long learning. Through innovative technology and pedagogy, critical thinking and problem-solving skills are developed and interprofessional teamwork and communication are enhanced.

PROGRAM ACCREDITATION

The educational programs of the Department are approved by the University administration.

- The General Sonography, Cardiac Sonography and Vascular Sonography Programs are accredited by the Commission on Accreditation of Allied Health Educational Programs (CAAHEP) in collaboration with the Joint Review Committee on Education in Diagnostic Medical Sonography (JRCDMS).
  - CAAHEP can be contacted at 1361 Park Street, Clearwater, FL 33756, (727) 210-2350, (727) 210-2354 (fax), mail@caahep.org or www.caahep.org
o JRCERT can be contacted at 20 N. Wacker drive, Suite 2850, Chicago, IL 60606-3182, (312) 704-5300, (312) 704-5304 (fax), mail@jrcert.org or www.jrcert.org.

• The Nuclear Medicine Program is accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT).
  o JRCNMT can be contacted at 2000 W. Danforth Rd., Suite 130 #201, Edmond, OK 73003, (405) 285-0546, (405) 285-0579 (fax), jrcnmt@coxinet.net or www.jrcnmt.org.

BACCALAUREATE DEGREE PROGRAMS IN RADIOLOGIC SCIENCES
The Department of Radiologic Sciences offers three Bachelor of Science (BS) pathways:
  • 2-year Multicompetency (MC) programs
  • 1-year Advanced Placement (AP) programs
  • Part-time Advanced Placement (AP) programs

Multicompetency Programs (Two Years)
The two-year multicompetency (MC) programs allow students who do not have an education in the radiologic sciences or in a health discipline the option to acquire training in a combination of radiologic sciences areas. Two areas of study are selected from a list of 13 options. Each student must consult with a University admissions counselor and a Radiologic Sciences faculty member to ensure that he/she has met the prerequisite requirements for both of the selected options. Students earn a Bachelor of Science degree in Radiologic Sciences upon completion of the program. The program is full-time and begins in the fall. Multicompetency students may not be eligible to take professional certification examinations until the BS is awarded at the completion of the two-year program.

Imaging Options
Cardiac Sonography, Computed Tomography*, General Sonography, Invasive Cardiovascular Technology*, Magnetic Resonance Imaging, Nuclear Medicine, Radiography, Vascular Sonography

Radiation Oncology Options
Medical Dosimetry*, Radiation Therapy

Non-Imaging Options
Education*, Health Management*, Healthcare Information Systems*

* Second year only
Acceptance Policy for Multicompetency Students

The Department does not guarantee acceptance into the program of choice for students entering the second year of a Multicompetency program. Program acceptance may require all or some of the following:

- GPA
- Letters of recommendation
- Interview by program director
- Testing

Advanced Placement Programs (One Year)

The one-year advanced placement (AP) programs in Radiologic Sciences are designed for students who have 50 prerequisite credits and a baccalaureate degree, or 50 prerequisite credits and professional experience or certification for which they will receive an additional 39 professional credits. Students earn a Bachelor of Science degree in Radiologic Sciences upon completion of the program. The program is full-time and begins in the fall.

Students who have 50 prerequisite credits and a baccalaureate degree are eligible to apply to the following AP programs:

- Cardiac Sonography
- General Sonography
- Magnetic Resonance Imaging
- Medical Dosimetry
- Nuclear Medicine
- Radiation Therapy
- Radiography
- Vascular Sonography

Students who have 50 prerequisite credits and certification in or have graduated from an accredited program* in radiologic sciences or other related health fields may apply to the following AP programs:

- Cardiac Sonography
- Computed Tomography – requires RT(R), RT(T), RT(N) or CNMT, or ARRT(R)(T)(N)/NMTCB eligibility
- General Sonography
- Invasive Cardiovascular Technology – requires RT(R) or RDCS/RVT or ARRT(R)/ARDMS eligibility.
- Magnetic Resonance Imaging
- Medical Dosimetry – requires RT(T) or ARRT(T) eligibility
- Nuclear Medicine
- Radiation Therapy
- Radiography
- Vascular Sonography

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*The program must be accredited by one of the following agencies:

In the US:
- CAAHEP (Commission on Accreditation of Allied Health Education Programs)
- JRCDSMS (Joint Review Committee on Education in Diagnostic Medical Sonography)
- JRCCVT (Joint Review Committee on Education in Cardiovascular Technology)
- JRCERT (Joint Review Committee on Education in Radiologic Technology)
- JRCNMT (Joint Review Committee on Education in Nuclear Medicine Technology)
- One of the six regional accrediting organizations

Outside the US:
- Conjoint Secretariat of Canadian Medical Association
- Australian Institute of Radiography

3+1 BS/BS Advanced Placement Programs With Immaculata University
Jefferson and Immaculata University have partnered to offer a dual degree program in allied health and radiologic sciences. High school students accepted to Immaculata University spend three years there working towards a Bachelor of Science degree in Allied Health. Then students transition to Jefferson, entering a one-year Advanced Placement (AP) program, and earning a Bachelor of Science degree in Radiologic Sciences.

Part-Time Advanced Placement Programs
Eligible certified radiologic technologists, radiation therapists or medical dosimetrists, with or without a baccalaureate degree, but with 50 prerequisite credits, may enroll in Advanced Placement (AP) Computed Tomography, Radiation Therapy or Medical Dosimetry programs on a part-time basis. Students earn a Bachelor of Science degree in Radiologic Sciences upon completion of the program. Students must consult with either the Chair of the Department or the Program Director of the program in which they wish to enroll.

Prerequisites
- For Computed Tomography program: Certification as a radiologic technologist, RT(R), RT(T), RT(N) or CNMT and completion of 50 prerequisite credits.
- For Radiation Therapy program: Certification in radiation therapy, RT(T), and completion of 50 prerequisite credits.
- For Medical Dosimetry program: Certification in medical dosimetry, CMD, and completion of 50 prerequisite credits.

DESCRIPTION OF RADIOLOGIC SCIENCES MODALITIES
Cardiac Sonography
Cardiac sonography is a safe procedure using high-frequency sound waves to diagnose cardiovascular disease. It produces a real-time view of the heart chambers, valves, muscles and blood vessels. A cardiac sonographer, also referred to as an echocardiographer, is a highly skilled professional who is instrumental in the evaluation of congenital and acquired cardiac abnormalities and associated complications. Cardiac sonography can be used to determine causes of chest pain, establish a baseline for reference in tracking chronic heart conditions,
evaluate the effects of heart disease, diagnose narrowed or leaking heart valves, determine the need for intervention and evaluate the effectiveness of previous treatment.

Computed Tomography
Computed Tomography (CT) uses x-rays and a computer to acquire a set of data from multiple angles around the patient’s body and produce high-resolution cross-sectional images, known as tomographic slices. Innovations, including spiral/helical and multi-slice CT, mean that CT is a rapid technique with many applications. A CT technologist is responsible for operating sophisticated equipment, performing venipuncture, and monitoring patient’s radiation dose.

General Sonography
General sonography, commonly called ultrasound, is a diagnostic medical procedure that uses high frequency sound waves to produce dynamic visual images of organs, tissues, or blood flow inside the body. A diagnostic medical sonographer is a highly skilled professional who uses specialized equipment to create images that are interpreted by physicians for medical diagnosis. Sonographers have extensive, direct patient contact. They must be able to interact compassionately and effectively with people who range from healthy to critically ill. General sonography includes the abdomen, pelvis, obstetrics, breast, superficial structures and associated blood vessels. It is also used to guide fine needle, tissue biopsy to assist in taking a sample of cells from an organ for laboratory testing.

Invasive Cardiovascular Technology
Cardiac catheterization is a specialized study of the heart and coronary arteries. Under x-ray guidance, the cardiologist inserts a tiny catheter into a chamber or vessel of the heart to perform diagnostic or treatment procedures. The invasive cardiovascular technologist studies the theory of techniques used in diagnosis, treatment and follow-up of cardiovascular disease in patients. The technologist assists in all phases of cardiac catheterization procedures, as well as the care of patients during the procedures.

Magnetic Resonance Imaging
Magnetic resonance imaging (MRI) uses low energy electromagnetic waves in conjunction with a magnetic field to create high-resolution images of the human body. MRI offers superior inherent tissue contrast resolution, direct multiplanar imaging capability and multiparametric image intensity, without bone artifacts and without producing adverse biologic effects. It is a dynamic field still in its infancy with ample opportunities for growth and advancement.

Medical Dosimetry
Medical dosimetry is a subspecialty of radiation oncology that deals with treatment planning, dose measurement, dose calculations and quality assurance of radiotherapy designed to treat cancer. Medical dosimetrist plan and calculate ionizing radiation dose under the direction of a medical physicist and physician, and assist in clinically implementing the treatment plans. Primary duties include fabricating treatment plans, contouring normal anatomy on CT images, helping create immobilization devices, aligning beams, planning or fabricating beam-modifying
devices, calculating monitor units, participating in radiation protection, detecting equipment problems and assisting in the planning of brachytherapy. Some medical dosimetrists are also involved in clinical research for the development and implementation of new cancer treatment techniques.

**Nuclear Medicine**

Nuclear medicine studies involve the administration of small amounts of radioactive material, followed by imaging of the emitted gamma radiation with specialized scanning equipment. The images produced demonstrate the physiologic and functional status of the body under various pathologic conditions, and contribute to earlier identification of abnormalities. Recently the nuclear medicine field has expanded to include molecular imaging using positron emission tomography (PET), and fusion imaging using hybrid scanners, such as PET/CT. Besides clinical imaging, other nuclear medicine applications include radionuclide therapy, radioimmunotherapy, and *in vitro* (non-imaging) procedures.

**Radiation Therapy**

Radiation Therapy is the medical use of high energy beams of ionizing radiation as part of the cancer treatment to control malignant cells. Primary duties of radiation therapists include delivering radiation therapy treatments to patients under the direction of the physician, creating immobilization devices, participating in radiation protection, and fabricating beam modifying devices. Radiation therapy can be used alone or in combination with surgery and chemotherapy. Radiation therapists use cutting edge technology and advanced computer systems to ensure accuracy and effectiveness in the treatment delivery. They are highly skilled, detail-oriented, and compassionate members of the cancer management team.

**Radiography**

Radiography is an indispensable diagnostic tool of modern medicine. It is the art and science of using x-rays to produce images of the tissues, organs, bones and vessels of the body. The radiographer is responsible for accurately positioning the patient and applying only the amount of radiation necessary to produce high-quality images. The radiographer understands the characteristics of radiation, its biological effects and the methods of reducing patient and operator exposure while obtaining optimal diagnostic information for the radiologist.

**Vascular Sonography**

Vascular sonographers assist physicians in the diagnosis of a variety of disorders affecting the vascular system. Using a wide range of instrumentation, vascular technologists acquire and record information related to blood vessel anatomy and physiology. Although ultrasound instrumentation is most commonly used, other instruments may also be used to measure parameters such as blood pressure, limb volume changes, and oxygen saturation. Segments of the vascular anatomy typically examined include the cerebral, peripheral, and the abdominal circulations.
**PREREQUISITE COURSE REQUIREMENTS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Anatomy and Physiology w/lab(^1)</td>
<td>8</td>
</tr>
<tr>
<td>College Physics w/lab(^2)</td>
<td>8</td>
</tr>
<tr>
<td>College Chemistry w/lab(^3)</td>
<td>8</td>
</tr>
<tr>
<td>College Algebra, Pre-Calculus, Calculus, Trigonometry or Geometry</td>
<td>6</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>English Composition</td>
<td>3</td>
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<tr>
<td>English Elective</td>
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<tr>
<td>Electives(^3)</td>
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<tr>
<td>Medical Terminology(^4)</td>
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<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>50</strong></td>
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</table>

1. Must meet requirements for *science majors*.
2. Algebra or calculus-based.
3. Recommended electives: computer science, psychology, sociology, speech/communication, microbiology, organic chemistry or any other academic course. Not accepted electives: remedial courses, physical education courses, technical courses (like photography, dance, etc.). May include arts, humanities, social sciences, sciences and foreign languages.
4. Students certified in or graduated from an accredited program in the health professions do not need Medical Terminology. These students must have three additional elective credits in place of medical terminology.

**Course Clarification:** All science and math courses must be completed within 10 years of application to Jefferson. Courses must be completed with a grade of “C” or above to be eligible for transfer. A grade of “C-” or below will not be eligible for transfer.

Students may earn credits through standardized tests, including the College Level Examination Program (CLEP).

Note: In addition to meeting all academic requirements, students must meet all technical standards for the program.

**CURRICULUM FOR RADIOLOGIC SCIENCES MODALITIES**

Note the following adjustments in curriculum for certain programs:

1. Course adjustments are made in two-year Multicompetency programs with repeat courses.
2. ICVT students proceeding from Multicompetency Cardiac Sonography or Vascular Sonography will take RSI 313, RSI 341 and RSI 342. ICVT students proceeding from Multicompetency Radiography will take RSI 302, RSI 311 and RSI 312.
3. Independent study courses may vary from 1 to 4 semester credits.
4. All Non-Imaging courses (Education, Health Management and Healthcare Information Systems) are taught by the Department of Professional and Continuing Studies.
5. The Department of Radiologic Sciences reserves the right to make adjustments to the curriculum as necessary.

Descriptions for all courses listed are in the section entitled “Radiologic Sciences Course Descriptions.”

### Cardiac Sonography

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Course</th>
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<tbody>
<tr>
<td>RSCS 302</td>
<td>Noninvasive Testing Principles and Procedures</td>
<td>2</td>
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<tr>
<td>RSCS 311</td>
<td>Cardiovascular Physiology</td>
<td>2</td>
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<tr>
<td>RSCS 321</td>
<td>Patient Care &amp; Services in Medical Imaging &amp; Radiation Oncology</td>
<td>2</td>
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<tr>
<td>RSCS 331</td>
<td>Cardiac Procedures I</td>
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<td>RSCS 351</td>
<td>Cardiac Principles I</td>
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<td>RSCS 400</td>
<td>Ultrasound Physics I</td>
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<td>RSCS 411</td>
<td>Clinical Cardiac I</td>
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**Semester II**

| RSCS 312   | Cardiovascular Pathophysiology                              | 3       |
| RSCS 332   | Cardiac Procedures II                                       | 2       |
| RSCS 352   | Cardiac Principles II                                       | 3       |
| RSCS 403   | Ultrasound Physics II                                       | 2       |
| RSCS 412   | Clinical Cardiac II                                         | 6       |
| RSCS 491   | Special Topics in Cardiac Sonography                        | 2       |

**Semester III**

| RSCS 413   | Clinical Cardiac III                                        | 8       |
| RSCS 481   | Cardiac Review Seminar                                      | 2       |

**TOTAL**

| 47         |

### Computed Tomography

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<tr>
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<tbody>
<tr>
<td>RSC 400</td>
<td>CT Physics and Instrumentation</td>
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<td>RSC 401</td>
<td>Cross-Sectional Anatomy I</td>
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<tr>
<td>RSC 412</td>
<td>Clinical CT I</td>
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<tr>
<td>RSC 431</td>
<td>CT Procedures I</td>
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**Semester II**

<p>| RSC 402    | Cross-Sectional Anatomy II          | 2       |
| RSC 413    | Clinical CT II                      | 6       |</p>
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<td>RSC 498</td>
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<tr>
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<td>Clinical CT III</td>
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<td>RSC 473</td>
<td>CT Review Seminar</td>
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**General Sonography**

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<tbody>
<tr>
<td>RSS 321</td>
<td>Patient Care &amp; Services in Medical Imaging &amp; Radiation Oncology</td>
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<td>RSS 400</td>
<td>Ultrasound Physics I</td>
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<td>RSS 401</td>
<td>Sonography Cross-Sectional Anatomy</td>
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<td>RSS 402</td>
<td>Abdominal Sonography I</td>
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<td>RSS 404</td>
<td>Pelvic Sonography</td>
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<td>RSS 412</td>
<td>Clinical Sonography I</td>
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<td>RSS 415</td>
<td>Sonography Procedures I</td>
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**Semester II**

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<tr>
<td>RSS 403</td>
<td>Ultrasound Physics II</td>
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<tr>
<td>RSS 405</td>
<td>Obstetrical Sonography</td>
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<td>RSS 413</td>
<td>Clinical Sonography II</td>
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<td>RSS 416</td>
<td>High Resolution Sonography</td>
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<td>RSS 417</td>
<td>Sonography Procedures II</td>
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<td>RSS 422</td>
<td>Abdominal Sonography II</td>
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<td>RSS 498</td>
<td>Special Topics in General Sonography</td>
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**Semester III**

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<td>RSS 408</td>
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<td>Clinical Sonography III</td>
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**TOTAL**

