**ALLIED HEALTH (ALH)**

**ALH 119 - INTRODUCTION TO MEDICAL TERMINOLOGY**
Medical Terminology is a course that helps students understand the Greek- and Latin-based language of medicine and healthcare. Emphasis is placed upon word roots, suffixes, prefixes, abbreviations, symbols, anatomical terms, and terms associated with movements of the human body. This course also stresses the proper pronunciation, spelling, and usage of medical terminology.
Credits: 2
Course Notes: This course does not count towards BIOL major credit.

**ALH 251 - INTRODUCTION TO RADIOLOGY & MEDICAL IMAGING**
Introductions to the art and science of medical radiography and medical imaging are presented. Included is a discussion of the history of radiology, basic radiation safety and protection, imaging terminology, and an introduction to exposure factors and image formation. Other course components include an introduction to professional organizations, and cultural diversity in healthcare.
Credits: 3
Course Notes: Acceptance into the RAD clinical program required.

**ALH 252 - RADIOLOGICAL PROCEDURES I**
Radiographic anatomy and positioning skills are presented as they relate to performing radiographic procedures of the human body. Specific areas presented include positioning and procedures of the chest, abdomen, and extremities. Emphasis will be placed on the production of quality images while minimizing radiation exposure to the patient. Laboratory exercises will demonstrate the application of theoretical principles and concepts, while reinforcing didactic lecture content. Commonly-encountered pathological conditions will be examined. Pathology reports will be assigned as part of this course.
Credits: 3
Course Notes: Acceptance into the RAD clinical program required.

**ALH 253 - PATIENT CARE IN MEDICAL IMAGING**
This course will present basic patient care techniques related to the medical imaging environment. Topics presented include sterile and aseptic technique, standard precautions, venipuncture, patient transfer, care of medical equipment, infection control, patient communication, basic EKG, and monitoring & recording of vital signs.
Credits: 3
Course Notes: Acceptance into the RAD clinical program required.

**ALH 254 - RADIOGRAPHY CLINICAL I**
This is the first of a sequence of clinical courses designed to introduce students to the hospital clinical setting, while providing an opportunity for students to participate in or observe radiographic procedures. Students will complete general patient care competencies during this course, while rotating through various areas within the radiology department. Additionally, they will begin completing clinical competencies related to the chest, abdomen, routine contrast procedures, mobile examinations, extremities, and pediatric procedures. Students will perform under the supervision of qualified radiographers.
Credits: 2
Course Notes: Acceptance into the RAD clinical program required.

**ALH 255 - FLUOROSCOPIC PROCEDURES I**
This course examines the radiographic anatomy and positioning skill required to perform radiographic procedures of the digestive system. Also is an overview of contrast media and venipuncture instruction. Emphasis will be placed on the production of quality radiographs while minimizing radiation exposure to the patient and technologist. Pathology reports will be assigned to examine commonly-encountered pathological conditions.
Credits: 1
Course Notes: Acceptance into the RAD clinical program required.

**ALH 261 - FLUOROSCOPIC PROCEDURES II**
This course examines the radiographic anatomy and positioning skill required to perform radiographic procedures of the urinary, biliary, and reproductive systems. Also included are imaging studies of the spinal cord and arthrography. Emphasis will be placed on the production of quality radiographs while minimizing radiation exposure to the patient and technologist. Pathology reports will be assigned to examine commonly-encountered pathological conditions.
Credits: 1
Course Notes: Acceptance into the RAD clinical program required.

**ALH 262 - MEDICAL LAW & ETHICS**
This course examines the medicolegal issues involving patient care and medical imaging. Professional Ethics and ethical dilemmas will also be presented. Additional topics include confidentiality, HIPPA, medical documentation and elements of informed consent. Subject matter experts serve as guest presenters.
Credits: 1
Course Notes: Acceptance into the RAD clinical program required.

**ALH 263 - MEDICAL TERMINOLOGY FOR MEDICAL IMAGING**
The medical terminology course will include a study of root words, prefixes, and suffixes of medical vocabulary, medical abbreviations and applicable symbols. A combination of on-line learning exercises and chapter quizzes will be utilized. Although designed as an independent study course, students will meet once a week with the course facilitator to complete module tests. A medical terminology competency examination will be administered at the end of the course.
Credits: 1
Course Notes: Acceptance into the RAD clinical program required.

**ALH 264 - IMAGING PRINCIPLES I**
Examines the factors controlling and influencing the production of radiographic images. Exercises will demonstrate application of theoretical principles and concepts. Topics include beam filtration, beam restriction, image receptors, computed and digital radiography concepts, radiographic grids, and technical factor selection & manipulation. Emphasis will be placed on methods of improving radiographic image quality, while emphasizing patient and technologist radiation protection.
Credits: 2
Course Notes: Acceptance into the RAD clinical program required.

**ALH 265 - INTRODUCTION TO COMPUTERS**
An introduction to microcomputers is presented and is designed to acquaint the participant with computer usage. Specific topics include how computers work, types of computers, hardware and software, and commonly-employed software applications. Additional units of study include fundamentals of Word 2007, PowerPoint 2007, and Excel 2007. This course is instructor-led and taught in a computer lab.
Credits: 1
Course Notes: Acceptance into the RAD clinical program required.
ALLIED HEALTH (ALH)

ALH 266 - RADIOGRAPHIC PROCEDURES II
Radiographic anatomy and positioning skills are presented as they relate to performing radiographic procedures of the human body. Specific areas presented include the pelvic girdle, bony thorax, spinal column, sacrum & coccyx. Emphasis will be placed on the production of quality images while minimizing radiation exposure to the patient. Laboratory exercises will demonstrate the application of theoretical principles and concepts, while reinforcing didactic lecture content. Commonly-encountered pathological conditions will be examined. Pathology reports will be assigned as part of this course.
Credits: 3
Course Notes: Acceptance into the DMS clinical program required.

ALH 302 - MEDICAL TERMINOLOGY
The medical terminology course consists of a study of root words, prefixes, and suffixes of medical vocabulary. Also included are medical abbreviations and applicable symbols. A combination of learning exercises and chapter quizzes are utilized. Emphasis is on application of terminology through the use of chapter objectives, learning exercises, and critical thinking exercises. As an independent study, students may choose to progress more rapidly than the assignment schedule outlines.
Credits: 1
Course Notes: Required for students admitted to the clinical phase of Nuclear Medicine Technology program.

ALH 305 - ULTRASOUND IMAGE CRITIQUE
Study of image critique, technical factors, and sonographic interpretation. Review of sonographic terminology, image quality factors, scanning protocols and techniques, and normal sonographic appearances of abdominal, OB-GYN, and vascular structures. Integration of clinical history and pathology in the interpretation of pathologic sonograms and Doppler data.
Credits: 2

ALH 306 - SPECIALITY SONOGRAPHY
Study of abnormal, superficial parts, newborn, and invasive procedures. Areas studied include neonatal procedures, breast and prostate pathology, GI tract, soft tissues, musculoskeletal, and invasive procedures. Presentation of pathologic processes, sonographic appearances, and clinical history correlation.
Credits: 2

ALH 307 - PRINCIPLES OF ULTRASOUND PHYSICS I
Introduction and study of the fundamental principles of diagnostic ultrasound physics. Study of various diagnostic ultrasound equipment along with instrumentation and quality control.
Credits: 3

ALH 308 - PRINCIPLES OF ULTRASOUND PHYSICS II
Continuation of the study of principles of diagnostic ultrasound physics, including artifacts, Doppler, 3D, harmonic imaging, contrast agents, bioeffects and safety.
Credits: 3

ALH 284 - ABDOMEN SONOGRAPHY WITH LAB
Study of normal anatomy and sonographic appearances of abdominal structures and superficial structures. Normal variants, congenital anomalies, physiology, and related laboratory tests are covered. Sonographic methods used to visualize abdominal structures and organs. Includes laboratory section on basic scanning techniques.
Credits: 4
Course Notes: Acceptance into the DMS clinical program required.

ALH 285 - OB-GYN SONOGRAPHY WITH EMBRYOLOGY
Study of obstetrical and gynecological anatomy. Clinical applications and sonographic methods used to visualize pelvic organs, the pregnant uterus, and related structures. Discussion of embryogenesis and the reproductive cycle. Study of normal sonographic patterns.
Credits: 3
Course Notes: Acceptance into the DMS clinical program required.

ALH 286 - CLINICAL EDUCATION I: SONOGRAPHY
Application of sonographic scanning procedures in a hospital setting under the supervision of a qualified registered diagnostic sonographer. Emphasis on liver, GB, pancreas, gallbladder, obstetrics, and pelvic areas.
Pass-fail grading.
Credits: 2
Course Notes: Acceptance into the DMS clinical program required.

ALH 306 - SPECIALITY SONOGRAPHY
Study of abdominal, superficial parts, newborn, and invasive procedures. Areas studied include neonatal procedures, breast and prostate pathology, GI tract, soft tissues, musculoskeletal, and invasive procedures. Presentation of pathologic processes, sonographic appearances, and clinical history correlation.
Credits: 2

ALH 307 - PRINCIPLES OF ULTRASOUND PHYSICS I
Introduction and study of the fundamental principles of diagnostic ultrasound physics. Study of various diagnostic ultrasound equipment along with instrumentation and quality control.
Credits: 3

ALH 308 - PRINCIPLES OF ULTRASOUND PHYSICS II
Continuation of the study of principles of diagnostic ultrasound physics, including artifacts, Doppler, 3D, harmonic imaging, contrast agents, bioeffects and safety.
Credits: 3

ALH 280 - FUNDAMENTALS OF SONOGRAPHY
Orientation to basic scanning techniques, instrumentation, acoustic energy, and anatomy and image identification. Students will learn to identify sonographic anatomy and acceptable image parameters and to correlate this information to specific procedures. Students will practice scan to achieve basic skills needed in the clinical setting. This course must be passed prior to continuing in the DMS program.
Credits: 3
Course Notes: Acceptance into the DMS program required.