**Invasive Cardiovascular Technology**

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<tr>
<th>Semester I</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>RSI 311*</td>
<td>Cardiovascular Physiology*</td>
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<tr>
<td>RSI 338</td>
<td>Invasive Procedures I</td>
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<tr>
<td>RSI 302*</td>
<td>Noninvasive Testing Principles &amp; Procedures*</td>
<td>*2</td>
</tr>
<tr>
<td>RSI 341**</td>
<td>Radiographic Physics &amp; Instrumentation I**</td>
<td>**2</td>
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<tr>
<td>RSI 357</td>
<td>Invasive Principles I</td>
<td>3</td>
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</tbody>
</table>
RSI 431  Clinical Invasive I 6
Semester II
RSI 312*  Cardiovascular Pathophysiology*  *3
RSI 313**  Radiobiology & Health Physics**  **2
RSI 339  Invasive Procedures II 3
RSI 342**  Radiographic Physics & Instrumentation II**  **2
RSI 358  Invasive Principles II 3
RSI 432  Clinical Invasive II 6
*16/**14
Semester III
RSI 433  Clinical Invasive III 8
RSI 483  Invasive Review Seminar 2
*15/**16
TOTAL 41/40
* Students coming from Radiography only.
** Students coming from Cardiac Sonography or Vascular Sonography only

Magnetic Resonance Imaging
Semester I  Course  Credits
RSM 321  Patient Care & Services in Medical Imaging & Radiation Oncology 2
RSM 400  MRI Physics and Instrumentation I 3
RSM 401  Cross-Sectional Anatomy I 2
RSM 411  MRI Safety 2
RSM 412  Clinical MRI I 6
RSM 431  MRI Procedures I 2
17
Semester II
RSM 402  Cross-Sectional Anatomy II 2
RSM 403  MRI Physics and Instrumentation II 1
RSM 413  Clinical MRI II 6
RSM 415  MRI Pathology 1
RSM 432  MRI Procedures II 2
RSM 451  Imaging Informatics 2
RSM 473  MRI Seminar 2
16
Semester III
RSM 414  Clinical MRI III 8
RSM 499  MRI Independent Study 1
9
TOTAL 42
## Medical Dosimetry

### Semester I

<table>
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<tbody>
<tr>
<td>RSD 321 Patient Care &amp; Services in Medical Imaging &amp; Radiation Oncology</td>
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<td>RSD 401 Cross-Sectional Anatomy I</td>
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<td>RSD 412 Clinical Medical Dosimetry I</td>
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<tr>
<td>RSD 430* Case Studies in Dosimetry*</td>
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<tr>
<td>RSD 435 Medical Dosimetry Physics I</td>
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<tr>
<td>RSD 439 Radiation Protection</td>
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<tr>
<td>RSD 440 Introduction to Radiobiology</td>
<td>2</td>
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<tr>
<td>RSD 480 Survey of Medical Imaging</td>
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### Semester II

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>RSD 402 Cross-Sectional Anatomy II</td>
<td>2</td>
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<tr>
<td>RSD 413 Clinical Medical Dosimetry II</td>
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<tr>
<td>RSD 415 Clinical Radiation Oncology</td>
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<tr>
<td>RSD 436 Medical Dosimetry Physics II</td>
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<tr>
<td>RSD 442 Quality Assurance and Instrumentation</td>
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<tr>
<td>RSD 443 Brachytherapy</td>
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<tr>
<td>RSD 444 Special Procedures</td>
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### Semester III

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>RSD 414 Clinical Medical Dosimetry III</td>
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### TOTAL

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<tr>
<th>Credits</th>
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<td>18/*19</td>
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*Students coming from Radiation Therapy only.

## Nuclear Medicine

### Semester I

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>RSN 321 Patient Care &amp; Services in Medical Imaging &amp; Radiation Oncology</td>
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<tr>
<td>RSN 400 Medical Nuclear Physics</td>
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<tr>
<td>RSN 410 Medical Radiobiology</td>
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<tr>
<td>RSN 430 Nuclear Medicine Instrumentation</td>
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<tr>
<td>RSN 455 Nuclear Medicine Procedures I</td>
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### Semester II

<table>
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<tbody>
<tr>
<td>RSN 420 Radiation Protection</td>
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<tr>
<td>RSN 451 Imaging Informatics</td>
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<tr>
<td>RSN 456 Nuclear Medicine Procedures II</td>
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</tr>
<tr>
<td>RSN 460 Radiochemistry and Radiopharmaceuticals</td>
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<tr>
<td>RSN 471 Clinical Nuclear Medicine II</td>
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### Semester III

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<th>Credits</th>
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<tbody>
<tr>
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</tbody>
</table>
### RSN 457 Nuclear Medicine Procedures III  2
### RSN 458 Nuclear Medicine Advanced Procedures  2
### RSN 472 Clinical Nuclear Medicine III  8
### RSN 499 Nuclear Medicine Review Seminar  2

**TOTAL**  14

### RADIATION THERAPY

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>RST 321</td>
<td>Patient Care &amp; Services in Medical Imaging &amp; Radiation Oncology</td>
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<tr>
<td>RST 401</td>
<td>Cross-Sectional Anatomy I</td>
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<tr>
<td>RST 409</td>
<td>Radiation Therapy Principles and Procedures I</td>
<td>3</td>
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<td>RST 412</td>
<td>Clinical Radiation Therapy I</td>
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<td>RST 435</td>
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<td>RST 439</td>
<td>Radiation Protection</td>
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<tr>
<td>RST 440</td>
<td>Introduction to Radiobiology</td>
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**Semester II**  18

| RST 402    | Cross-Sectional Anatomy II                       | 2       |
| RST 413    | Clinical Radiation Therapy II                    | 6       |
| RST 415    | Clinical Radiation Oncology                      | 2       |
| RST 416    | Principles of Radiation Dosimetry                | 2       |
| RST 419    | Radiation Therapy Principles and Procedures II   | 3       |
| RST 436    | Radiation Therapy Physics II                     | 2       |

**Semester III**  17

| RST 414    | Clinical Radiation Therapy III                   | 10      |
| RST 429    | Radiation Therapy Principles and Procedures III  | 2       |
| RST 473    | Radiation Therapy Review Seminar                 | 2       |

**TOTAL**  49

### Radiography

<table>
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<tr>
<th>Semester I</th>
<th>Course</th>
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<tbody>
<tr>
<td>RSR 321</td>
<td>Patient Care &amp; Services in Medical Imaging &amp; Radiation Oncology</td>
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<td>RSR 331</td>
<td>Radiographic Procedures I</td>
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<td>RSR 341</td>
<td>Radiography Physics and Instrumentation I</td>
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<td>RSR 353</td>
<td>Radiographic Imaging Principles I</td>
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<tr>
<td>RSR 361</td>
<td>Image Analysis I</td>
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<tr>
<td>RSR 371</td>
<td>Clinical Radiography I</td>
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Semester II
RSR 313  Radiobiology and Health Physics  2
RSR 332  Radiographic Procedures II  2
RSR 342  Radiography Physics and Instrumentation II  2
RSR 354  Radiographic Imaging Principles II  2
RSR 362  Image Analysis II  2
RSR 372  Clinical Radiography II  6

Semester III
RSR 333  Advanced Radiographic Procedures  1
RSR 373  Clinical Radiography III  8
RSR 412  Radiographic Pathology  2
RSR 471  Radiography Review Seminar  2

TOTAL  16

Vascular Sonography
Semester I  Course  Credits
RSV 311  Cardiovascular Physiology  2
RSV 321  Patient Care & Services in Medical Imaging & Radiation Oncology  2
RSV 335  Vascular Procedures I  2
RSV 353  Vascular Principles I  3
RSV 400  Ultrasound Physics I  2
RSV 401  Vascular Anatomy  2
RSV 421  Clinical Vascular I  6

Semester II  Course  Credits
RSV 312  Cardiovascular Pathophysiology  3
RSV 336  Vascular Procedures II  2
RSV 354  Vascular Principles II  3
RSV 403  Ultrasound Physics II  2
RSV 422  Clinical Vascular II  6
RSV 493  Special Topics in Vascular Sonography  2

Semester III  Course  Credits
RSV 423  Clinical Vascular III  8
RSV 482  Vascular Review Seminar  2

TOTAL  10

TOTAL  47
## NON-IMAGING CURRICULUM

### Education

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<td>CMST 201</td>
<td>Technology Applications for Healthcare</td>
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<td>COMM 101*</td>
<td>Interpersonal Communication*</td>
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<td>COMM 201*</td>
<td>Intercultural Communication*</td>
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<td>ED 301</td>
<td>Methods of Teaching</td>
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<td>PSYC 301</td>
<td>Educational Psychology</td>
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<tr>
<td>ED 307</td>
<td>Concepts and Techniques in Assessment</td>
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<td>Technology and Instruction</td>
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<td>ED 409</td>
<td>Curriculum Design and Evaluation</td>
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<tr>
<td>ID 302</td>
<td>Understanding Research Principles and the Scientific Method</td>
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* Student’s choice of two alternative courses.

### Healthcare Information Systems

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<td>HCA 300</td>
<td>Health Services Delivery and Organization</td>
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<td>HMIS 310</td>
<td>Management Information Systems in Healthcare</td>
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<tr>
<td>HMIS 311</td>
<td>Informatics Resources and Technology for Health Services</td>
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<td>HMIS 402</td>
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<td>Informatics Analysis and Utilization in Health Service Organizations</td>
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<td>ID 302</td>
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### Health Management

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<td>ACCT 102 Managerial Accounting</td>
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<tr>
<td>HCA 300 Health Service Delivery and Organization</td>
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#### Semester III
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<tr>
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#### TOTAL
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<tr>
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</table>

All Non-Imaging courses are taught by the Department of Professional and Continuing Studies. Descriptions for courses listed above are in the section entitled “Radiologic Sciences Course Descriptions.”

### MASTER OF SCIENCE IN RADIOLOGIC AND IMAGING SCIENCES

The Department of Radiologic Sciences offers five Master of Science (MS) tracks:
- Education
- Management
- Computed Tomography (CT)
- PET/CT
- Invasive Cardiovascular Technology (ICVT)

Admissions Standards:
- BS degree, BA degree, or the equivalent from an accredited university.
- At least one year of professional experience in Radiologic and Imaging Sciences, or the equivalent.
- Copy of current resume.
- 3 credits statistics
- For CT track: RT(R), RT(T), RT(N) or CNMT or ARRT(R)/(T)/(N)/NMTCB eligibility.
- For PET/CT track: RT(N) or CNMT certification or ARRT(N)/NMTCB eligibility.
- For ICVT track: RT(R) and/or RDCS/RVT or ARRT(R)/ARDMS eligibility.
Students earn a Master of Science Degree in Radiologic and Imaging Sciences upon completion of the program. The program is offered full-time (one-year, executive-style) or part-time (two-year) and begins in the fall.

Students completing the CT track may be eligible for the ARRT(CT) certification exam.

Students completing the PET/CT track may be eligible for the ARRT(CT) and/or NMTCB(PET) certification examinations.

Students completing the ICVT track may be eligible for the ARRT(CI) and/or CCI certification examinations.

1+1 BS/MS

Students who have 50 prerequisite credits and a bachelor’s degree, or 50 prerequisite credits and certification in an allied health profession and/or have graduated from an accredited program in radiologic sciences or allied health may enter the one-year Advanced Placement program, resulting in a Bachelor of Science degree in Radiologic Sciences.

After earning the BS, students transition into the MS program, on a full-time (one-year, executive-style) or part-time (two-year) basis, earning a Master of Science in Radiologic and Imaging Sciences.

2+1 BS/MS

Students who have 50 prerequisite credits but do not have a bachelor’s degree or an education in the radiologic sciences or a health discipline may enter the two-year Multicompetency program, training in a combination of modalities, and resulting in a Bachelor of Science degree in Radiologic Sciences.

After earning the BS, students transition into the MS program, on a full-time (one-year, executive-style) or part-time (two-year) basis, earning a Master of Science in Radiologic and Imaging Sciences.

MASTERS OF SCIENCE IN RADIOLOGIC AND IMAGING SCIENCES CURRICULUM

**Education**

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<tr>
<th>Semester I</th>
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<tr>
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<td>RS 520</td>
<td>Research II</td>
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**TOTAL**

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Management

**Semester I**

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**Semester III**

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**TOTAL**

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CT

**Semester I**

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12
### Semester II

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### Semester III

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### TOTAL

**31**

### PET/CT

**Semester I**

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**Semester III**

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<td>RSI 533</td>
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<td>RSI 583</td>
<td>Invasive Review Seminar</td>
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18

TOTAL

*59/**58

* Courses for radiographers only
** Courses for cardiac/vascular sonographers only

Descriptions for courses listed above are in the section entitled “Radiologic Sciences Course Descriptions.”
CT CERTIFICATE PROGRAM
This part-time, one-year, online program is designed for certified radiographers, radiation therapists or nuclear medicine technologists to expand their education in computed tomography (CT). After completion of this program, students may be eligible to take the ARRT(CT) certification examination.

Prerequisites
Current RT(R), RT(T) or RT(N) or CNMT certification or eligibility.

Curriculum

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Semester II

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Semester III

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<td>RSII 414 CT Clinical III</td>
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TOTAL 13

Descriptions for courses listed above are in the section entitled “Radiologic Sciences Course Descriptions.”

PET/CT CERTIFICATE PROGRAM
This part-time, one-year, online program is designed for certified nuclear medicine technologists to expand their education in positron emission tomography (PET) and computed tomography (CT). After completion of this program, students may be eligible to take the ARRT(CT) certification examination and/or the NMTCB(PET) certification examination.

Prerequisites
Current RT(N) and/or CNMT certification or eligibility.

Curriculum

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<thead>
<tr>
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<th>Course</th>
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<td>RSII 431</td>
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RSPC 451  PET Principles       1

Semester II
RSPC 401  Cross-Sectional Anatomy       1
RSPC 413  PET/CT Clinical II        1
RSPC 415  PET Procedures              1
RSPC 432  CT Procedures II          3

Semester III
RSPC 414  PET/CT Clinical III         1

TOTAL                     15

Descriptions for courses listed above are in the section entitled “Radiologic Sciences Course Descriptions.”

POLICIES ON UNDERGRADUATE STUDENT PROGRESSION IN THE RADIOLOGIC SCIENCES MAJOR
1. A student who earns one course grade of C- or below in the Radiologic Sciences curriculum in any academic year will be placed on departmental academic probation and will be required to meet with his/her assigned faculty advisor to monitor academic progress.
2. A student who earns two or more course grades of C- or below in the Radiologic Sciences curriculum in any academic year will be dismissed from the program in which he/she is currently enrolled. He/She will be subject to dismissal from the Department of Radiologic Sciences.
3. A student who earns a course grade of F in any Radiologic Sciences curriculum will be dismissed from the program modality in which he/she is currently enrolled. He/She will be subject to dismissal from the Department of Radiologic Sciences.
4. A multicompetency student who has been placed on departmental academic probation during his/her junior academic year, but has successfully completed his/her junior academic year, will be taken off departmental academic probation at the beginning of his/her senior academic year.
5. A student who does not maintain a minimum 2.00 cumulative grade point average will be placed on School academic probation for one semester. If the student is enrolled in courses totaling fewer than 12 credits during the subsequent semester, the probationary period will be extended to two semesters. At the end of the probationary period:
   a. The student achieves the minimum cumulative grade point average and is reinstated in good standing, or
   b. The student fails to achieve the minimum cumulative grade point average at the end of the probationary period and is dismissed from the School for academic underachievement, or
   c. In extraordinary cases, where the student has made significant progress toward achieving the minimum grade point average, the Department Chairperson may
recommend granting one additional probationary semester. If, at the conclusion of the extended probationary semester, the cumulative grade point average is still below the minimum 2.00, the student is dismissed for academic underachievement.

6. A student who is dismissed from the Department of Radiologic Sciences or the School due to unsatisfactory academic performance may, within two years of the dismissal, reapply for re-admission by submitting a written request directly to the Department Chairperson. All others wishing to continue their studies must reapply through the Office of Admissions.

7. A senior year multicompetency student who is dismissed from the Department of Radiologic Sciences due to unsatisfactory academic performance in his/her senior year may be given the option of applying for enrollment in a baccalaureate degree program in the Department of Professional and Continuing Studies.

8. Incomplete grades for a Radiologic Sciences course can be assigned only in the case of extenuating circumstances. These circumstances must be reviewed by the faculty prior to the issuance of an “Incomplete” grade. In all cases, an “Incomplete” grade is assigned only when the work already done has been of a quality acceptable to the instructor.

Every student is required to meet with his or her faculty advisor twice during each semester.

POLICIES ON GRADUATE STUDENT PROGRESSION IN THE RADIOLOGIC SCIENCES MAJOR

1. Students in all tracks of the MS in Radiologic and Imaging Sciences program must achieve a minimum GPA of 3.0 in order to graduate and be awarded the MS degree.

2. Students who do not maintain a minimum GPA of 3.0 will be subject to dismissal from the MS in Radiologic and Imaging Sciences program and from the Department of Radiologic Sciences.

3. Part-time students must complete the MS in Radiologic and Imaging Sciences curriculum (any track) within two (2) consecutive years. Track-specific courses are taught during the first year and core courses are taught during the second year.

4. Each student is required to meet with his/her faculty advisor monthly, at a pre-scheduled time and location.

5. Classes may be subject to cancellation without notice as a result of extreme weather conditions. There will be no make-up classes, but faculty will endeavor to post lectures and assignments online.