ALH 281 - MANAGEMENT & METHODS OF PATIENT CARE
Introduction to the basics of nursing techniques, medical professionalism, and patient care. Topics covered include nursing procedures, medical emergencies, ethics, confidentiality, HIPAA, hospital safety, informed consent, conscious sedation, patient transfer, infection control, professional development and certification, departmental organization and administration, QA/QC, and an introduction to hospital administration.
Credits: 1
Course Notes: Acceptance into the DMS clinical program required.

ALH 284 - ABDOMEN SONOGRAPHY WITH LAB
Study of normal anatomy and sonographic appearances of abdominal structures and superficial structures. Normal variants, congenital anomalies, physiology, and related laboratory tests are covered. Sonographic methods used to visualize abdominal structures and organs. Includes laboratory section on basic scanning techniques.
Credits: 4
Course Notes: Acceptance into the DMS clinical program required.

ALH 285 - OB-GYN SONOGRAPHY WITH EMBRYOLOGY
Study of obstetrical and gynecological anatomy. Clinical applications and sonographic methods used to visualize pelvic organs, the pregnant uterus, and related structures. Discussion of embryogenesis and the reproductive cycle. Study of normal sonographic patterns.
Credits: 3
Course Notes: Acceptance into the DMS clinical program required.

ALH 286 - CLINICAL EDUCATION I: SONOGRAPHY
Application of sonographic scanning procedures in a hospital setting under the supervision of a qualified registered diagnostic sonographer. Emphasis on liver, GB, pancreas, gallbladder, obstetrics, and pelvic areas.
Pass-fail grading.
Credits: 2
Course Notes: Acceptance into the DMS clinical program required.

ALH 302 - MEDICAL TERMINOLOGY
The medical terminology course consists of a study of root words, prefixes, and suffixes of medical vocabulary. Also included are medical abbreviations and applicable symbols. A combination of learning exercises and chapter quizzes are utilized. Emphasis is on application of terminology through the use of chapter objectives, learning exercises, and critical thinking exercises. As an independent study, students may choose to progress more rapidly than the assignment schedule outlines.
Credits: 1
Course Notes: Required for students admitted to the clinical phase of Nuclear Medicine Technology program.

ALH 305 - ULTRASOUND IMAGE CRITIQUE
Study of image critique, technical factors, and sonographic interpretation. Review of sonographic terminology, image quality factors, scanning protocols and techniques, and normal sonographic appearances of abdominal, OB-GYN, and vascular structures. Integration of clinical history and pathology in the interpretation of pathologic sonograms and Doppler data.
Credits: 2

ALH 306 - SPECIALITY SONOGRAPHY
Study of abdominal, superficial parts, newborn, and invasive procedures. Areas studied include neonatal procedures, breast and prostate pathology, GI tract, soft tissues, musculoskeletal, and invasive procedures. Presentation of pathologic processes, sonographic appearances, and clinical history correlation.
Credits: 2

ALH 307 - PRINCIPLES OF ULTRASOUND PHYSICS I
Introduction and study of the fundamental principles of diagnostic ultrasound physics. Study of various diagnostic ultrasound equipment along with instrumentation and quality control.
Credits: 3

ALH 308 - PRINCIPLES OF ULTRASOUND PHYSICS II
Continuation of the study of principles of diagnostic ultrasound physics, including artifacts, Doppler, 3D, harmonic imaging, contrast agents, bioeffects and safety.
Credits: 3
ALH 309 - OBSTETRICAL/GYNECOLOGICAL PATHOLOGY
Study of obstetrical and gynecological pathology. Instrumentation and techniques for optimization of sonographic obstetrical and gynecological images are reviewed. Comparison of normal sonographic patterns with pathology appearances, physiology, differentials, and correlation with lab tests and related organ involvement. Discussion and correlation of congenital abnormalities, causes, and sonographic appearances.
Credits: 4

ALH 310 - CLINICAL EDUCATION II
This course emphasizes clinical experience progression under the supervision of faculty, sonography staff, and clinical instructor. Continued practicum in the clinical applications of abdominal sonography, female pelvis, and obstetrical applications. Effective communication, operation of equipment, patient care, and technical skills developed.
Credits: 3

ALH 311 - ABDOMINAL PATHOLOGY
This course emphasizes clinical experience progression under the supervision of faculty, sonography staff, and clinical instructor. Continued practicum in the clinical applications of abdominal sonography, female pelvis, and obstetrical applications. Effective communication, operation of equipment, patient care, and technical skills developed.
Credits: 3

ALH 313 - PATIENT CARE MANAGEMENT I
See course advisor for more information on this course.
Credits: 2
Course Notes: Acceptance into clinical program

ALH 316 - PATHOLOGY
This course will introduce the student to the concept of diseases. Emphasis will be placed on different types of growths, causative factors, and biological behavior. Etiology and clinical manifestations will be described.
Credits: 2
Course Notes: Acceptance to clinical program

ALH 317 - RADIATION PHYSICS I
Basic knowledge of physics pertinent understanding radiations used in clinical settings.
Credits: 2
Course Notes: Acceptance to clinical program.