6. Students who absent from class for any reason should contact Dr. Gilman, and make arrangements with the instructors to make-up missed work.

7. Late arrival at classes is not tolerated.

8. Students are advised to access the RIMS Student Center on Blackboard Community for additional information concerning the MS in Radiologic and Imaging Sciences program.
TECHNICAL STANDARDS
Computed Tomography
A Computed Tomography (CT) Technologist is typically employed in a hospital or a clinic to provide direct care for patients and must be able to apply verified knowledge and skillfully perform CT procedures. Clinical and laboratory assignment for the CT program require certain physical demands that are the technical standards of admission. These standards are based upon the minimum tasks performed by graduates of the program as recommended by the American Society of Radiologic Technologists. Listed below are the technical standards that all applicants must meet in order to participate in and complete the CT program.

1. Sufficient visual acuity to administer contrast agents accurately and to monitor imaging equipment as well as provide the necessary patient assessment and care.
2. Sufficient auditory perception to receive verbal communication from patients and members of the healthcare team and to assess the health needs of people through the use of monitoring devices such as intercom systems, blood pressure gauges and fire alarms.
3. Sufficient gross and fine motor coordination to respond promptly and to implement skills related to the performance of CT, such as positioning, transporting and imaging patients. CT technologists must be able to manipulate equipment such as the scan console and power injectors. In addition, CT technologists must perform venipuncture on a regular basis.
4. Sufficient communication skills (verbal, reading, writing) to interact with individuals and to communicate their needs promptly and effectively, as may be necessary in the patient’s/client’s interest.
5. Sufficient intellectual and emotional function to plan and implement patient care.

Examples of specific technical standards that the CT student must be able to meet are:

- Lift, transfer and/or move patients from wheelchair/stretcher to scan table, including trauma patients.
- Physical agility: sitting (4-7 hours).
- Physical and mental abilities to handle moderate and frequent exposure to infectious agents (blood, urine, etc.).
- Manual dexterity and ability to bend/stretch.
- Distinguish colors and shades of gray.
- Demonstrate effective interpersonal skills, including patient instruction.
- Read and extract information from the medical chart or patient requisitions.
- Explain the clinical study verbally and/or in writing.

Invasive Cardiovascular Technology
An Invasive Cardiovascular Technologist is typically employed in a hospital to assist physicians with cardiac catheterization procedures and provide direct patient care.

Clinical and laboratory assignments for the Invasive Cardiovascular program require certain physical demands that are the technical standards of admission. These standards are based upon the minimum tasks performed by graduates of the program. Listed below are the
technical standards which all applicants are must meet in order to participate in and complete the ICVT program.
1. Sufficient visual acuity to read catheterization procedure prescriptions and charts, observe conditions of the patient and evaluate hemodynamic monitoring equipment.
2. Sufficient auditory perception to receive verbal communication from patients and members of the healthcare team and to assess the health needs of people through the use of monitoring devices such as intercom systems, cardiac monitors, respiratory monitors and fire alarms.
3. Sufficient gross and fine motor coordination to respond promptly and to implement skills related to the performance of imaging exams, such as movement of patients and equipment.
4. Sufficient communication skills (verbal, reading, writing) to interact with individuals and to communicate their needs promptly and effectively, as may be necessary in the patient’s/client’s interest.
5. Sufficient intellectual and emotional function to plan and implement patient care.

Examples of specific technical standards the Invasive Cardiovascular Technology student must be able to meet are:
- Lift, transfer and/or move patients from wheelchair/stretcher to procedure table.
- Lift, move, reach or push equipment.
- Manual dexterity and ability to bend/stretch.
- Physical agility: sitting (4-7 hours), standing (4-7 hours).
- Carry 12-30 pounds (lead aprons) while working.
- Distinguish colors and shades of gray.
- Demonstrate effective interpersonal relation skills, including patient instruction.
- Physical and mental abilities to handle moderate and frequent exposure to infectious agents (blood, urine, etc.) and moderate exposure to frequent ionizing radiation.
- Read and extract information from the medical chart or patient requisitions.
- Explain the clinical study verbally and/or in writing.

Magnetic Resonance Imaging
A Magnetic Resonance Imaging (MRI) Technologist is typically employed in a hospital or a clinic to provide direct care for patients and must be able to apply verified knowledge and skillfully perform MRI procedures. Clinical and laboratory assignments for the MRI program require certain physical demands that are the technical standards of admission. These standards are based upon the minimum tasks performed by graduates of the program as recommended by the American Society of Radiologic Technologists. Listed below are the technical standards that all applicants must meet in order to participate in and complete the MRI program:
1. Sufficient visual acuity to accurately administer contrast agents and to monitor imaging equipment as well as provide the necessary patient assessment and care.
2. Sufficient auditory perception to receive verbal communication from patients and members of the healthcare team and to assess the health needs of people through the use of monitoring devices such as intercom systems, cardiac monitors, respiratory monitors and fire alarms.
3. Sufficient gross and fine motor coordination to respond promptly and to implement skills related to the performance of MRI, such as positioning, transporting and imaging patients. MRI
technologists must be able to manipulate equipment such as the scan console, power injectors and various RF receiver coils. In addition, MRI technologists must perform venipuncture on a regular basis.

4. Sufficient communication skills (verbal, reading, writing) to interact with individuals and to communicate their needs promptly and effectively, as may be necessary in the patient’s/client’s interest.

5. Sufficient intellectual and emotional function to plan and implement patient care.

Examples of specific technical standards the MRI student must be able to meet are:

- Lift, transfer and/or move patients from wheelchair/stretcher to scan table. Dock/release and wheel scan table to/from scan room to patient waiting area.
- Lift, move, reach or push MRI equipment (lift MRI coils of up to 25 lbs., push/wheel docking table with patient to/from scan room).
- Manual dexterity and ability to bend/stretch.
- Distinguish colors and shades of gray.
- Demonstrate effective interpersonal relation skills, including patient instruction.
- Read and extract information from the medical chart or patient requisitions.
- Explain the clinical study verbally and/or in writing.

To perform/assist with MRI procedures on patients, students must initially undergo the same screening procedures as patients in order to enter the scan room. The MRI scan room contains a region of intense magnetic field. Objects that display any form of ferromagnetism are therefore of particular concern for MRI. Contraindications for entering the MRI scan room include:

- Certain biomedical implants, materials, and devices (e.g., aneurysm clips, brain clips).
- Certain electrically, magnetically and mechanically activated implants and devices (e.g., cardiac pacemakers, cochlear implants).
- Certain metallic foreign objects (e.g., shrapnel, bullets, metal in eyes).

Medical Dosimetry
A Medical Dosimetrist is typically employed in a hospital or outpatient oncology center. Clinical and laboratory assignments for the Dosimetry program require certain physical demands that are the technical standards of admission. These standards are based upon Standards of Practice for the Medical Dosimetrist. Listed below are the technical standards, which all applicants must meet in order to participate in and complete the dosimetry program.

1. Sufficient visual acuity to read x-ray prescriptions and charts, observe conditions of the patient and evaluate treatment portals.

2. Sufficient auditory perception to receive verbal communication from patients and members of the healthcare team and to assess the health needs of people through the use of monitoring devices such as intercom systems, cardiac monitors, respiratory monitors, fire alarms, etc.

3. Sufficient gross and fine motor coordination to respond promptly and to implement skills related to the performance of treatment plan fabrication. Dosimetritists must be able to manipulate equipment such as the linear accelerator, treatment table and simulator control.
1. Sufficient visual acuity to accurately prepare and administer radiopharmaceuticals and other medications and to monitor imaging equipment as well as provide the necessary patient assessment and care.

2. Sufficient auditory perception to receive verbal communication from patients and members of the healthcare team and to assess the health needs of people through the use of monitoring devices such as intercom systems, blood pressure gauges and fire alarms.

3. Sufficient gross and fine motor coordination to respond promptly and to implement skills related to the performance of NM, such as positioning, transporting and imaging patients. NM technologists must be able to lift and transport lead blocks or radionuclide generators weighing up to 50 pounds. In addition, NM technologists must perform venipuncture on a regular basis.

4. Sufficient communication skills (verbal, reading, writing) to interact with individuals and to communicate their needs promptly and effectively, as may be necessary in the patient’s/client’s interest.

Nuclear Medicine
A Nuclear Medicine Technologist is typically employed in a hospital or a clinic to provide direct care for patients and must be able to apply verified knowledge and skillfully perform NM procedures. Clinical and laboratory assignments for the Nuclear Medicine program require certain physical demands that are the technical standards of admission. These standards are based upon the minimum tasks performed by graduates of the program as recommended by the American Society of Radiologic Technologists. Listed below are the technical standards, which all applicants must meet in order to participate in and complete the NM program.

1. Sufficient visual acuity to accurately prepare and administer radiopharmaceuticals and other medications and to monitor imaging equipment as well as provide the necessary patient assessment and care.

2. Sufficient auditory perception to receive verbal communication from patients and members of the healthcare team and to assess the health needs of people through the use of monitoring devices such as intercom systems, blood pressure gauges and fire alarms.

3. Sufficient gross and fine motor coordination to respond promptly and to implement skills related to the performance of NM, such as positioning, transporting and imaging patients. NM technologists must be able to lift and transport lead blocks or radionuclide generators weighing up to 50 pounds. In addition, NM technologists must perform venipuncture on a regular basis.

4. Sufficient communication skills (verbal, reading, writing) to interact with individuals and to communicate their needs promptly and effectively, as may be necessary in the patient’s/client’s interest.
5. Sufficient intellectual and emotional function to plan and implement patient care.

Examples of specific technical standards the NM student must be able to meet are:
- Lift, transfer and/or move patients from wheelchair/stretcher to the NM table.
- Lift, move, reach or push NM equipment.
- Manual dexterity and ability to bend/stretch.
- Distinguish colors and shades of gray.
- Demonstrate effective interpersonal skills, including patient instruction.
- Read and extract information from the medical chart or patient requisitions.
- Explain the clinical study verbally and/or in writing.
- Physical and mental abilities to handle moderate and frequent exposure to infectious agents (blood, urine) and moderate exposure to ionizing radiation.

Radiation Therapy
A Radiation Therapist is typically employed in a hospital or clinic. Clinical and laboratory assignments for the Radiation Therapy program require certain physical demands that are the technical standards of admission. These standards are based upon the minimum tasks performed by graduates of the program as recommended by the American Society of Radiologic Technologists. Listed below are the technical standards that all applicants must meet in order to participate in and complete the radiation therapy program.

1. Sufficient visual acuity to read the prescriptions and charts of radiation therapy patients, observe conditions of the patient and evaluate therapeutic portal images.

2. Sufficient auditory perception to receive verbal communication from patients and members of the healthcare team and to assess the health needs of people through the use of monitoring devices such as intercom systems, cardiac monitors, respiratory monitors, fire alarms, etc.

3. Sufficient gross and fine motor coordination to respond promptly and to implement skills related to the performance of imaging examinations and treatments, such as positioning and transporting.

4. Radiation therapists must be able to manipulate equipment such as the linear accelerator, simulator, table and control panel.

5. Sufficient communication skills (verbal, reading, writing) to interact with individuals and to communicate their needs promptly and effectively, as may be necessary in the patient’s/client’s interest.

6. Sufficient intellectual and emotional function to plan and implement patient care.

Examples of specific technical standards the radiation therapy student must be able to meet are:
- Lift, transfer and/or move patients from wheelchair/stretcher to treatment table. Lift, move, reach or push equipment.
- Stand and reach to make measurements of patients.
- Manual dexterity and ability to bend/stretch.
- Be able to stand or walk for 75% of clinical time.
- Distinguish color and shades of gray.
• Demonstrate effective interpersonal skills, including patient instruction.
• Read and extract information from the medical chart or patient prescriptions.
• Explain the clinical study and treatment verbally and/or in writing.
• Physical and mental abilities to handle moderate and frequent exposure to infectious agents (blood, urine, etc.) and moderate and limited exposure to ionizing radiation.
• Ability to lift 30 pounds of weight (treatment aids).

Radiography
A Radiographer is typically employed in a hospital, clinic or mobile radiography to provide x-ray procedures and direct patient care. Clinical and laboratory assignments for the Radiography program require certain physical demands that are the technical standards of admission. These standards are based upon the minimum tasks performed by graduates of the program as recommended by the American Society of Radiologic Technologists. Listed below are the technical standards, which all applicants must meet in order to participate in and complete the radiography program.

1. Sufficient visual acuity to read x-ray prescriptions and charts, observe conditions of the patient and evaluate x-ray images.
2. Sufficient auditory perception to receive verbal communication from patients and members of the healthcare team and to assess the health needs of people through the use of monitoring devices such as intercom systems, cardiac monitors, respiratory monitors and fire alarms.
3. Sufficient gross and fine motor coordination to respond promptly and to implement skills related to the performance of imaging examinations, such as positioning and transporting patients. X-ray technologists must be able to manipulate equipment such as the x-ray tube, table and control panel.
4. Sufficient communication skills (verbal, reading, writing) to interact with individuals and to communicate their needs promptly and effectively, as may be necessary in the patient’s/client’s interest.
5. Sufficient intellectual and emotional function to plan and implement patient care.

Examples of specific technical standards the radiography student must be able to meet are:
• Lift, transfer and/or move patients from wheelchair/stretcher to x-ray table. Lift, move, reach or push equipment.
• Manual dexterity and ability to bend/stretch.
• Be able to stand or walk for 75% of clinical time.
• Distinguish colors and shades of gray.
• Demonstrate effective interpersonal skills, including patient instruction.
• Read and extract information from the medical chart or patient prescriptions.
• Explain the clinical study verbally and/or in writing.
• Physical and mental abilities to handle moderate and frequent exposure to infectious agents (blood, urine) and moderate and limited exposure to ionizing radiation.
• Carry 12-30 pounds (lead aprons) while working.
General Sonography, Cardiac Sonography, Vascular Sonography

A Diagnostic Medical Sonographer is typically employed in a hospital clinic or mobile service to provide diagnostic procedures and direct patient care. Clinical and laboratory assignments for these individuals in the general sonography, cardiac sonography and vascular sonography programs require certain physical demands that are the technical standards of admission. These standards are based upon the minimum tasks performed by graduates of the program as recommended by the Society of Diagnostic Medical Sonography and the American Society of Radiologic Technologists. Listed below are the technical standards that all applicants must meet in order to participate in and complete the general sonography, cardiac sonography and vascular sonography programs.

1. Sufficient visual acuity to read sonography prescriptions and patient charts, observe conditions of the patient and evaluate sonographic images.

2. Sufficient auditory perception to receive verbal communication from patients and members of the healthcare team to obtain and record an accurate patient history and to assess the health needs of people through the use of monitoring devices such as intercom systems, cardiac monitors, respiratory monitors and fire alarms.

3. Sufficient gross and fine motor coordination to respond promptly and to implement skills related to the performance of sonographic imaging examinations and/or cardiovascular procedures, such as positioning and transporting patients and obtaining diagnostic images. Sonographers must be able to manipulate sonographic equipment in order to achieve diagnostic images.

4. Sufficient communication skills (verbal, reading, writing) to interact with individuals and to communicate their needs promptly and effectively, as may be necessary in the patient’s/client’s interest, collaborate with physicians and other members of the healthcare team, and provide an oral or written summary of the technical findings to the physician for medical diagnosis.

5. Sufficient intellectual and emotional function to plan and implement quality patient care, analyze technical information, and use independent judgment in recognizing the need to extend the scope of the procedure according to the diagnostic findings.

Examples of specific technical standards that the diagnostic medical sonography student must be able to meet are:

- Lift, transfer and/or assist patients from wheelchair/stretch to examination table. Lift, move, reach, push or pull equipment.
- Manual dexterity and ability to bend/stretch.
- Have full use of both hands, wrists and shoulders.
- Work standing on their feet 80% of the time.
- Adequately view sonograms, including color distinctions and shades of gray.
- Distinguish audible sounds.
- Organize and accurately perform the individual steps in a sonographic procedure in the proper sequence.
- Demonstrate effective interpersonal relation skills, including patient instruction.
- Interact compassionately and effectively with the sick or injured.
- Read and extract information from the medical chart or patient requisitions.
• Explain the clinical study verbally and/or in writing.

CLINICAL PRACTICES AND POLICIES
Attendance at clinical practice is mandatory.
A student who does not demonstrate safe clinical practice will be in violation of clinical practices and policies. A student who do not demonstrate professional behavior and professional practice are subject to review by the faculty. Safe clinical or professional practice is defined as:

a. Adheres to the Patients’ Bill of Rights (see Department of Radiologic Sciences Handbooks, Appendix B).

b. Performs clinical duties consistent with the professional Code of Ethics (see Department of Radiologic Sciences Handbooks, Appendix C).

c. Receives passing grades on clinical evaluations as evaluated by qualified personnel (see clinical course syllabi).

d. Adheres to the code of behavior/conduct outlined in the JSHP Handbook and Department of Radiologic Sciences Handbook.

e. Adheres to all clinical practices and policies of the clinical site and JSHP, and Department of Radiologic Sciences.

f. Adheres to the Department of Radiologic Sciences’ radiation protection and monitoring practices where appropriate* (see Department of Radiologic Sciences Handbooks, Appendices D and E).