ALH 318 - RADIATION PHYSICS II
This course is designed to review and expand concepts and theories in the Radiation Physics course. Detailed analysis of the structure of matter, properties of radiation, nuclear transformation, x-ray production, and interactions of ionizing radiation are emphasized. Also presented are treatment units used in external radiation therapy, measurement and quality of ionizing radiation produced, absorbed dose measurement, dose distribution, and scatter analysis. In additional, the course will include properties of photon and electron beams, electron beam therapy, and brachytherapy.
Credits: 3
Course Notes: Acceptance into clinical program.

ALH 320 - CLINICAL HEMATOLOGY
In the Hematology Laboratory students learn to count and classify the various types of red and white blood cells. They also learn how to determine whether the oxygen-carrying red blood cells are in a healthy state, an essential procedure for diagnosis of anemia. In addition, the students will be shown how to classify the cells in the bone marrow to assist the pathologist in the identification of leukemia and other blood disorders.
Credits: 5
Course Notes: Includes coagulation. Acceptance into clinical program

ALH 321 - CLINICAL MICROBIOLOGY - VIROLOGY
The Microbiology Laboratory has the responsibility of isolating and identifying potentially pathogenic microorganisms. In many cases the laboratory also determines the susceptibility of the etiologic agent to a variety of antibiotics. This laboratory is divided into Bacteriology, Mycology, Mycobacteriology, Parasitology, and Virology.
Credits: 2
Course Notes: Acceptance into clinical program

ALH 322 - CLINICAL CHEMISTRY
State-of-the art automation and robotics enable the laboratory to provide critical diagnostic information quickly and accurately to physicians in such areas as the emergency department, intensive care, surgery and the neonatal intensive care unit. In addition, the Clinical Chemistry Laboratory offers testing for the assessment of many metabolic systems that can include cholesterol measurement, thyroid and reproductive hormone levels, and therapeutic drug monitoring. Students will work with up-to-date, computer-assisted technology to provide critical as well as routine testing for effective patient care.
Credits: 5
Course Notes: Acceptance into clinical program

ALH 323 - CLINICAL IMMUNOLOGY/SEROLOGY
The Immunopathology Laboratory performs state-of-the art testing in Flow Cytometry and Diagnostic Immunology. In Flow Cytometry special emphasis is placed on diagnosis of leukemias and lymphomas and monitoring of immunologic pathologies. Rotation through the Immunology section includes performance of protein chemistry and infectious disease serology; detection of tumor markers; and pregnancy and prenatal diagnosis.
Credits: 5
Course Notes: Acceptance into the MDTC clinical program.

ALH 324 - CLINICAL IMMUNOHEMATOLOGY
Tests are conducted in the Coagulation section of the Hematology Laboratory to determine the presence or absence of factors essential to normal blood coagulation. Special procedures are performed to identify acquired and inherited deficiencies of the coagulation proteins.
Credits: 3
Course Notes: Acceptance into the MDTC clinical program.

ALH 325 - CLINICAL MICROSCOPY/URINALYSIS
In the Body Fluids section of this rotation, body fluids are examined to determine the kinds and numbers of body cells present. It is in this laboratory that both quantitative and qualitative testing of urine is done. Urinalysis involves testing for pH, color, specific gravity, sugars and excessive amounts of protein. Specimens are also examined for the presence of bacteria and parasites as well as crystals and casts formed by the kidneys.
Credits: 3
Course Notes: Acceptance into the MDTC clinical program.
ALH 326 - CLINICAL EDUCATION II
This course emphasizes clinical experience progression under the supervision of faculty, sonography staff, and clinical instructor. Continued practice in the clinical applications of abdominal sonography, female pelvis, and obstetrical applications. Effective communication, operation of equipment, patient care, and technical skills developed. Pass-fail grading.
Credits: 3
Course Notes: Acceptance into the DMS clinical program required.

ALH 327 - PHLEBOTOMY
Lectures and clinical rotation demonstrating the proper collection and processing of blood for routine and special tests are given. Both venipuncture and dermal puncture techniques are presented. Medical Laboratory Science students will gain competence drawing blood for laboratory testing in the Outpatient Laboratory and hospital patient care units.
Credits: 1
Course Notes: Acceptance into clinical program.

ALH 328 - MOLECULAR DIAGNOSTICS
The Molecular Diagnostics Laboratory is the fastest growing laboratory in our institution, reflecting the explosion in knowledge about the human genome and the availability of new tools to examine DNA and RNA. Highly sensitive nucleic acid amplification methods, including real-time PCR, are used to detect low concentrations of infectious agents such as Herpes simplex virus. Quantitative (viral load) tests for hepatitis C and HIV nucleic acid are used to monitor response to therapy.
Credits: 3
Course Notes: Acceptance into the MDTC clinical program.

ALH 329 - MANAGEMENT AND EDUCATION
Group dynamics, basic educational theory, the five functions of management and a variety of related topics are presented through lecture and group activities.
Credits: 1-2
Course Notes: Acceptance into the MDTC clinical program.

ALH 331 - INTRODUCTION TO PEDIATRICS AND VASCULAR IMAGING
Discussion of pediatric and neonatal anatomy and imaging techniques. Newborn and pediatric pathologies are reviewed. Basic adult vascular imaging is discussed, including peripheral vasculature and carotid artery anatomy and pathology. Imaging techniques, protocols, spectral and color flow Doppler interrogation and interpretation are reviewed. Peripheral venous and carotid imaging is performed in a laboratory setting.
Credits: 1

ALH 332 - CLINICAL EDUCATION IV WITH SPECIALTIES
In this final period of clinical study, the student demonstrates full competency and progresses to full independence under the supervision of sonography staff and clinical instructor. Emphasis on accuracy and efficiency in pathology identification, diagnosis, and related organ involvement documentation. Rotations in the practice of peripheral vascular exams, pediatrics, breast imaging, and other specialties within the field may be arranged.
Credits: 4

ALH 333 - LABORATORY MANAGEMENT
General introduction to laboratory management for the Histotechnologist; emphasis on theories, methods, and techniques used in management, with specific application to the laboratory.
Credits: 2
Course Notes: Acceptance into the histotechnology, clinical training program.

ALH 334 - INTRODUCTION TO HISTOTECHNOLOGY
Principles and theories of histotechnology; safety and regulatory requirements; reagents; dilutions; basics of histology.
Credits: 2
Course Notes: Acceptance into the histotechnology, clinical training program.

ALH 336 - PROCESSING & EMBEDDING TISSUES
Principles and theories of embedding processes; methods of preparing and orienting tissues.
Credits: 3
Course Notes: Acceptance into the histotechnology, clinical training program.

ALH 337 - MICROTMY/INSTRUMENTATION
Principles and theories of microtomy processes; methods of preparing tissues; laboratory and restoration.
Credits: 4
Course Notes: Acceptance into the histotechnology, clinical training program.

ALH 338 - ROUTINE STAIN AND QUALITY CONTROL
Principles and theories of staining procedures; evaluation of different methods of staining; equipment troubleshooting, quality control processes and slide review.
Credits: 2
Course Notes: Acceptance into the histotechnology clinical, training program.

ALH 340 - MANAGEMENT AND METHODS OF PATIENT CARE I
Skills in problem solving, critical thinking, and decision making are developed as well as oral and written communication skills. Career skills are enhanced through the interview process, resume writing, and administrative duties including; budgeting, medical and legal considerations and political issues affecting health care. Special emphasis is placed on research methods, medical law and ethics, and scheduling guidelines. Focus on basic measures necessary to provide quality patient care. Basic principles of record keeping and maintaining confidentiality of information are explained. 2 Credit hours.
Credits: 3
Course Notes: Must be admitted into the, Nuclear Medicine Technology clinical placement

ALH 341 - RADIATION BIOLOGY
This course is designed to present basic concepts and principles of radiation biology. The interactions of radiation with cells, tissues and the body as a whole and resultant biophysical event will be presented. Discussion of the theories and principles of tolerance dose, time-dose relationships, fractionation schemes, and the relationship to the clinical practice of radiation therapy will be discussed, examined, and evaluated.
Credits: 1
Course Notes: Acceptance into the Nuclear Medicine or Radiation Therapy, clinical program required.

ALH 342 - CLINICAL EDUCATION IV WITH SPECIALTIES
In this final period of clinical study, the student demonstrates full competency and progresses to full independence under the supervision of sonography staff and clinical instructor. Emphasis on accuracy and efficiency in pathology identification, diagnosis, and related organ involvement documentation. Rotations in the practice of peripheral vascular exams, pediatrics, breast imaging, and other specialties within the field may be arranged. Pass-fail grading.
Credits: 3
Course Notes: Must be admitted into the, Nuclear Medicine Technology clinical placement
ALH 343 - REGISTRY REVIEW
Comprehensive registry reviews for the ARDMS examinations. Practice exams and mock registries are an integral part of this review. Applications for registry examinations are provided and reviewed. Credits: 2
Course Notes: Acceptance into the DMS clinical program required.

ALH 344 - DIAGNOSTIC NUCLEAR IMAGING CLINICAL PRACTICUM I
Supervised clinical education that gives the student the opportunity to perform a variety of patient procedures on both SPECT, SPECT/CT, PET and PET/CT imaging systems for all diagnostic, therapeutic, non-imaging in-vivo and in-vitro procedures. Clinical competencies developed in patient care, positioning techniques, analyzing images, and the selection of imaging parameters and collimators. Knowledge of integrated computer systems designed for use with clinical gamma cameras, Single Photon EmissionComputed Tomography (SPECT), SPECT/CT, Positron Emission Tomography (PET), and PET/CT images. The clinical practicum is designed to promote independent critical thinking, balanced responsibility, organization and accountability in the student. Students will demonstrate competence in all procedures presented. Credits: 4
Course Notes: Must be accepted into clinical training.