* only applicable to modalities that use ionizing radiation.

Violations of Clinical Practices and Policies will typically be addressed through progressive discipline, as follows:
- First violation – written warning and counseling by the Program Director and Clinical Supervisor.
- Second violation – Possible suspension or dismissal.
- Third violation – dismissal from the Department.

One or more progressive disciplinary steps may be skipped in instances of particularly serious violations of policies and/or practices, and some egregious violations may result in immediate dismissal from the Department.

CLINICAL AFFILIATE SITES
JSHP Radiologic Sciences students gain first-hand experience with the latest imaging technologies and participate in clinical rotations at various affiliate hospitals, clinics and private offices located primarily within, but not limited to, eastern PA, northern DE and southern NJ. The Department has established agreements with a variety of clinical education centers to maximize student exposure to multiple settings and to provide experience in applying Radiologic Sciences techniques. Students are responsible for providing their own transportation to and from clinical facilities. Specific details covering clinical placement are available in the programmatic Academic Policies and Clinical Education Handbooks, distributed by the Department of Radiologic Sciences.
Due to the limited number of clinical sites, should a student be asked to leave the assigned clinical site for any reason, the Department cannot guarantee the student a new clinical placement. This would result in a failure for clinical and dismissal from the program/department.

HONORS AND AWARDS
Radiologic Sciences students are eligible to receive the “Mallinckrodt Award for Excellence,” which recognizes exceptional academic and clinical achievement, and the JRCERT Award for clinical excellence.

STUDENT ACTIVITIES
Students are encouraged to participate in orientation programs, recruitment functions, social and cultural events and Class Night. They have the opportunity to represent the students’ viewpoints on Department, School and University committees. Many volunteer and mentoring programs are sponsored by either the University or Thomas Jefferson University Hospital. Professional organizations, Jefferson alumni and the School sponsor many programs, which focus on career and professional development.

HONOR SOCIETIES
Lambda Nu is the National Honor Society for Radiologic and Imaging Sciences. Requirement for membership: JSHP Cumulative GPA of 3.5 or higher.

The Alpha Eta Society is a nationally recognized honor society for health professionals. Eligibility criteria are located elsewhere in this Catalog.

PROFESSIONAL SOCIETIES
Students are strongly encouraged to participate in professional activities and to seek memberships in national, state and local societies. Student memberships are offered by the following organizations:

- American Association of Medical Dosimetry
- American Institute of Ultrasound in Medicine
- American Society of Allied Health Professions
- American Society of Echocardiography
- American Society of Radiologic Technologists
- Delaware Valley Echo Society
- Delaware Valley Society of Nuclear Medicine Technology
- Greater Delaware Valley Ultrasound Society
- Philadelphia Society of Radiologic Technologists
- Society for Vascular Ultrasound
- Society of Diagnostic Medical Sonography
- Society of Invasive Cardiovascular Professionals
- Society of Nuclear Medicine and Molecular Imaging
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   Program Director, Radiography and Invasive Cardio-vascular Technology

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Amy Harrison, MS, CMD  
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Associate Professor, Jefferson University Physicians

Vijay M. Rao, MD  
Medical Director, Radiography Program  
Chair, Department of Radiology, TJUH  
Professor, Department of Radiology, TJUH

RADIOLOGIC SCIENCES COURSE DESCRIPTIONS

Courses are described in numerical order within programs. The number within parentheses following the course title indicates the number of semester credits assigned to each course. Courses listed in the curriculum with prefixes other than Radiologic Sciences are located in the Professional and Continuing Studies section of this Catalog.

Cardiac Sonography Courses

RADIOLOGIC SCIENCES CS302
Noninvasive Testing Principles and Procedures (2)
Provides a foundation in the basic principles of electrocardiography. Presents an overview of the theory and diagnostic techniques utilized by technologists in noninvasive laboratory. Emphasizes the development of a systematic approach to electrocardiographic interpretation, dysrhythmia analysis, exercise stress testing, Holter monitoring, nuclear medicine procedures, phonocardiography and pacemaker evaluation.

RADIOLOGIC SCIENCES CS 311
Cardiovascular Physiology (2)
Presents the construction and dynamics of the cardiovascular system in detail. Includes the development of the cardiovascular system, anatomical and physiological characteristics, heart sounds, biophysics of the cardiac cell, cardiac pumping action and its regulation, cardiovascular hemodynamics, coronary blood flow, systemic and pulmonic circulation and the control of regional circulation.

RADIOLOGIC SCIENCES CS 312
Cardiovascular Pathophysiology (3)
Continuation of Radiologic Sciences CS 311, Cardiovascular Physiology. Provides an examination of the structure and function of the cardiovascular system in health and disease. Emphasizes the pathophysiological mechanisms of acquired and congenital cardiovascular diseases as well as their clinical presentation, detection, treatment and pharmacological effects on the heart. Prerequisite: Radiologic Sciences CS 311

RADIOLOGIC SCIENCES CS 321
Patient Care & Services in Medical Imaging & Radiation Oncology (2)
Presents basic concepts of the healthcare delivery system and an introduction to the radiologic sciences modalities. Emphasizes patient care, professional ethics and medicolegal issues.

RADIOLOGIC SCIENCES CS 331
Cardiac Procedures I (2)
Lecture presentation and hands-on operation of the fundamental equipment utilized in an echocardiographic laboratory. Emphasizes the clinical application, operation, knobology and instrumentation associated with such equipment. Provides guided practice in the performance of standard echocardiographic procedures in a laboratory setting. Topics include two-dimensional imaging, M-mode obtainment and measurement, and wall-motion abnormalities as well as pulsed-wave, continuous-wave and color Doppler techniques.

RADIOLOGIC SCIENCES CS 332
Cardiac Procedures II (2)
Continuation of Radiologic Sciences CS 331, Cardiac Procedures I.
Prerequisite: Radiologic Sciences CS 331

RADIOLOGIC SCIENCES CS 351
Cardiac Principles I (3)
Provides a comprehensive introduction to the fundamental skills and principles needed to perform echocardiography. Presents cardiac anatomy, physiology and pathophysiology. Topics include two-dimensional imaging, M-mode and Doppler techniques with emphasis upon the physical principles and cross-sectional anatomy common to each of the above specialty procedures. Students utilize these fundamentals to evaluate selected cardiovascular disease states.

**RADIOLOGIC SCIENCES CS 352**  
**Cardiac Principles II (3)**  
Continuation of Radiologic Sciences CS 351, Cardiac Principles I. Emphasizes advanced procedures and specialty applications in acquired and congenital cardiovascular disease states.  
Prerequisite: Radiologic Sciences CS 351

**RADIOLOGIC SCIENCES CS 400**  
**Ultrasound Physics I (2)**  
Presents general acoustic principles including sound wave parameters, energy transfer through wave propagation, pulsed and continuous wave generation and parameters, surface reflection processes, and transducer construction. Discusses beam profile consideration and an introduction to A-mode, B-mode, and M-mode. Emphasizes applied principles of physics, knobology, and instrumentation relative to ultrasound.

**RADIOLOGIC SCIENCES CS 403**  
**Ultrasound Physics II (2)**  
Continues discussion of properties of sound and presents advanced concepts including computer technology and the instrumentation used to create and store the ultrasound image, and introduction to fluid dynamics, spectral, color and amplitude Doppler. Emphasizes advanced principles of physics, knobology, acoustical artifacts, bioeffects/safety and quality assurance relative to ultrasound. 
Prerequisite: Radiologic Sciences CS 400

**RADIOLOGIC SCIENCES CS 411**  
**Clinical Cardiac I (6)**  
Observing and applying clinical principles in an echocardiography laboratory. Emphasizes professional attributes and fundamental clinical skills necessary to perform and interpret transthoracic echocardiography. Students synthesize learning from the didactic, laboratory and instrumentation courses.

**RADIOLOGIC SCIENCES CS 412**  
**Clinical Cardiac II (6)**  
Continuation of Radiologic Sciences CS 411, Clinical Cardiac I.  
Prerequisite: Radiologic Sciences CS 411

**RADIOLOGIC SCIENCES CS 413**  
**Clinical Cardiac III (8)**
Continuation of Radiologic Sciences CS 412, Clinical Cardiac II, with active participation in an echocardiography laboratory. Emphasizes the clinical skills necessary to perform advanced techniques and specialty applications in acquired and congenital disease states. Presents the opportunity to work more independently in the performance of standard echocardiographic procedures.
Prerequisite: Radiologic Sciences CS 412

RADIOLOGIC SCIENCES CS 481
Cardiac Review Seminar (2)
Presents a comprehensive review of the physical principles, instrumentation and clinical applications of echocardiography in preparation for the registry examination.

RADIOLOGIC SCIENCES CS 491
Special Topics in Cardiac Sonography (2)
Presents new techniques and information, clinical experiences and presentation of case studies in a weekly seminar format.

Computed Tomography Courses
RADIOLOGIC SCIENCES C 400
CT Physics and Instrumentation (3)
In-depth study of the physical principles and instrumentation in computed tomography. Covers the production of x-rays and their interactions with matter. Provides information on data acquisition and image reconstruction, processing and quality. Addresses CT scanner components and operation, scanning factors and their applications.

RADIOLOGIC SCIENCES C 401
Cross-Sectional Anatomy I (2)
The study of human anatomy as seen in axial, sagittal and coronal planes. Presents correlations to cadaver slides as well as CT and MR images. Anatomical regions studied include the central nervous system, neck and musculoskeletal system.

RADIOLOGIC SCIENCES C 402
Cross-Sectional Anatomy II (2)
Continuation of Radiologic Sciences C 401, Cross-Sectional Anatomy I. Anatomical regions studied include the thorax, abdomen and pelvis.
Prerequisite: Radiologic Sciences C 401

RADIOLOGIC SCIENCES C 412
Clinical CT I (6)
Students participate in the diagnostic process of performing CT imaging examinations at clinical sites. Students image anatomic structures and pathology and record the information needed to provide optimal examinations. Provides intensive, hands-on practice under the supervision of the clinical staff. Evaluation is based on clinical competency in all aspects of CT imaging procedures and patient care.
RADIOLOGIC SCIENCES C 413
Clinical CT II (6)
Continuation of Radiologic Sciences C 412, Clinical CT I.
Prerequisite: Radiologic Sciences C 412

RADIOLOGIC SCIENCES C 414
Clinical CT III (8)
Continuation of Radiologic Sciences C 413, Clinical CT II.
Prerequisite: Radiologic Sciences C 413

RADIOLOGIC SCIENCES C 431
CT Procedures I (3)
Covers the various imaging protocols utilized to produce anatomy and pathology on CT images specific to the central nervous system, neck musculoskeletal system, abdomen and pelvis. Discusses conventional, helical and multi-sliced methods.

RADIOLOGIC SCIENCES C 432
CT Procedures II (3)
Covers the various imaging protocols utilized to produce anatomy and pathology on CT images specific to the musculoskeletal system, thorax, interventional and special procedures. Discusses conventional, helical and multi-sliced methods.
Prerequisite: Radiologic Sciences C 431

RADIOLOGIC SCIENCES C 451
Imaging Informatics (2)
Introduces the use of digital electronics and computer technology in medical imaging. Topics include digital image acquisition, reconstruction, and post-processing, advanced visualization, decision support, computer networking and PACS, information systems, and industry standards such as DICOM, HL7, and IHE.

RADIOLOGIC SCIENCES C 473
CT Review Seminar (2)
A review seminar in preparation for the Computed Tomography certification examination.

RADIOLOGIC SCIENCES C 498
CT Special Topics (1)
A research project/special topics course taught in an independent study/seminar manner. Computed tomography students present research projects on CT topics agreed to by the instructor.

General Sonography Courses
RADIOLOGIC SCIENCES S 321
Patient Care & Services in Medical Imaging & Radiation Oncology (2)
Presents basic concepts of the healthcare delivery system and an introduction to the radiologic
sciences modalities. Emphasizes patient care, professional ethics and medicolegal issues.

RADIOLOGIC SCIENCES S 400
Ultrasound Physics I (2)
Presents general acoustic principles including sound wave parameters, energy transfer through wave propagation, pulsed and continuous wave generation and parameters, surface reflection processes, and transducer construction. Discusses beam profile consideration and an introduction to A-mode, B-mode, and M-mode. Emphasizes applied principles of physics, knobology, and instrumentation relative to ultrasound.

RADIOLOGIC SCIENCES S 401
Sonography Cross-Sectional Anatomy (2)
Introduces gross anatomic structures and abnormalities of cranial, neck, thoracic, abdominal and pelvic regions relative to diagnostic ultrasound. Presents correlations to cadaver slides as well as CT and MRI images.

RADIOLOGIC SCIENCES S 402
Abdominal Sonography I (2)
Presents normal abdominal anatomy, physiology, related vasculature, scanning techniques and protocols regarding the abdominal sonographic examination.

RADIOLOGIC SCIENCES S 403
Ultrasound Physics II (2)
Continues discussion of properties of sound and presents advanced concepts including computer technology and the instrumentation used to create and store the ultrasound image, and introduction to fluid dynamics, spectral, color and amplitude Doppler. Emphasizes advanced principles of physics, knobology, acoustical artifacts, bioeffects/safety and quality assurance relative to ultrasound.
Prerequisite: Radiologic Sciences S 400

RADIOLOGIC SCIENCES S 404
Pelvic Sonography (3)
Presents female pelvic anatomy, physiology, pathophysiology, related vasculature, scanning techniques and protocols regarding the pelvic sonographic examination. Reviews the anatomy and physiology of reproduction. Presents normal and abnormal first trimester sonography.

RADIOLOGIC SCIENCES S 405
Obstetrical Sonography (3)
Presents obstetrical applications of diagnostic ultrasound. Reviews the anatomy and physiology of fetal development. Presents normal and abnormal second and third trimester sonography. Emphasizes obstetrical measurements and fetal dynamics.

RADIOLOGIC SCIENCES S 408
Sonography Review Seminar (2)
Presents a comprehensive review of physics, abdominal, pelvic, obstetrical and high resolution imaging applications of general sonography in preparation for the diagnostic medical sonography national registry examinations.

RADIOLOGIC SCIENCES S 412
Clinical Sonography I (6)
Students perform sonographic procedures during clinical rotations at affiliate sites under the supervision of designated clinical instructors. Evaluation of cognitive, effective and psychomotor skills is based on competency in scanning protocols and techniques, professionalism and proficiency in patient care.

RADIOLOGIC SCIENCES S 413
Clinical Sonography II (6)
Continuation of Radiologic Sciences S 412, Clinical Sonography I. Provides supervised clinical practice of diagnostic medical sonography in a university laboratory and clinical setting. Students are responsible for imaging and recording anatomic structures and pathology needed to perform optimal examinations. Requires intensive, hands-on clinical practice.
Prerequisite: Radiologic Sciences S 412

RADIOLOGIC SCIENCES S 414
Clinical Sonography III (8)
Continuation of Radiologic Sciences S 413, Clinical Sonography II.
Prerequisite: Radiologic Sciences S 413

RADIOLOGIC SCIENCES S 415
Sonography Procedures I (2)
Presents, demonstrates and guides hands-on practice on equipment utilized in a general sonography laboratory to evaluate general sonography anatomy. Emphasizes the clinical application, operation, knobology, applied ultrasound physics, and instrumentation associated with such equipment combined with two-dimensional imaging of abdomino-pelvic organs, regions and related vasculature.

RADIOLOGIC SCIENCES S 416
High Resolution Sonography (2)
Presents the latest techniques in high frequency ultrasound imaging, including breast, neurosonology, thyroid and male pelvic examinations. Includes anatomy, physiology, pathophysiology and related vasculature regarding these sonographic scans.

RADIOLOGIC SCIENCES S 417
Sonography Procedures II (2)
Provides guided practice in the performance of standard abdominal, pelvic, obstetric and high-resolution sonography procedures. Topics include detailed knobology, applied ultrasound physics, two-dimensional imaging, caveats, pitfalls and artifacts.
Prerequisite: Radiologic Sciences S 415
RADIOLOGIC SCIENCES S 422  
Abdominal Sonography II (2)  
Presents pathophysiology, related vasculature, scanning techniques and protocols regarding the abdominal sonographic examination.  
Prerequisite: Radiologic Sciences S 402

RADIOLOGIC SCIENCES S 498  
Special Topics in General Sonography (2)  
Presents new techniques and information, clinical experiences and presentation of case studies in a weekly seminar format. Includes an overview of sonographic contrast agents, pediatric hips, three- and four-dimensional sonography, and new advances in ultrasound technology.

Invasive Cardiovascular Technology Courses

RADIOLOGIC SCIENCES I 302  
Noninvasive Testing Principles and Procedures (2)  
Provides a foundation in the basic principles of electrocardiography. Presents an overview of the theory and diagnostic techniques utilized by technologists in noninvasive laboratory. Emphasizes the development of a systematic approach to electrocardiographic interpretation, dysrhythmia analysis, exercise stress testing, Holter monitoring, nuclear medicine procedures, phonocardiography and pacemaker evaluation.

RADIOLOGIC SCIENCES I 311  
Cardiovascular Physiology (2)  
Presents the construction and dynamics of the cardiovascular system in detail. Includes the development of the cardiovascular system, anatomical and physiological characteristics, heart sounds, biophysics of the cardiac cell, cardiac pumping action and its regulation, cardiovascular hemodynamics, coronary blood flow, systemic and pulmonic circulation and the control of regional circulation.

RADIOLOGIC SCIENCES I 312  
Cardiovascular Pathophysiology (3)  
Continuation of Radiologic Sciences I 311, Cardiovascular Physiology. Provides a physiologic and technical back-ground for the various diagnostic and therapeutic techniques in the field. Emphasizes the pathophysiological mechanisms of acquired and congenital cardiovascular diseases as well as their clinical presentation, detection and treatment.  
Prerequisite: Radiologic Sciences I 311

RADIOLOGIC SCIENCES I 313  
Radiobiology and Health Physics (2)  
Presents the principles of cell biology and effects of ionizing radiation at the molecular, cellular and systemic levels. Emphasis is on changes at the cellular level and stochastic vs. deterministic effects and the concept of risk estimates. Covers principles and practice of radiation safety in
radiology, including pertinent rules and regulations.

**RADIOLOGIC SCIENCES I 338**
**Invasive Procedures I (3)**
Provides guided practice in the performance of procedures utilized in diagnostic invasive cardiovascular procedures. Includes sterile technique, circulating and monitoring procedures, pharmacologic identification, room set-up and film processing.

**RADIOLOGIC SCIENCES I 339**
**Invasive Procedures II (3)**
Continuation of Radiologic Sciences I 338, Invasive Procedures I. Provides guided practice in the performance of advanced invasive cardiovascular procedures in a laboratory setting. Emphasizes the clinical application and operation of equipment utilized in interventional and electro-physiologic studies.
Prerequisite: Radiologic Sciences I 338

**RADIOLOGIC SCIENCES I 341**
**Radiography Physics and Instrumentation I (2)**
Presents the physical principles underlying radiological technology, focusing on the equipment required to generate x-rays and on the nature and behavior of x-radiation. Includes basic math review, radiation units, mechanics, atomic physics, electricity and magnetism, electromagnetic waves, x-ray generator circuits, x-ray tubes and x-ray interactions with matter.

**RADIOLOGIC SCIENCES I 342**
**Radiography Physics and Instrumentation II (2)**
Continuation of Radiologic Sciences I 341, Radiography Physics and Instrumentation I. Introduces concepts of radiographic image quality and describes specialized radiographic equipment. Includes x-ray detection, radiographic contrast, radiographic noise (mottle), x-ray scatter, spatial resolution, geometric effects of projection, tomography (conventional and CT), fluoroscopy, automatic exposure control, conventional and computed radiography, image display and computer hardware and software.
Prerequisite: Radiologic Sciences I 341

**RADIOLOGIC SCIENCES I 357**
**Invasive Principles I (3)**
Provides a comprehensive introduction to the fundamental skills and principles needed to perform diagnostic cardiac procedures. Emphasizes indications and contraindications and the collection of diagnostic information obtained during the procedure. Students utilize these fundamentals to evaluate acquired cardiovascular disease states.

**RADIOLOGIC SCIENCES I 358**
**Invasive Principles II (3)**
Continuation of Radiologic Sciences I 357, Invasive Principles I. Emphasizes emergency and interventional techniques, electrophysiology studies and specialty applications in congenital
Radiologic Sciences I 357
Prerequisite: Radiologic Sciences I 357

RADIOLOGIC SCIENCES I 431
Clinical Invasive I (6)
Requires observation and application of clinical principles in an invasive cardiovascular laboratory. Emphasizes the professional attributes and fundamental technical skills necessary to perform as a team member during invasive procedures. Students synthesize learning from the didactic, laboratory and instrumentation courses. Students must demonstrate competency in the performance of ICVT procedures.

RADIOLOGIC SCIENCES I 432
Clinical Invasive II (6)
Continuation of Radiologic Sciences I 431, Clinical Invasive I. Students continue application of ICVT skills. Students must demonstrate competency in the performance of ICVT procedures.
Prerequisite: Radiologic Sciences I 431

RADIOLOGIC SCIENCES I 433
Clinical Invasive III (8)
Continuation of Radiologic Sciences I 432, Clinical Invasive II with active participation in an invasive cardiovascular laboratory. Emphasizes the professional attributes and technical skills necessary to perform as a team member during interventional techniques, electrophysiology studies and specialty applications in congenital and acquired disease states. Presents the opportunity to work more independently in the performance of invasive cardiovascular procedures. Students accept more responsibility for simple procedures and begin to perform more complex procedures under supervision.
Prerequisite: Radiologic Sciences I 432

RADIOLOGIC SCIENCES I 483
Invasive Review Seminar (2)
Presents a comprehensive review of the physical principles, instrumentation and clinical applications of invasive cardiac procedures in preparation for the registry examination.

Magnetic Resonance Imaging Courses
RADIOLOGIC SCIENCES M 321
Patient Care & Services in Medical Imaging & Radiation Oncology (2)
Presents basic concepts of the healthcare delivery system and an introduction to the radiologic sciences modalities. Emphasizes patient care, professional ethics and medicolegal issues.

RADIOLOGIC SCIENCES M 400
MRI Physics and Instrumentation I (3)
In-depth study of the physical principles and instrumentation in MRI. Includes fundamentals of atomic physics, pulse sequencing, imaging parameters, relaxation times and their effects on the MRI signal. Provides an overview of the MRI hardware.
RADIOLOGIC SCIENCES M 401
Cross-Sectional Anatomy I (2)
The study of human anatomy as seen in axial, sagittal and coronal planes. Presents correlations with CT and MR images. Anatomical regions studied include the central nervous system, neck and musculoskeletal system.

RADIOLOGIC SCIENCES M 402
Cross-Sectional Anatomy II (2)
Continuation of Radiologic Sciences M 401, Cross-Sectional Anatomy I. Anatomical regions studied include the thorax, abdomen and pelvis.
Prerequisite: Radiologic Sciences M 401

RADIOLOGIC SCIENCES M 403
MRI Physics and Instrumentation II (1)
Continuation of Radiologic Sciences M 400. Includes MRI artifacts and an introduction to magnetic resonance angiography and methods.
Prerequisite: Radiologic Sciences M 400

RADIOLOGIC SCIENCES M 411
MRI Safety (2)
Comprehensive overview of issues related to MRI safety. Includes practical guidelines and recommendations that assist in the management of patients in the MRI environment.

RADIOLOGIC SCIENCES M 412
Clinical MRI I (6)
Students participate in the diagnostic process of performing MRI imaging examinations at clinical sites. Requires imaging anatomic structures and pathology and recording the information needed to provide optimal examinations. Provides intensive, hands-on clinical practice under the supervision of the clinical staff. Evaluation is based on clinical competency in all aspects of MRI imaging procedures and patient care.
Corequisite: Radiologic Sciences M 411

RADIOLOGIC SCIENCES M 413
Clinical MRI II (6)
Continuation of Radiologic Sciences M 412, Clinical MRI I.
Prerequisite: Radiologic Sciences M 412

RADIOLOGIC SCIENCES M 414
Clinical MRI III (8)
Continuation of Radiologic Sciences M 413, Clinical MRI II.
Prerequisite: Radiologic Sciences M 413

RADIOLOGIC SCIENCES M 415
MRI Pathology (1)
The study of human pathology as seen in axial, sagittal and coronal planes. Presents correlations with CT and MR images. Anatomic regions studied include the central nervous system, neck, musculoskeletal system, thorax, abdomen and pelvis.

**RADIOLOGIC SCIENCES M 431**  
**MRI Procedures I (2)**  
Covers the various MRI protocols utilized to produce anatomy and pathology on the MR image specific to the central nervous system, neck and musculoskeletal system.

**RADIOLOGIC SCIENCES M 432**  
**MRI Procedures II (2)**  
Covers the various MRI protocols utilized to produce anatomy and pathology on the MR image specific to the thorax, abdomen and pelvis.  
Prerequisite: Radiologic Sciences M 431

**RADIOLOGIC SCIENCES M 451**  
**Imaging Informatics (2)**  
Introduces the use of digital electronics and computer technology in medical imaging. Topics include digital image acquisition, reconstruction, and post-processing, advanced visualization, decision support, computer networking and PACS, information systems, and industry standards such as DICOM, HL7, and IHE.

**RADIOLOGIC SCIENCES M 473**  
**MRI Seminar (2)**  
A review seminar in preparation for the magnetic resonance imaging certification examination.

**RADIOLOGIC SCIENCES M 499**  
**Magnetic Resonance Imaging Independent Study (1-4)**  
Capstone course conducted under the direction of departmental faculty. Primary focus is on either the final preparation for the magnetic resonance imaging certification examination or review of journal articles and the submission of research papers and/or posters relevant to clinical practice, professional issues or advances in the field.

**Medical Dosimetry Courses**

**RADIOLOGIC SCIENCES D 321**  
**Patient Care & Services in Medical Imaging & Radiation Oncology (2)**  
Presents basic concepts of the healthcare delivery system and an introduction to the radiologic sciences modalities. Emphasizes patient care, professional ethics and medicolegal issues.

**RADIOLOGIC SCIENCES D 401**  
**Cross-Sectional Anatomy I (2)**  
The study of human anatomy as seen in axial, sagittal and coronal planes. Presents correlations to cadaver slides as well as CT and MR images. Anatomical regions studied include the central nervous system, neck and thorax.
RADIOLOGIC SCIENCES D 402
Cross-Sectional Anatomy II (2)
Continuation of Radiologic Sciences D 401, Cross-Sectional Anatomy I. Anatomical regions studied include the musculo-skeletal system, abdomen and pelvis.
Prerequisite: Radiologic Sciences D 401

RADIOLOGIC SCIENCES D 412
Clinical Medical Dosimetry I (6)
Provides the opportunity to work with the clinical personnel in a team approach to radiation therapy treatment, planning and patient care. Includes clinical experience such as dose calculations and treatment planning, radiation safety, quality assurance and annual calibrations of equipment with a physicist.

RADIOLOGIC SCIENCES D 413
Clinical Medical Dosimetry II (6)
Continuation of Radiologic Sciences D 413, Clinical Medical Dosimetry I.
Prerequisite: Radiologic Sciences D 412

RADIOLOGIC SCIENCES D 414
Clinical Medical Dosimetry III (8)
Continuation of Radiologic Sciences D 413, Clinical Medical Dosimetry II.
Prerequisite: Radiologic Sciences D 413

RADIOLOGIC SCIENCES D 415
Clinical Radiation Oncology (2)
Presents the topics of epidemiology, etiology, prognosis, methods of treatment and adjuvant therapies for each anatomic area.

RADIOLOGIC SCIENCES D 430
Case Studies in Dosimetry (1)
The students follow a breast cancer patient throughout the entire process of receiving radiation treatments. The student’s involvement in the patient’s care will be initiated at the time of simulation and extend through the post treatment follow up physician visits.

RADIOLOGIC SCIENCES D 435
Medical Dosimetry Physics I (3)
Presents the basic physical principles of radiologic and nuclear science and technology, focusing on the generation of ionizing radiation, atomic and nuclear transformations, the characteristics of radiation, and interactions of radiations with matter. Includes a description of radiation producing machines, a definition of dosimetry, measurement of dosimetry, models of dosimetry calculations, basic principles of treatment, planning, clinical applications of dosimetry and treatment planning of treatment of human diseases.

RADIOLOGIC SCIENCES D 436

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Medical Dosimetry Physics II (3)
Continuation of Radiologic Sciences D 435, Medical Dosimetry Physics I.
Prerequisite: Radiologic Sciences D 435

RADIOLOGIC SCIENCES D 439
Radiation Protection (1)
Presents basic principles of radiation protection and safety for the radiation therapist. Discusses radiation safety requirements of federal and state regulatory agencies, accreditation agencies and healthcare organizations.

RADIOLOGIC SCIENCES D 440
Introduction to Radiobiology (2)
Presents basic concepts, theories and principles of radiation biology. Discusses the physical properties of radiation and how radiation interacts with biological matter. Examines the effects of radiation on DNA, cells and individuals, as well as the concepts and practice of clinical radiation therapy.

RADIOLOGIC SCIENCES D 442
Quality Assurance and Instrumentation (2)
Presents the basics physical principles of instrumentations of measuring radiation exposures and doses, and essential procedures of quality assurance of radiation producing machines, radioactive sources and treatment planning computers for therapeutic purposes.

RADIOLOGIC SCIENCES D 443
Brachytherapy (2)
Introduces students to the properties of radioactive isotopes used in brachytherapy and basic clinical practices of brachytherapy.

RADIOLOGIC SCIENCES D 444
Special Procedures (2)
Presents introduction and basic clinical procedures of high dose rate remote afterloader (HDR), stereotactic radiosurgery (SRS), linac-based stereotactic radiotherapy (SRT), three dimensional conformal radiotherapy (3DCRT), intensity modulated radiotherapy (IMRT) and image gilded radiotherapy (IGRT).

RADIOLOGIC SCIENCES D 480
Survey of Medical Imaging (2)
Presents a comprehensive survey of the physical principles, technology concepts, equipment and procedures used in medical imaging.

Nuclear Medicine Courses
RADIOLOGIC SCIENCES N 321
Patient Care & Services in Medical Imaging & Radiation Oncology (2)
Presents an introduction to basic medical techniques in patient care, safety, infection control, pharmacology, medico-legal issues, bioethics, health care delivery environments and an overview of the various imaging specialties in the Radiologic Sciences.

RADIOLOGIC SCIENCES N 400
Medical Nuclear Physics (3)
Presents applicable concepts of mathematics and classical physics. Covers atomic structure, mass-energy relationships, electromagnetic radiation, quantum theory, decay modes, half-life, radionuclide production, interaction of radiation with matter and gamma spectroscopy.

RADIOLOGIC SCIENCES N 410
Medical Radiobiology (2)
Presents the basics of radiobiology including molecular and cellular effects of radiation, the acute and chronic effects of radiation and the processes by which radiation affects the various tissues and organ systems of the body. Covers stochastic and deterministic effects in detail.

RADIOLOGIC SCIENCES N 420
Radiation Protection (3)
Provides an overview of the external and internal radiation hazards inherent to working in a nuclear medicine clinic and presents the state and federal licensing requirements, guidelines and regulations for safe radiation practice. Lecture material includes: governing agencies, radiation signs, record keeping, dose calibrator, survey meters, personnel and area monitoring, radionuclide receipt, storage and disposal, and management of clinical radioactivity spills. Covers exposure, effective dose, decay calculations and information specific to radiopharmaceutical therapy.

RADIOLOGIC SCIENCES N 430
Nuclear Medicine Instrumentation (3)
Introduces nuclear medicine and radiation detection instrumentation. Includes gas-filled detectors and scintillation detectors. Covers design, operation and quality control of these instruments. Includes detailed discussions of the gamma camera system, its components, hardware and software. Includes tomographic imaging in SPECT and PET systems.

RADIOLOGIC SCIENCES N 451
Imaging Informatics (2)
Introduces the use of digital electronics and computer technology in medical imaging. Includes digital image acquisition, reconstruction, and post-processing, advanced visualization, decision support, computer networking and PACS, information systems, and industry standards such as DICOM, HL7, and IHE.

RADIOLOGIC SCIENCES N 455
Nuclear Medicine Procedures I (3)
Introduces the interrelated aspects of performing scintigraphic procedures. Includes anatomy and pathophysiology of the organ systems (skeletal, lymphatic, cardiovascular and central
nervous systems), radiopharmaceuticals, patient preparation and care, imaging instrumentation and protocols. Presents and discusses representative images.

RADIOLOGIC SCIENCES N 456
Nuclear Medicine Procedures II (3)
Introduces the interrelated aspects of performing scintigraphic procedures. Includes anatomy and pathophysiology of the organ systems (pulmonary, genitourinary, gastrointestinal and endocrine systems), radiopharmaceuticals, patient preparation and care, imaging instrumentation and protocols. Presents and discusses representative images. Covers selected therapeutic procedures, including the properties and selection of radiopharmaceuticals and pertinent radiation safety techniques.
Prerequisite: Radiologic Sciences N 455

RADIOLOGIC SCIENCES N 457
Nuclear Medicine Procedures III (2)
Introduces topics that encompass the interrelated aspects of performing scintigraphic procedures. Includes pathophysiology and imaging of tumors, inflammations and infections, non-imaging (in vitro) studies, radiotherapy, radioimmunotherapy, and positron emission tomography (PET). Includes radiopharmaceuticals, imaging and laboratory instrumentation and protocols. Presents and discusses representative images.
Prerequisite: Radiologic Sciences N 456

RADIOLOGIC SCIENCES N 458
Nuclear Medicine Advanced Procedures (2)
Introduces some recent advances in the field of nuclear medicine: molecular imaging, positron emission tomography (PET) and hybrid imaging. Includes radiopharmaceuticals, cross-sectional anatomy, imaging physics and instrumentation, and protocols. Presents and discusses representative images.
Prerequisite: Radiologic Sciences N 457

RADIOLOGIC SCIENCES N 460
Radiochemistry and Radiopharmaceuticals (3)
Introduces the principles and applications of radiochemistry and radiopharmaceuticals. Includes radionuclide production, cyclotrons and generators, transient and secular equilibrium, radiopharmaceutical properties, radiopharmacologic mechanisms, radiopharmaceuticals preparation and quality control. Discusses common clinically used radiopharmaceuticals in detail. Introduces general pharmacology and pharmokinetics, and discusses interventional medications used in nuclear medicine. Laboratory practice focuses on operation and management of the hot-lab.