ALH 345 - RADIATION SAFETY & PROTECTION
Credits: 3

ALH 346 - RADIONUCLIDE CHEM & RADIOPHARM
This course examines radionuclide production, mechanisms of radionuclide localization the use and preparation of radiopharmaceuticals for diagnostic and therapeutic applications, quality control of radiopharmaceuticals, and governmental regulations. Credits: 3

ALH 347 - CLINICAL CORRELATION-PATHOLOGY
Focus on the study of the structure and function of human cells, tissues, organs and systems. Clinical interpretation of organ systems with emphasis on immunology, and anatomy and physiology, which will provide a basis for understanding abnormal or pathological conditions as applied to nuclear medicine. Causes, symptoms, and treatments of disease are discussed as well as its effect on the images. In addition, the student is scheduled to observe the interpretation of images with the physician staff. Credits: 2
Course Notes: Must be accepted into clinical training.

ALH 348 - DIAGNOSTIC NUCLEAR IMAGING PRACTICUM II
This practicum allows the students to enhance their training by performing (with supervision) advanced nuclear medicine procedures. This course also examines health physics by studying radiation exposure rate, radiation contamination, safe handling and storage techniques, and monitoring equipment as well as all aspects of a Nuclear Pharmacy, such as preparation and quality control testing of radiopharmaceuticals, performing assays, low level lab procedures, and operation of special equipment. Credits: 4-5

ALH 349 - CLINICAL NUCLEAR IMAGING PROCEDURE
This course is an introduction to the nuclear medicine department, its operation and the duties of a Nuclear Medicine technologist. Credits: 3

ALH 350 - RADIATION PHYSICS & INSTRUMENTATION
Theory and physical principles associated with atomic structure, nuclear and quantum physics related to radioactive decay. Properties of the elements and the production of characteristic x and gamma rays, anger electrons and Bremsstrahlung. Instruction on the modes of decay, radiation dosimetry, and interaction of ionizing radiation with matter. Basic physics, instrumentation, and radiochemistry of SPECT (Single Photon Emission Computed Tomography), SPECT/CT, Positron Emission Tomography (PET), and PET/CT. Credits: 3
Course Notes: Must be accepted into clinical training.

ALH 352 - RADIATION SAFETY & PROTECTION
The student will be provided with the basic principles and concepts of radiation protection and safety. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies, and health care organizations are incorporated. Specific responsibilities of the radiation therapist are discussed, examined, performed, and evaluated. Credits: 2
Course Notes: Acceptance into clinical program.

ALH 353 - MEDICAL IMAGING FOR RADIATION THERAPY
This course is designed to establish a knowledge base in factors that govern and influence the production and recording of radiographic images for patient simulation, treatment planning, and treatment verification in radiation oncology. Radiation oncology imaging equipment and related devices will be emphasized. Class demonstrations/labs are used to demonstrate the application of theory. Credits: 2
Course Notes: Acceptance to clinical program

ALH 354 - PRINCIPLES AND PRACTICE I
This course will provide the student with the fundamentals of clinical radiation oncology. Malignant conditions, their etiology, and methods of treatment are discussed. Attention is given to patient prognosis, treatment results, and the effects of combined therapies. In addition, this course will review calculations necessary for the various patient setups and treatments. Credits: 3
Course Notes: Acceptance to clinical program

ALH 355 - PRINCIPLES & PRACTICE II
This course is a continuation of Principles and Practice I. This course will provide the student with the fundamentals of clinical radiation oncology. Malignant conditions, their etiology, and methods of treatment are discussed. Attention is given to patient prognosis, treatment results, and the effects of combined therapies. In addition, this course will review calculations necessary for the various patient setups and treatments. Credits: 2
Course Notes: Acceptance into clinical program

ALH 357 - CLINICAL PRACTICUM I
These courses will provide the student with the fundamentals of clinical radiation oncology. The medical, biological, and pathological aspects as well as the physical and technical aspects will be discussed. The diagnosis, treatment prescription, the documentation of treatment parameters and delivery, emergency procedures, and patient condition and education needs will also be presented, discussed, examined, and evaluated. The course is also designed to examine and evaluate the management of neoplastic disease using knowledge in arts and sciences, while promoting critical thinking and the basis of ethical clinical decision making. Credits: 3
Course Notes: Acceptance into clinical program
ALH 358 - CLINICAL PRACTICUM II
Content is designed to provide sequential development, application, analysis, integration, synthesis, and evaluation of concepts and theories in radiation therapy. Through structured sequential assignments in clinical facilities, concepts of team practice, patient-centered clinical practice, and professional development shall be discussed, examined, and evaluated. This includes supervised clinical education, which offers a sufficient and well-balanced variety of radiation treatments, examinations, and equipment. Various rotations include: three general radiation therapy treatment rooms, Simulator/CT simulator, Nursing Department, and Physics/Dosimetry Department.
Credits: 4
Course Notes: Acceptance into clinical program