RADIOLOGIC SCIENCES N 470
Clinical Nuclear Medicine I (6)
Provides the opportunity to become competent in the skills necessary to perform high quality nuclear medicine procedures and provide excellent patient care. Clinical education is conducted
at an assigned clinical affiliate site under the supervision of registered nuclear medicine technologists and other healthcare professionals. Provides intensive, hands-on clinical practice, leading to competency in all aspects of nuclear medicine imaging procedures and patient care.

RADIOLOGIC SCIENCES N 471
Clinical Nuclear Medicine II (6)
Continuation of Radiologic Sciences N 470, Clinical Nuclear Medicine I.
Prerequisite: Radiologic Sciences N 470

RADIOLOGIC SCIENCES N 472
Clinical Nuclear Medicine III (8)
Continuation of Radiologic Sciences N 471, Clinical Nuclear Medicine II.
Prerequisite: Radiologic Sciences N 471

RADIOLOGIC SCIENCES N 499
Nuclear Medicine Review Seminar (2)
Systematic review of all areas of study included in the nuclear medicine program, including, but not limited to, nuclear medicine physics and instrumentation, medical radiobiology and radiation protection, radiochemistry and radio-pharmaceuticals, digital imaging, patient care, and nuclear medicine procedures. Emphasizes preparation of the student for ARRT and NMTCB examinations.

Radiation Therapy Courses
RADIOLOGIC SCIENCES T 321
Patient Care & Services in Medical Imaging & Radiation Oncology (2)
Presents basic concepts of the healthcare delivery system and an introduction to the radiologic sciences modalities. Emphasizes patient care, professional ethics and medicolegal issues.

RADIOLOGIC SCIENCES T 401
Cross-Sectional Anatomy I (2)
The study of human anatomy as seen in axial, sagittal and coronal planes. Presents correlations to cadaver slides as well as CT and MR images. Anatomical regions studied include the central nervous system, neck and thorax.

RADIOLOGIC SCIENCES T 402
Cross-Sectional Anatomy II (2)
Continuation of Radiologic Sciences T 401, Cross-Sectional Anatomy I. Anatomical regions studied include the musculo-skeletal system, abdomen and pelvis.
Prerequisite: Radiologic Sciences T 401

RADIOLOGIC SCIENCES T 409
Radiation Therapy Principles and Procedures I (3)
Provides an overview of cancer and the specialty of radiation therapy. Introduces the
multidisciplinary approach to oncology and develops related topics including pathology, cancer growth tumor response, critical organs and reactions.

**RADIOLOGIC SCIENCES T 412**
**Clinical Radiation Therapy I (6)**
Provides development, application, analysis, integration and evaluation of concepts and theories in radiation therapy. Evaluates concepts of team practices, patient-centered clinical practice and professional development through structured sequential assignments at clinical facilities.

**RADIOLOGIC SCIENCES T 413**
**Clinical Radiation Therapy II (6)**
Continuation of RST 412 Clinical Radiation Therapy I.
Prerequisite: Radiologic Sciences T 412

**RADIOLOGIC SCIENCES T 414**
**Clinical Radiation Therapy III (10)**
Continuation of RST 413 Clinical Radiation Therapy II.
Prerequisite: Radiologic Sciences T 413

**RADIOLOGIC SCIENCES T 415**
**Clinical Radiation Oncology (2)**
Presents the topics of epidemiology, etiology, prognosis, methods of treatment and adjuvant therapies for each anatomic area.

**RADIOLOGIC SCIENCES T 416**
**Principles of Radiation Dosimetry (2)**
Presents factors that govern treatment planning of the patient. Includes topics such as isodose distribution, dosimetric calculations, compensation and clinical application of treatment beams. Emphasizes state-of-the-art treatment planning along with particle beams, stereotactic and intensity modulated radiation therapy and brachytherapy procedures.

**RADIOLOGIC SCIENCES T 419**
**Radiation Therapy Principles and Procedures II (3)**
Presents and evaluates epidemiology, etiology, detection, diagnosis, treatment and prognosis of neoplastic disease in relationship to histology, anatomical sites and patterns of spread. Discusses the radiation therapist’s role in the management of neoplastic disease and the skills required to analyze issues and make decisions in a professional manner.
Prerequisite: Radiologic Sciences T 409

**RADIOLOGIC SCIENCES T 429**
**Radiation Therapy Principles and Procedures III (2)**
Continuation of Radiation Therapy Principles and Procedures II.
Prerequisite: Radiologic Sciences T 419
RADIOLOGIC SCIENCES T 435
Radiation Therapy Physics I (2)
Introduces a basic knowledge of physics pertinent to developing an understanding of radiations used in the clinical setting. Presents the fundamentals of x-ray generating equipment, x-ray production and interaction with matter.

RADIOLOGIC SCIENCES T 436
Radiation Therapy Physics II (2)
Expands on concepts and theories related to structure of matter, properties of radiation, nuclear transformation and interactions of ionizing radiation. Discusses radiation therapy treatment units, measurement and quality of radiation produced, absorbed dose measurement and dose distribution.
Prerequisite: Radiologic Sciences T 435

RADIOLOGIC SCIENCES T 439
Radiation Protection (1)
Presents basic principles of radiation protection and safety for the radiation therapist. Discusses radiation safety requirements of federal and state regulatory agencies, accreditation agencies and healthcare organizations.

RADIOLOGIC SCIENCES T 440
Introduction to Radiobiology (2)
Presents basic concepts, theories and principles of radiation biology. Discusses the physical properties of radiation and how radiation interacts with biological matter. Examines the effects of radiation on DNA, cells and individuals, as well as the concepts and practice of clinical radiation therapy.

RADIOLOGIC SCIENCES T 473
Radiation Therapy Review Seminar (2)
Combines instruction and review of the radiation therapy curriculum for preparation of the radiation therapy board examination.

Radiography Courses
RADIOLOGIC SCIENCES R 313
Radiobiology and Health Physics (2)
Presents the principles of cell biology and effects of ionizing radiation at the molecular, cellular and systemic levels. Emphasizes changes at the cellular level and stochastic vs. deterministic effects and the concept of risk estimates. Covers principles and practice of radiation safety in radiology, including pertinent rules and regulations.

RADIOLOGIC SCIENCES R 321
Patient Care and Services in Medical Imaging and Radiation Oncology (2)
Presents basic concepts of the healthcare delivery system and an introduction to the radiologic
sciences modalities. Emphasizes patient care, professional ethics and medicolegal issues.

**RADIOLOGIC SCIENCES R 331**
**Radiographic Procedures I (2)**
Presents basic anatomy, terminology and radiographic positioning of the human body in examination of the chest, abdomen, upper extremity, lower extremity and spine.

**RADIOLOGIC SCIENCES R 332**
**Radiographic Procedures II (2)**
Presents basic anatomy, terminology and radiographic positioning of the human body in examination of the spine, skull and contrast procedures of the abdomen. Includes bony thorax.
Prerequisite: Radiologic Sciences R 331

**RADIOLOGIC SCIENCES R 333**
**Advanced Radiographic Procedures (1)**
Provides an overview of the various special procedures performed in radiology. Includes arthrography, venography, sialography, myelography, hysterosalpingography, vascular studies, interventional and non-interventional examinations. Discusses pediatric, geriatric and mobile radiography.
Prerequisite: Radiologic Sciences R 332

**RADIOLOGIC SCIENCES R 341**
**Radiography Physics and Instrumentation I (2)**
Presents the physical principles underlying radiologic technology, focusing on the equipment required to generate x-rays and on the nature and behavior of x-radiation. Includes basic math review, radiation units, mechanics, atomic physics, electricity and magnetism, electromagnetic waves, x-ray generator circuits, x-ray tubes and x-ray interactions with matter.

**RADIOLOGIC SCIENCES R 342**
**Radiography Physics and Instrumentation II (2)**
Continuation of Radiologic Sciences R341, Radiography Physics and Instrumentation I. Introduces concepts of radiographic image quality and describes specialized radiographic equipment. Includes x-ray detection, radiographic contrast, radiographic noise (mottle), x-ray scatter, spatial resolution, geometric effects of projection, tomography (conventional and CT), fluoroscopy, automatic exposure control, conventional and computed radiography, image display and computer hardware and software.
Prerequisite: Radiologic Sciences R 341

**RADIOLOGIC SCIENCES R 353**
**Radiographic Imaging Principles I (2)**
Designed to establish a knowledge base in factors that govern and influence the production and recording of radiologic images. Emphasizes the use of film and electronic imaging with related accessories. Uses class demonstrations/laboratories to demonstrate application of theory.
RADIOLOGIC SCIENCES R 354
Radiographic Imaging Principles II (2)
Continuation of Radiologic Sciences R 353, Radiographic Imaging Principles I. Includes image receptors, image processing and exposure conversion problems.
Prerequisite: Radiologic Sciences R 353

RADIOLOGIC SCIENCES R 361
Image Analysis I (2)
Provides a basis for analyzing radiographic images. Includes the importance of minimum imaging standards, discussion of a problem-solving technique for image evaluation and the factors that can affect image quality. Includes actual images of the chest, abdomen, upper and lower extremities for analysis.

RADIOLOGIC SCIENCES R 362
Image Analysis II (2)
Continuation of Radiologic Sciences R 361, Imaging Analysis I. Includes actual images of the spine, skull, thorax and contrast media studies for analysis.
Prerequisite: Radiologic Sciences R 361

RADIOLOGIC SCIENCES R 371
Clinical Radiography I (4)
Observing and applying healthcare principles. Students gradually begin application of radiographic positioning skills. Students must demonstrate competency in the performance of radiographic procedures.

RADIOLOGIC SCIENCES R 372
Clinical Radiography II (6)
Observing and applying healthcare principles. Students continue application of radiographic positioning skills. Students must demonstrate competency in the performance of radiographic procedures.
Prerequisite: Radiologic Sciences R 371

RADIOLOGIC SCIENCES R 373
Clinical Radiography III (8)
Observing and applying healthcare principles in radiology. Students accept more responsibility for simple procedures and begin to perform more complex procedures under supervision.
Prerequisite: Radiologic Sciences R 372

RADIOLOGIC SCIENCES R 412
Radiographic Pathology (2)
Examines the disease processes affecting all of the human systems. Emphasizes changes from the normal radiographic appearance as well as the effect of the various pathologies on the technical aspects of acquiring the radiograph and in-patient care. Covers medical terminology in detail as the pathologies affecting each human system are studied.
RADIOLOGIC SCIENCES R 471  
Radiography Review Seminar (2)  
Presents a comprehensive review with a lecture/testing format with retrospect of Radiologic  
Sciences in order to correlate and integrate the following topics: radiation protection,  
equipment operation and maintenance, image production and evaluation, radiographic  
procedures and patient care.

Vascular Sonography Courses  
RADIOLOGIC SCIENCES V 311  
Cardiovascular Physiology (2)  
Presents the construction and dynamics of the cardiovascular system in detail. Includes the  
development of the cardiovascular system, anatomical and physiological characteristics, heart  
sounds, biophysics of the cardiac cell, cardiac pumping action and its regulation, cardiovascular  
hemodynamics, coronary blood flow, systemic and pulmonic circulation and the control of  
regional circulation.

RADIOLOGIC SCIENCES V 312  
Cardiovascular Pathophysiology (3)  
Continuation of Radiologic Sciences V311, Cardiovascular Physiology. Provides a physiologic  
and technical back-ground for the various diagnostic and therapeutic techniques in the field.  
Emphasizes the pathophysiological mechanisms of acquired and congenital cardiovascular  
diseases as well as their clinical presentation, detection and treatment.  
Prerequisite: Radiologic Sciences V 311

RADIOLOGIC SCIENCES V 321  
Patient Care & Services in Medical Imaging and Radiation Oncology (2)  
Presents basic concepts of the healthcare delivery system and an introduction to the radiologic  
sciences modalities. Emphasizes patient care, professional ethics and medicolegal issues.

RADIOLOGIC SCIENCES V 335  
Vascular Procedures I (2)  
Provides lecture presentation and hands-on operation of equipment utilized in a vascular  
laboratory to evaluate upper and lower extremity arterial and venous disease states and  
vascular sonography. Emphasizes the clinical application, operation and knobology associated  
with such equipment. Provides guided practice in the performance of vascular procedures  
utilized in the assessment of arterial and venous diseases of the upper and lower extremities.  
Includes plethysmographic procedures, two-dimensional imaging and Doppler techniques.

RADIOLOGIC SCIENCES V 336  
Vascular Procedures II (2)  
Continuation of Radiologic Sciences V 335, Vascular Procedures I. Provides guided practice in  
the performance of direct and indirect cerebrovascular testing, intracranial Doppler and  
abdominal procedures. Emphasizes the operation and knobology of the equipment utilized in
these procedures via lecture and hands-on experience.
Prerequisite: Radiologic Sciences V 335

RADIOLOGIC SCIENCES V 353
Vascular Principles I (3)
Introduces the fundamental skills and principles needed to perform vascular diagnostic testing of the upper and lower extremities. Includes arterial and venous vascular procedures with an emphasis upon the physical principles and cross-sectional anatomy common to each of these procedures. Presents the fundamentals necessary to evaluate acquired and congenital vascular disease of the upper and lower extremities.

RADIOLOGIC SCIENCES V 354
Vascular Principles II (3)
Continuation of Radiologic Sciences V 353, Vascular Principles I. Emphasizes cerebrovascular, intracranial Doppler and abdominal disease states. Includes cerebrovascular, intracranial Doppler, abdominal diagnostic assessment, current therapies, two-dimensional imaging and Doppler waveform analysis with an emphasis upon the physical principles and cross-sectional anatomy common to each of these procedures. Presents the fundamentals necessary to evaluate acquired and congenital cerebrovascular, intracranial Doppler and abdominal vascular disease states.
Prerequisite: Radiologic Sciences V 353

RADIOLOGIC SCIENCES V 400
Ultrasound Physics I (2)
Presents general acoustic principles including energy transfer through wave propagation, surface reflection processes, transducer construction, beam profile consideration, image recording devices and an introduction to A-mode, B-mode, M-mode, Doppler, color Doppler, 3-dimensional ultrasound and real-time instrumentation. Emphasizes applied principles of instrumentation, knobology, acoustical artifacts, medical terminology, bioeffects and quality control relative to ultrasound.

RADIOLOGIC SCIENCES V 401
Vascular Anatomy (2)
Presents anatomy specific to vascular sonography, consisting of normal anatomy, anomalies and related structures. Includes correlation with radiographic, CT, angiographic and ultrasonographic images as well as cadaver specimens, utilizing a multimedia approach.

RADIOLOGIC SCIENCES V 403
Ultrasound Physics II (2)
Continues discussion of properties of sound and presents advanced concepts including computer technology and the instrumentation used to create and store the ultrasound image, and introduction to fluid dynamics, spectral, color and amplitude Doppler. Emphasizes advanced principles of physics, knobology, acoustical artifacts, bioeffects/safety and quality assurance relative to ultrasound.
Prerequisite: Radiologic Sciences V 400

RADIOLOGIC SCIENCES V 421
Clinical Vascular I (6)
Observing and applying clinical principles in a vascular laboratory. Emphasizes the education of professional attributes and technical skills necessary to perform and interpret vascular procedures relevant to clinical evaluation of arterial and venous extremity disease. Students synthesize learning from the didactic, laboratory and instrumentation courses. Evaluation of cognitive, affective and psychomotor skills is based on competency in scanning protocols and techniques, professionalism and proficiency in patient care.

RADIOLOGIC SCIENCES V 422
Clinical Vascular II (6)
Continuation of Radiologic Sciences V 421, Clinical Vascular I.
Prerequisite: Radiologic Sciences V 421

RADIOLOGIC SCIENCES V 423
Clinical Vascular III (8)
Continuation of Radiologic Sciences V 422, Clinical Vascular II. Emphasizes the evaluation of cerebrovascular, intracranial Doppler and abdominal peripheral vascular disease. Students synthesize learning from the didactic and laboratory courses. Requires the continued study of the upper and lower extremity arterial and venous testing procedures. Presents the opportunity to work more independently in the performance of standard vascular procedures.
Prerequisite: Radiologic Sciences V 422

RADIOLOGIC SCIENCES V 482
Vascular Review Seminar (2)
Presents a comprehensive review of the physical principles, instrumentation and clinical applications of peripheral vascular imaging in preparation for the registry examination.