ALH 360 - QUALITY MANAGEMENT
This course examines how we comprehend quality management as it relates to aspects of radiation therapy. Quality management protocols will be presented as they apply to patient care, record keeping, documentation, and equipment and radiation output.
Credits: 2
Course Notes: Acceptance into clinical program

ALH 362 - OPERATIONAL ISSUES
This course will familiarize the student with the patient chart and its content. All components of the legal document will be defined and discussed, ensuring that students know how to use proper documentation and find information relevant to the patient’s treatment.
Credits: 2
Course Notes: Acceptance into clinical program

ALH 363 - TECHNICAL RADIATION I
This course is a continuation of Technical Radiation Therapy I with discussions of various treatment and simulation procedures the different pathologies. The lab component will continue to provide a hands-on, sequential application, and clinical integration of concepts and theories in the radiation therapy clinic.
Credits: 2
Course Notes: Must be accepted into clinical training.

ALH 364 - TECHNICAL RADIATION THERAPY II
This course is a continuation of Technical Radiation Therapy I with discussions of various treatment and simulation procedures the different pathologies. The lab component will continue to provide a hands-on, sequential application, and clinical integration of concepts and theories in the radiation therapy clinic.
Credits: 2
Course Notes: Must be accepted into clinical training.

ALH 370 - COMPUTED TOMOGRAPHY AND CROSS-SECTIONAL ANATOMY
Computed Tomography and Cross-Sectional Anatomy. Introduction to the fundamental concepts and principles of computed technology and its role in medical imaging. Specific topics include physics & instrumentation of CT scanning, image production, and cross-sectional anatomy of the head, neck, thorax, abdomen, and pelvis. Emphasis placed on patient considerations, patient safety, and radiation protection.
Credits: 2
Course Notes: Required for students admitted to the Clinical phase of, Nuclear Medicine Technology program.

ALH 371 - CLINICAL NUCLEAR MEDICINE PROCEDURES II
Emphasis on theory and techniques of clinical procedures used in nuclear medicine imaging. Areas emphasized include patient care, developing acquisition parameters, imaging techniques, radionuclide identification, energies, half-lives, and principles of radionuclides in imaging and non-imaging procedures. Students will continue to develop an increased degree of competence in their performance of the skills related to critical thinking and problem solving.
Credits: 3
Course Notes: Required for students admitted to the clinical phase of, Nuclear Medicine Technology program.

ALH 372 - MANAGEMENT AND METHODS OF PATIENT CARE II
Skills in problem solving, critical-thinking, and decision-making are developed as well as oral and written communication skills. Career skills are enhanced through the interview process, resume writing, and administrative duties including: budgeting, medical and legal considerations and political issues affecting health care. Special emphasis is placed on research methods, medical law and ethics, and scheduling guidelines. Focus on basic measures necessary to provide quality patient care. Basic principles of record keeping and maintaining confidentiality of information are explained.
Credits: 1
Course Notes: Required for students admitted to the clinical phase, of Nuclear Medicine Technology program.

ALH 375 - IMMUNOHISTOCHEMISTRY
Advanced aspects of histological procedures used in clinical settings. The course will focus on the theoretical basis of immunohistochemistry.
Credits: 3

ALH 376 - ELECTRON MICROSCOPY
Advanced aspects of histological procedures used in clinical settings. The course will focus on the theoretical basis of electron microscopy.
Credits: 2
Course Notes: Must be admitted into the Histotechnology clinical placement

ALH 377 - SPECIAL STAINS
Advanced aspects of histological procedures used in clinical settings. The course will focus on the theoretical basis of special stains.
Credits: 3
Course Notes: Must be admitted into the Histotechnology clinical placement

ALH 378 - HISTOTECHNOLOGY PROCESS IMPROVEMENT
Capstone course for the histotechnology program. Students will conduct a process improvement project in the laboratory. Students will be required to work collaboratively in the design, implementation, and presentation of their process improvement project.
Credits: 2
Course Notes: Must be admitted into the Histotechnology clinical placement

ALH 379 - SEMINAR- ED & RES IN HISTOLOGY
Presentation of reports, discussions, lectures and papers on selected topics in Histotechnology.
Credits: 3
Course Notes: Must be admitted into the Histotechnology clinical placement
ALH 380 - RADIATION PHYSICS
An introduction to basic concepts of physics with emphasis on the fundamentals of x-ray generating equipment. Topics include atomic structure, the structure of matter, ionization, magnetism & electromagnetism, electronics, the control of high voltage and rectification, x-ray tubes, x-ray circuits, and the production & characteristics of radiation.
Credits: 3
Course Notes: Acceptance into the RAD clinical program required.

ALH 385 - RADIATION BIOLOGY & PROTECTION
The principles of cellular irradiation are presented. Radiation effects on cells and the factors affecting cellular response are included in addition to acute and chronic effects. Other topics include: radiation detection and measurement, patient protection, personnel protection, absorbed dose equivalencies, agencies and regulations, an introduction to radiation biology.
Credits: 2
Course Notes: Acceptance into the RAD clinical program required.

ALH 381 - OPERATIONAL ISSUES IN THE HEALTHCARE ENVIRONMENT
Content is designed to focus on various allied health operational issues. CQI project development and evaluation and assessment techniques will be emphasized. Human resource issues and regulations impacting the healthcare professional will be examined. Accrediting agencies and the licensed practitioner’s role in the accreditation process will be emphasized. Billing and reimbursement issues will also be presented.
Credits: 1
Course Notes: Acceptance into the RAD clinical program required.

ALH 382 - IMAGING PRINCIPLES II
This course is designed as a continuation of RAD 104. Course focus will be on continued knowledge development of the factors governing and influencing the production of radiographic images. Topics include technique chart formation, recorded detail and image distortion, processor quality assurance (QA) concepts, radiographic QA and quality control (QC), and digital imaging principles. Causes of poor image quality and improvement of sub-optimal images will be emphasized throughout. The technical factor competency exam will be administered at the end of the course.
Credits: 3
Course Notes: Acceptance into the RAD clinical program required.

ALH 383 - RADIOGRAPHIC PROCEDURES III
Radiographic anatomy and positioning skills are presented as they relate to performing radiographic procedures of the human body. Specific areas presented include the skull, facial and nasal bones, zygomatic arches, paranasal sinuses and mandible. Emphasis will be placed on the production of quality images while minimizing radiation exposure to the patient. Laboratory exercises will demonstrate the application of theoretical principles and concepts, while reinforcing didactic lecture content. Commonly-encountered pathological conditions will be examined.
Credits: 3
Course Notes: Acceptance into the RAD clinical program required.

ALH 384 - IMAGING EQUIPMENT & MODALITIES
This course is designed to examine the equipment routinely used in the production of diagnostic images in greater depth. Various recording media and techniques are discussed. Topics include: radiographic equipment, image intensified fluoroscopy, recording media and techniques, image noise, specialized imaging equipment, and state and federal regulations. An overview of other imaging modalities will also be presented including IR, Mammography, Radiation Therapy, Nuclear Medicine, PET, BMD, CT and Sonography.
Credits: 2
Course Notes: Acceptance into the RAD clinical program required.

ALH 386 - INTRODUCTION TO CT & CROSS-SECTIONAL ANATOMY
This course is designed to present a more in depth overview of CT Scanning and cross-sectional anatomy. Specific topics include the physics & instrumentation of CT scanning, image production, and cross-sectional anatomy of the head, neck, thorax, abdomen and pelvis. Emphasis will be placed on patient considerations, patient safety, and radiation protection.
Credits: 3
Course Notes: Acceptance into the RAD clinical program required.

ALH 387 - ARRT REVIEW
This course is offered during the final two quarters of the radiography program and is designed to review materials presented throughout the curriculum. The intent of this course is to prepare students for the certification examination in radiography administered by the American Registry of Radiologic Technologists (ARRT). A hybrid of on-line activities, classroom discussions, with problem-solving / self-assessment activities will be utilized.
Credits: 3
Course Notes: Acceptance into the RAD clinical program required.

ALH 388 - RADIOGRAPHIC CLINICAL III
This course continues to provide a clinical setting in which students continue to develop proficient clinical skills. Students will continue rotating through modalities in order to gain knowledge of other aspects of medical imaging. Terminal competency evaluations will begin during this clinical course. Students will complete any remaining procedural and general patient care competencies.
Credits: 4
Course Notes: Acceptance into the RAD clinical program required.

ALH 389 - FIXATION/GROSS PATHOLOGY
Gross room operations will include specimen receiving, assessing, common surgical procedures and terminology, specimen dissection plans of various types of tissues and basic grossing techniques and requirements. Intermediate and advanced knowledge in the theory of fixation. This includes anatomy fixation of tissues, types of fixation, action of major single and combination fixatives, special fixative, factors affecting the quality of fixation, fixation for selected individual tissue, incompatible stains and fixatives, useful formulas for fixatives and dehydration cross-linking fixatives.
Credits: 2

ALH 390 - MICROANATOMY
Study of microscopic structure of human tissues and organs. Material will emphasize the relationship between structure and function in tissues and organs.
Credits: 3
Course Notes: Must be admitted into the Histotechnology clinical placement.
ALH 391 - IMMUNOFLUOR/ENZYME/IN SITU
Fundamentals and practice of immunofluorescences, enzyme histochemistry and in situ hybridization. Acquire basic knowledge on specimen preparation, development of reagents, various methods and visualization of final results.
Credits: 2
Course Notes: Must be admitted into the Histotechnology clinical placement

ALH 392 - CLINICAL ROTATIONS
Rotations through various areas in the surgical and anatomic pathology labs.
Credits: 4
Course Notes: Must be admitted into the Histotechnology clinical placement