RADIOLOGIC SCIENCES V 493
Special Topics in Vascular Sonography (2)
Presents new techniques and information, clinical experiences and presentation of case studies in a weekly seminar format.

RADIOLOGIC SCIENCES V 499
Vascular Sonography Independent Study (1-4)
Capstone course conducted under the direction of departmental faculty. Focuses on review of journal articles and the submission of research papers and/or posters relevant to clinical practice, professional issues or advances in the field.

Non-Imaging Courses (Department of Professional and Continuing Studies)
Education Courses
COMMUNICATIONS 101
Interpersonal Communications (3)
Presents theory and its application in the area of informal, interpersonal communication. Uses career-related workshop approach to study effective one-to-one and small group communication. Examines self-disclosure, risk, trust and other influences in human interaction.

COMMUNICATIONS 201
Intercultural Communications (3)
An experiential approach to developing intercultural awareness. Presents three aspects of intercultural communication: (1) knowledge of culture and cultural differences; (2) attitudes and feelings about those who are culturally different; and (3) skills or new behaviors to improve effective communication when living and/or working with people of other cultures. Uses videos, classroom guests and field trips to ethnic museums, restaurants and festivals, as well as in-class exercises, readings and discussions.

COMPUTER STUDIES 201
Technology Applications for Healthcare (3)
Computer laboratory-based class experience designed for individuals with substantial knowledge of the microcomputer. Case-based approach provides the opportunity to apply knowledge and skills to a wide variety of scenarios in health care delivery, management or analysis. Requires knowledge of common applications such as Microsoft Word, ACCESS, EXCEL, PowerPoint.
Prerequisite: Computer Studies 101 or equivalent

EDUCATION 301
Methods of Teaching (3)
Discusses factors and conditions relevant to effective teaching and learning with special consideration given to the adult learner. Provides practice in the techniques of individual and group teaching, lesson planning and presentation, classroom management, use of teaching aids and evaluation procedures.

EDUCATION 307
Concepts and Techniques in Assessment (3)
Presents concepts of evaluation/assessment and principles of statistical procedure used in determining successful evaluations. Examines and constructs selected evaluation instruments tailored to specific course objectives. Develops an evaluation philosophy and model for evaluating multiple levels of performance in both didactic and clinical instruction.

EDUCATION 401
Technology and Instruction (3)
Examines theoretical and practical approaches to integration of technical advances in educational course delivery. Investigates impact of technology on curricular development, including electronic and virtual classroom formats.

EDUCATION 409
Curriculum Design and Evaluation (3)
Examines principles and practices for developing and evaluating curricula from the programmatic to the course level. Matches curricular requirements to expected end-product learner outcomes. Presents techniques for assuring completeness. Examines essential processes such as syllabus construction and competency-based decision making.

INTERDISCIPLINARY STUDIES 302
Understanding Research Principles and the Scientific Method (3)
Introduces research methodologies applicable to health care and the health professions. Emphasizes research methodologies (from qualitative and descriptive to quasi-experimental), the application of research approaches to health professions-based research questions, and the analysis of reported research. Prepares and requires students to conduct literature searches relevant to the department or researchable questions and appropriate research designs and become critical consumers.

INTERDISCIPLINARY STUDIES 303
Advanced Research Project Analysis (3)
Real time research on a topic selected during ID 302 or determined in consultation with the instructor. Participants refine a comprehensive proposal, conduct a pilot study to form a research hypothesis and present findings in a final seminar session.
Prerequisite: ID 302 or equivalent

PSYCHOLOGY 301
Educational Psychology (3)
Introduces psychology bases of instructional systems. Examines development and learning of children, adolescents and adults; teacher behavior and other applications of psychology to education. Covers construction, validation and use of classroom measurement and diagnostic procedures.
Prerequisite: Psychology 101

Health Management Courses
ACCOUNTING 101
Financial Accounting (3)
Discusses classification of accounts and interrelationships as they affect external reports of the business entity. Emphasizes development and application of generally accepted accounting principles in the preparation of financial statements
Prerequisite: Mathematics 101 or higher

ACCOUNTING 102
Managerial Accounting (3)
Accounting and information decision-making. Emphasizes internal reports and plans such as income statements, capital budgets, cost-volume-profit relationships, pricing of products and services and variance analysis. Discusses potential ethical concerns in making business decisions.
Prerequisite: Accounting 101

HEALTHCARE ADMINISTRATION 300
Health Services Delivery and Organization (3)
Examines the structure, process and outcome of healthcare delivery in the U.S., both historically and in the present, with special emphasis on current systems of managed care and integration. Discusses organizational patterns, facilities, reimbursement and manpower in the context of social, political, ethical and economic forces driving the system. Compares the U.S. system to other systems.

HEALTHCARE ADMINISTRATION 303
Business and Healthcare Law (3)
Identifies and examines relevant substantive areas of business law and health law that impact the operations of healthcare facilities, academic medical centers, and related businesses. Provides thorough understanding of the legal implications of running a healthcare business, including basic principles of business law such as torts and contracts, risk management and medical malpractice, ethical issues and regulatory compliance.
Prerequisite: Healthcare Administration 300

INTERDISCIPLINARY STUDIES 302
Understanding Research Principles and the Scientific Method (3)
Introduces research methodologies applicable to health care and the health professions. Emphasizes research methodologies (from qualitative and descriptive to quasi-experimental), the application of research approaches to health professions-based research questions, and the analysis of reported research. Prepares and requires students to conduct literature searches relevant to the department or researchable questions and appropriate research designs and become critical consumers.

INTERDISCIPLINARY STUDIES 303
Advanced Research Project Analysis (3)
Real time research on a topic selected during ID 302 or determined in consultation with the instructor. Participants refine a comprehensive proposal, conduct a pilot study to form a research hypothesis and present findings in a final seminar session.
Prerequisite: ID 302 or equivalent

MANAGEMENT 101
Principles of Management and Organizational Behavior (3)
Examines organizational behavior as an academic discipline and develops skills necessary for successful practice of management. Examines the effect individuals, groups and organizational structure have on behavior within an organization. Applies the knowledge gained to make organizations operate more efficiently. Ultimate functional applications include improving productivity and the creation of an environment that fosters a high quality of work life and concomitant job satisfaction.
MANAGEMENT 304
Management and Organizational Theory in Health Service Organizations (3)
Explores the structure and function of healthcare delivery organizations with respect to challenges presented by contemporary socio-cultural considerations, demographic changes, government and legal regulations and technological advances. Analyzes the effect of these environmental factors on traditional roles, communication patterns, financial strategies and organizational structure. Identifies methods to assess the organization’s ability to provide and monitor quality healthcare services and to meet the requirements set by both internal and external bodies.
Prerequisites: Management 101, Healthcare Administration 300

PHILOSOPHY 301
Healthcare Ethics (3)
Examines moral questions arising from advances in technology, life sciences, medicine, nursing and other health professions. Defines moral theories, principles, virtues, rights and obligations relevant to bioethical concerns such as informed consent, human experimentation, allocation of medical resources, truth-telling and death. Analyzes case studies and current news reports for bioethical issues.
Prerequisite: Healthcare Administration 300

Health Services Information Systems
COMPUTER STUDIES 212
Data Base Management (3)
Presents design and application of databases as information tools. Provides practice in generation of reports, forms and other concepts relating to the use of organized information. Emphasizes ACCESS and EXCEL as software examples in the creation of efficient databases.
Prerequisite: Computer Studies 101 or equivalent

HEALTHCARE ADMINISTRATION 300
Health Services Delivery and Organization (3)
Examines the structure, process and outcome of healthcare delivery in the U.S., both historically and in the present, with special emphasis on current systems of managed care and integration. Discusses organizational patterns, facilities, reimbursement and manpower in the context of social, political, ethical and economic forces driving the system. Compares the U.S. system to other systems.

HEALTHCARE MANAGEMENT INFORMATION SYSTEMS 310
Management Information Systems in Health Care (3)
Examines elements within a management information systems design for health services institutions and organizations. Examines elements of analysis, design, implementation and control through cases, system analysis procedures and effective evaluation modalities.
Prerequisites: Healthcare Administration 300, Computer Studies 201

HEALTHCARE MANAGEMENT INFORMATION SYSTEMS 311
Informatics Resources and Technology for Health Services (3)
Examines resources available in on-line databases, public and private web-based offerings, methods of integration of existing resources, evaluation criteria for determining appropriateness of self-development of technological resources and contracting or purchasing. Prerequisite: Healthcare Management Information Systems 310

HEALTHCARE MANAGEMENT INFORMATION SYSTEMS 401
Network Management (3)
Presents principles and practices of developing, implementing and maintaining local area networks (LAN), wide-area networks (WAN) and intranets. Includes system requirement analysis, architectural principles, acquisition processes, installation and maintenance. Prerequisite: Healthcare Management Information Systems 310

HEALTHCARE MANAGEMENT INFORMATION SYSTEMS 402
Systems Design (3)
Analyzes, designs, implements and evaluates information systems in medium-sized and large organizations, including personal and technological interaction, determination of inputs and outputs as required by end users, hardware match and comprehensive systems integration. Prerequisite: Healthcare Management Information Systems 310

HEALTHCARE MANAGEMENT INFORMATION SYSTEMS 420
Informatics Analysis and Utilization in Health Service Organization (3)
Examines the role of data and information, its collection, storage, assembly, display and presentation in healthcare settings. Emphasizes managerial, strategic and process-focused applications and needs, including the translation of data and information into intelligence for use as a decision making resource in the processes and management of the healthcare delivery system. Prerequisites: Healthcare Administration 300, Healthcare Management Information Systems 310, Management 304

INTERDISCIPLINARY STUDIES 302
Understanding Research Principles and the Scientific Method (3)
Introduces research methodologies applicable to health care and the health professions. Emphasizes research methodologies (from qualitative and descriptive to quasi-experimental), the application of research approaches to health professions-based research questions, and the analysis of reported research. Prepares and requires students to conduct literature searches relevant to the department or researchable questions and appropriate research designs and become critical consumers.

INTERDISCIPLINARY STUDIES 303
Advanced Research Project Analysis (3)
Real time research on a topic selected during ID 302 or determined in consultation with the instructor. Participants refine a comprehensive proposal, conduct a pilot study to form a research hypothesis and present findings in a final seminar session.
Prerequisite: ID 302 or equivalent

MASTER OF SCIENCE IN RADIOLOGIC AND IMAGING SCIENCES
Core Courses
RADIOLOGIC SCIENCES 510
Research I (2)
Introduces research methods and data analysis, literature review, qualitative and quantitative research, regulatory and funding agencies and requirements, and scholarly publications and manuscript preparation.

RADIOLOGIC SCIENCES 520
Research II (2)
Presents current research in radiologic and imaging sciences and its modalities. Reviews salient publications, and funding sources in the field. Design and implementation of a research project in radiologic and imaging sciences.

RADIOLOGIC SCIENCES 530
Radiologic and Imaging Sciences (2)
Presents the basic sciences of radiologic professions including physics, instrumentation, data capture and data management.

RADIOLOGIC SCIENCES 610
Advances in Current Technology I (2)
Presents new technologies and developments in the radiologic professions such as PET/CT, IMRT, PACS and 3D ultrasound.

RADIOLOGIC SCIENCES 620
Advances in Current Technology II (2)
Continuation of Radiologic Sciences 610, Radiologic and Imaging Sciences Current Technology I. Topics include teleradiology, integrated modalities and new developments and advances.

RADIOLOGIC SCIENCES 650
Healthcare Law and Ethics (3)
Content varies from year to year. Addresses a group of related current topics in radiologic and imaging sciences of interest to educators and administrators.

RADIOLOGIC SCIENCES 660
Seminar (2)
The final seminar series provides active participation in journal club activities where significant research products are discussed and evaluated through guided workshops. The seminar also provides a venue for formal sharing of either project or thesis with colleagues and faculty advisors.

RADIOLOGIC SCIENCES 690
Capstone Project I (1)
A Radiologic and Imaging Sciences-related, practical project proposed by the student and approved by the advisor. Project is presented in a public forum in the final semester of the program.

RADIOLOGIC SCIENCES 691
Capstone Project II (1)
Continuation of RS 690 Capstone Project I.
Prerequisite: Radiologic Sciences 690.

RADIOLOGIC SCIENCES 692
Capstone Project III (1)
Continuation of RS 691 Capstone Project II.
Prerequisite: Radiologic Sciences 691.

Education Courses
RADIOLOGIC SCIENCES 540
Program Management (3)
Provides an orientation to academic program directorship, faculty and staff management, student affairs, faculty and academic affairs, the higher education system in the US, and how colleges and universities in the US work.

RADIOLOGIC SCIENCES 550
Principles of Instruction (3)
Focuses on principles and practice of effective pedagogy, curriculum development and evaluation in radiologic and imaging sciences.

RADIOLOGIC SCIENCES 560
Program Accreditation (3)
Presents topics such as outcome assessments, benchmarking, self-study preparation, applying for and maintaining accreditation and site visits.

RADIOLOGIC SCIENCES 630
Faculty Development (3)
Introduces the meaning and concepts of serving as radiologic and imaging sciences faculty. Topics include scholarship, advisement, teaching, faculty recruitment, retention and development.

Management Courses
RADIOLOGIC SCIENCES 570
US Healthcare System (3)
Introduces the US healthcare system, regulations, organizations and funding methods.
RADIOLOGIC SCIENCES 580
Personnel Management (3)
Introduces principles of management with emphasis on its applications in radiologic departments (radiology, radiation therapy, nuclear medicine) administration.

RADIOLOGIC SCIENCES 590
Accreditation and Quality Management (3)
Examines the process of application for and maintenance of clinical professional accreditation of clinical operations with agencies such as ACR and ACNAHL. Emphasizes the role of the radiologic administrator.

RADIOLOGIC SCIENCES 640
Financial Management (3)
Introduces accounting and financial management as they apply to radiologic administration.

Computed Tomography Courses
RADIOLOGIC SCIENCES CC 500
CT Physics and Instrumentation (3)
In-depth study of the physical principles and instrumentation in computed tomography. Covers the production of x-rays and their interactions with matter. Provides information on data acquisition and image reconstruction, processing and quality. Addresses CT scanner components and operation, scanning factors and their applications.

RADIOLOGIC SCIENCES CC 501
Cross-Sectional Anatomy (1)
Introduces the student to human gross anatomy as seen in the axial, sagittal and coronal planes, and correlates this with CT and MRI images. Includes the brain and spinal cord, structures in the neck, thorax, and abdominal and pelvic cavities.

RADIOLOGIC SCIENCES CC 512
Clinical CT I (6)
Students participate in the diagnostic process of performing CT imaging examinations at clinical sites. Students image anatomic structures and pathology and record the information needed to provide optimal examinations. Provides intensive, hands-on practice under the supervision of the clinical staff. Evaluation is based on clinical competency in all aspects of CT imaging procedures and patient care.

RADIOLOGIC SCIENCES CC 513
Clinical CT II (6)
Continuation of Radiologic Sciences CC 512, Clinical CT I.
Prerequisite: Radiologic Sciences CC 512

RADIOLOGIC SCIENCES CC 514
Clinical CT III (8)
Continuation of Radiologic Sciences CC 513, Clinical CT II.
Prerequisite: Radiologic Sciences CC 513

RADIOLOGIC SCIENCES CC 531
CT Procedures I (3)
Covers the various imaging protocols utilized to produce anatomy and pathology on CT images specific to the central nervous system, neck and thorax. Discusses conventional, helical and multi-sliced methods.

RADIOLOGIC SCIENCES CC 532
CT Procedures II (3)
Covers the various imaging protocols utilized to produce anatomy and pathology on CT images specific to the musculoskeletal system, abdomen and pelvis. Discusses conventional, helical and multi-sliced methods.
Prerequisite: Radiologic Sciences CC 531

Invasive Cardiovascular Technology Courses

RADIOLOGIC SCIENCES I 502
Noninvasive Testing Principles and Procedures (2)
Provides a foundation in the basic principles of electrocardiography. Presents an overview of the theory and diagnostic techniques utilized by technologists in noninvasive laboratory. Emphasizes the development of a systematic approach to electrocardiographic interpretation, dysrhythmia analysis, exercise stress testing, Holter monitoring, nuclear medicine procedures, phonocardiography and pacemaker evaluation.

RADIOLOGIC SCIENCES I 511
Cardiovascular Physiology (2)
Presents the construction and dynamics of the cardiovascular system in detail. Includes the development of the cardiovascular system, anatomical and physiological characteristics, heart sounds, biophysics of the cardiac cell, cardiac pumping action and its regulation, cardiovascular hemodynamics, coronary blood flow, systemic and pulmonic circulation and the control of regional circulation.

RADIOLOGIC SCIENCES I 512
Cardiovascular Pathophysiology (3)
Continuation of Radiologic Sciences I 511, Cardiovascular Physiology. Provides a physiologic and technical back-ground for the various diagnostic and therapeutic techniques in the field. Emphasizes the pathophysiological mechanisms of acquired and congenital cardiovascular diseases as well as their clinical presentation, detection and treatment.
Prerequisite: Radiologic Sciences I 511

RADIOLOGIC SCIENCES I 513
Radiobiology and Health Physics (2)
Presents the principles of cell biology and effects of ionizing radiation at the molecular, cellular and systemic levels. Emphasis is on changes at the cellular level and stochastic vs. deterministic effects and the concept of risk estimates. Covers principles and practice of radiation safety in radiology, including pertinent rules and regulations.

RADIOLOGIC SCIENCES I 531
Clinical Invasive I (6)
Requires observation and application of clinical principles in an invasive cardiovascular laboratory. Emphasizes the professional attributes and fundamental technical skills necessary to perform as a team member during invasive procedures. Students synthesize learning from the didactic, laboratory and instrumentation courses. Students must demonstrate competency in the performance of ICVT procedures.

RADIOLOGIC SCIENCES I 532
Clinical Invasive II (6)
Continuation of Radiologic Sciences I 531, Clinical Invasive I. Students continue application of ICVT skills. Students must demonstrate competency in the performance of ICVT procedures. Prerequisite: Radiologic Sciences I 531

RADIOLOGIC SCIENCES I 533
Clinical Invasive III (8)
Continuation of Radiologic Sciences I 532, Clinical Invasive II with active participation in an invasive cardiovascular laboratory. Emphasizes the professional attributes and technical skills necessary to perform as a team member during interventional techniques, electrophysiology studies and specialty applications in congenital and acquired disease states. Presents the opportunity to work more independently in the performance of invasive cardiovascular procedures. Students accept more responsibility for simple procedures and begin to perform more complex procedures under supervision. Prerequisite: Radiologic Sciences I 532

RADIOLOGIC SCIENCES I 538
Invasive Procedures I (3)
Provides guided practice in the performance of procedures utilized in diagnostic invasive cardiovascular procedures. Includes sterile technique, circulating and monitoring procedures, pharmacologic identification, room set-up and film processing.

RADIOLOGIC SCIENCES I 539
Invasive Procedures II (3)
Continuation of Radiologic Sciences I 538, Invasive Procedures I. Provides guided practice in the performance of advanced invasive cardiovascular procedures in a laboratory setting. Emphasizes the clinical application and operation of equipment utilized in interventional and electro-physiologic studies. Prerequisite: Radiologic Sciences I 538
RADIOLOGIC SCIENCES I 541
Radiography Physics and Instrumentation I (2)
Presents the physical principles underlying radiological technology, focusing on the equipment required to generate x-rays and on the nature and behavior of x-radiation. Includes basic math review, radiation units, mechanics, atomic physics, electricity and magnetism, electromagnetic waves, x-ray generator circuits, x-ray tubes and x-ray interactions with matter.

RADIOLOGIC SCIENCES I 542
Radiography Physics and Instrumentation II (2)
Continuation of Radiologic Sciences I 541, Radiography Physics and Instrumentation I. Introduces concepts of radiographic image quality and describes specialized radiographic equipment. Includes x-ray detection, radiographic contrast, radiographic noise (mottle), x-ray scatter, spatial resolution, geometric effects of projection, tomography (conventional and CT), fluoroscopy, automatic exposure control, conventional and computed radiography, image display and computer hardware and software.
Prerequisite: Radiologic Sciences I 541

RADIOLOGIC SCIENCES I 557
Invasive Principles I (3)
Provides a comprehensive introduction to the fundamental skills and principles needed to perform diagnostic cardiac procedures. Emphasizes indications and contraindications and the collection of diagnostic information obtained during the procedure. Students utilize these fundamentals to evaluate acquired cardiovascular disease states.

RADIOLOGIC SCIENCES I 558
Invasive Principles II (3)
Continuation of Radiologic Sciences I 557, Invasive Principles I. Emphasizes emergency and interventional techniques, electrophysiology studies and specialty applications in congenital and acquired disease states.
Prerequisite: Radiologic Sciences I 557

RADIOLOGIC SCIENCES I 583
Invasive Review Seminar (2)
Presents a comprehensive review of the physical principles, instrumentation and clinical applications of invasive cardiac procedures in preparation for the registry examination.

PET/CT Courses
RADIOLOGIC SCIENCES PC 500
CT Physics and Instrumentation (3)
Introduces the physical principles and instrumentation used in computed tomography. Includes production of x-rays and their interactions with matter, data acquisition and image reconstruction, processing, and quality. Addresses CT scanner components and operation, scanning factors, and their applications.
RADIOLOGIC SCIENCES PC 501
Cross-Sectional Anatomy (1)
Introduces the student to human gross anatomy as seen in the axial, sagittal and coronal planes, and correlates this with CT and MRI images. Includes the brain and spinal cord, structures in the neck, thorax, and abdominal and pelvic cavities.

RADIOLOGIC SCIENCES PC 512
PET/CT Clinical I (1)
Provides the opportunity to become competent in the skills necessary to perform high quality PET and/or CT and PET/CT procedures and provide excellent patient care. Clinical education is conducted at assigned clinical affiliate sites, under the supervision of registered technologists or medical personnel. Includes demonstration and observation, and culminates in clinical competency in PET and CT imaging procedures and patient care.

RADIOLOGIC SCIENCES PC 513
PET/CT Clinical II (1)
Continuation of Radiologic Sciences PC 512, PET/CT Clinical I.
Prerequisite: Radiologic Sciences PC 512

RADIOLOGIC SCIENCES PC 514
PET/CT Clinical III (1)
Continuation of Radiologic Sciences PC 513, PET/CT Clinical II.
Prerequisite: Radiologic Sciences PC 513

RADIOLOGIC SCIENCES PC 515
PET Procedures (1)
Encompasses the interrelated aspects of performing PET and PET/CT procedures. Includes anatomy, physiology and pathology of the organ systems, radiopharmaceuticals and CT contrast, patient preparation and care, imaging instrumentation and protocols. Presents and discusses representative images.

RADIOLOGIC SCIENCES PC 516
PET Principles (1)
Includes discussion of the design, operation and quality control of PET and PET/CT scanners. Discusses relevant computer applications and performance characteristics. Presents the physics, synthesis and chemistry of positron-emitting nuclides and radiopharmaceuticals, along with pertinent radiation safety topics.

RADIOLOGIC SCIENCES PC 531
CT Procedures I (3)
Covers the various imaging protocols utilized to produce anatomy and pathology on CT images specific to the central nervous system, neck and thorax. Discusses conventional, helical and multi-sliced methods.
RADIOLOGIC SCIENCES PC 532  
CT Procedures II (3)  
Covers the various imaging protocols utilized to produce anatomy and pathology on CT images specific to the musculoskeletal system, abdomen and pelvis. Discusses conventional, helical and multi-sliced methods.  
Prerequisite: Radiologic Sciences PC531

CERTIFICATE PROGRAMS  
CT Courses  
Radiologic Sciences CC 400  
CT Physics and Instrumentation (3)  
In depth study of the physical principles and instrumentation in computed tomography. Covers the production of x-rays and their interactions with matter. Provides information on data acquisition and image reconstruction, processing and quality. Addresses CT scanner components and operation, scanning factors and their applications.

RADIOLOGIC SCIENCES CC 401  
Cross-Sectional Anatomy (1)  
Introduces the student to human gross anatomy as seen in the axial, sagittal and coronal planes, and correlates this with CT and MRI images. Includes the brain and spinal cord, structures in the neck, thorax, abdomen and pelvis.

RADIOLOGIC SCIENCES CC 412  
Clinical CT I (1)  
Students participate in the diagnostic process of performing CT imaging examinations at clinical sites. Students image anatomic structures and pathology and record the information needed to provide optimal examinations. Provides intensive, hands-on practice under the supervision of the clinical staff. Evaluation is based on clinical competency in all aspects of CT imaging procedures and patient care.

RADIOLOGIC SCIENCES CC 413  
Clinical CT II (1)  
Continuation of Radiologic Sciences CC 412, Clinical CT I.  
Prerequisite: Radiologic Sciences CC 412

RADIOLOGIC SCIENCES CC 414  
Clinical CT III (1)  
Continuation of Radiologic Sciences CC 413, Clinical CT I.  
Prerequisite: Radiologic Sciences CC 413

RADIOLOGIC SCIENCES CC 431  
CT Procedures I (3)  
Covers the various imaging protocols utilized to produce anatomy and pathology on CT images specific to the central nervous system, neck, musculoskeletal system, abdomen and pelvis.
Discusses conventional, helical and multi-sliced methods.

RADIOLOGIC SCIENCES CC 432
CT Procedures II (3)
Covers the various imaging protocols utilized to produce anatomy and pathology on CT images specific to the musculoskeletal system, thorax, interventional and special procedures. Discusses conventional, helical and multi-sliced methods.

PET/CT Courses
RADIOLOGIC SCIENCES PC 400
CT Physics and Instrumentation (3)
In depth study of the physical principles and instrumentation in computed tomography. Covers the production of x-rays and their interactions with matter. Provides information on data acquisition and image reconstruction, processing and quality. Addresses CT scanner components and operation, scanning factors and their applications.

RADIOLOGIC SCIENCES PC 401
Cross-Sectional Anatomy (1)
Introduces the student to human gross anatomy as seen in the axial, sagittal and coronal planes, and correlates this with CT and MRI images. Includes the brain and spinal cord, structures in the neck, thorax, and abdominal and pelvis.

RADIOLOGIC SCIENCES PC 412
PET/CT Clinical I (1)
Provides the opportunity to become competent in the skills necessary to perform high quality PET and/or CT and PET/CT procedures and provide excellent patient care. Clinical education is conducted at assigned clinical affiliate sites, under the supervision of registered technologists or medical personnel. Includes demonstration and observation, and culminates in clinical competency in PET and CT imaging procedures and patient care.

RADIOLOGIC SCIENCES PC 413
PET/CT Clinical II (1)
Continuation of Radiologic Sciences PC 412, PET/CT Clinical I.
Prerequisite: Radiologic Sciences PC 412

RADIOLOGIC SCIENCES PC 414
PET/CT Clinical III (1)
Continuation of Radiologic Sciences PC 413, PET/CT Clinical II.
Prerequisite: Radiologic Sciences PC 413

RADIOLOGIC SCIENCES PC 415
PET Procedures (1)
Encompasses the interrelated aspects of performing PET and PET/CT procedures. Includes anatomy, physiology and pathology of the organ systems, radiopharmaceuticals and CT
contrast, patient preparation and care, imaging instrumentation and protocols. Presents and
discusses representative images.

**RADIOLOGIC SCIENCES PC 431**
**CT Procedures I (3)**
Covers the various imaging protocols utilized to produce anatomy and pathology on CT images
specific to the central nervous system, neck, musculoskeletal system, abdomen and pelvis.
Discusses conventional, helical and multi-sliced methods.

**RADIOLOGIC SCIENCES PC 432**
**CT Procedures II (3)**
Covers the various imaging protocols utilized to produce anatomy and pathology on CT images
specific to the musculoskeletal system, thorax, interventional and special procedures. Discusses
conventional, helical and multi-sliced methods.
Prerequisite: Radiologic Sciences PC 431

**RADIOLOGIC SCIENCES PC 451**
**PET Principles (1)**
Includes discussion of the design, operation and quality control of PET and PET/CT scanners.
Discusses relevant computer applications and performance characteristics. Presents the
physics, synthesis and chemistry of positron-emitting nuclides and radiopharmaceuticals, along
with pertinent radiation safety topics.
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Academic Calendar
# 2013-14 Academic Calendar

## PRE-FALL SEMESTER (Physical Therapy Students)

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes begin</td>
<td>6/3, Mon.</td>
</tr>
<tr>
<td>Classes end</td>
<td>8/13, Tues.</td>
</tr>
<tr>
<td>Grades due in Registrar’s Office, 9:00 A.M.</td>
<td>8/19, Tues.</td>
</tr>
</tbody>
</table>

## FALL SEMESTER

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation/Registration (Entering Class)</td>
<td>Various</td>
</tr>
<tr>
<td>Labor Day Holiday</td>
<td>9/2, Mon.</td>
</tr>
<tr>
<td>Classes begin</td>
<td>9/4, Wed.</td>
</tr>
<tr>
<td>Drop/Add Period ends</td>
<td>9/18, Wed.</td>
</tr>
<tr>
<td>Last date to remove an “I” grade from previous term</td>
<td>9/24, Tues</td>
</tr>
<tr>
<td>Last date to withdraw with a grade of “W”</td>
<td>10/23, Wed.</td>
</tr>
<tr>
<td>On-line Registration for Spring Semester begins (anticipated)</td>
<td>11/11, Mon.</td>
</tr>
<tr>
<td>Thanksgiving Holidays begin / No classes scheduled</td>
<td>11/27, Wed.</td>
</tr>
<tr>
<td>Thanksgiving Holidays end / Classes resume</td>
<td>11/30, Sat.</td>
</tr>
<tr>
<td>Classes end</td>
<td>12/13 Fri.</td>
</tr>
<tr>
<td>Final Examinations Begin</td>
<td>12/14 Sat.</td>
</tr>
<tr>
<td>Final Examinations End</td>
<td>12/19 Thurs.</td>
</tr>
<tr>
<td>Grades due in Registrar’s Office, 9:00 A.M.</td>
<td>12/26, Thurs.</td>
</tr>
<tr>
<td>Last date to file Application for Graduation</td>
<td>12/31, Tues.</td>
</tr>
</tbody>
</table>

## SPRING SEMESTER

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Line Registration for Spring Semester ends</td>
<td>1/6, Mon.</td>
</tr>
<tr>
<td>Classes begin</td>
<td>1/13, Mon.</td>
</tr>
<tr>
<td>Drop/Add Period ends</td>
<td>1/27, Mon.</td>
</tr>
<tr>
<td>Last date to remove an “I” grade from previous term</td>
<td>1/31 Fri.</td>
</tr>
<tr>
<td>Last date to withdraw with a grade of “W”</td>
<td>2/28, Fri.</td>
</tr>
<tr>
<td>Spring Recess begins / No classes scheduled</td>
<td>3/3, Mon.</td>
</tr>
<tr>
<td>Spring Recess ends / Classes resume</td>
<td>3/10, Mon.</td>
</tr>
<tr>
<td>On-line Registration for Summer/Fall Semester begins (anticipated)</td>
<td>3/24, Mon.</td>
</tr>
<tr>
<td>Classes end</td>
<td>5/2, Fri.</td>
</tr>
<tr>
<td>Final Examinations Begin</td>
<td>5/5, Mon.</td>
</tr>
<tr>
<td>Final Examinations End</td>
<td>5/10, Sat.</td>
</tr>
<tr>
<td>Senior Grades due in Registrar’s Office, 9:00 A.M.</td>
<td>5/12, Mon.</td>
</tr>
<tr>
<td>On-line Registration for Summer Semester ends</td>
<td>5/13, Tues.</td>
</tr>
<tr>
<td>All other Grades due in Registrar’s Office, 9:00 A.M.</td>
<td>5/14, Wed.</td>
</tr>
<tr>
<td>Commencement Exercises</td>
<td>5/28, Wed.</td>
</tr>
</tbody>
</table>

## SUMMER SESSION - 1st Session

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes begin</td>
<td>5/19, Mon.</td>
</tr>
<tr>
<td>Holiday, Memorial Day</td>
<td>5/26, Mon.</td>
</tr>
<tr>
<td>Drop/Add Period ends</td>
<td>5/27, Tue.</td>
</tr>
<tr>
<td>Event</td>
<td>Date</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Last date to withdraw with a grade of “W”</td>
<td>6/3, Tue.</td>
</tr>
<tr>
<td>Last date to remove an “I” grade</td>
<td>6/16, Mon.</td>
</tr>
<tr>
<td>Previous term</td>
<td>6/23, Mon.</td>
</tr>
<tr>
<td>Final Examinations Begin</td>
<td>6/24, Tue</td>
</tr>
<tr>
<td>Final Examinations End</td>
<td>6/25, Wed.</td>
</tr>
<tr>
<td>Grades due in Registrar’s Office</td>
<td>6/27, Fri.</td>
</tr>
</tbody>
</table>

**SUMMER SESSION - 2nd Session 2014**

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes begin</td>
<td>7/7, Mon.</td>
</tr>
<tr>
<td>Drop/Add Period ends</td>
<td>7/14, Mon.</td>
</tr>
<tr>
<td>Last date to withdraw with a grade of “W”</td>
<td>7/28, Mon.</td>
</tr>
<tr>
<td>Last date to remove an “I” grade</td>
<td>7/30, Wed.</td>
</tr>
<tr>
<td>Previous term</td>
<td>8/22, Fri</td>
</tr>
<tr>
<td>Final Examinations Begin</td>
<td>8/25, Mon.</td>
</tr>
<tr>
<td>Final Examinations End</td>
<td>8/26, Tue.</td>
</tr>
<tr>
<td>Grades due in Registrar’s Office</td>
<td>8/28, Thur.</td>
</tr>
<tr>
<td>On-line registration for Fall Semester</td>
<td>8/29, Fri.</td>
</tr>
</tbody>
</table>

*The University reserves the right to make changes to the academic calendar as circumstances may require.*