Communication

COMM 338 - Communication for Health Professionals (4)

Designed for health professionals, this course examines the dynamics of patient-provider communication inside the context of the contemporary health system. Other topics covered include risk communication, diversity, influence of technology and social support and health.

Prerequisite: Completion of at least 60 college credits, enrollment in the Medical Imaging program and RADT 201.

Offered: Fall.

DMS - Diagnostic Medical Sonography

**DMS 300 - Introduction to Diagnostic Medical Sonography** (1.5)

This course is designed to introduce students to diagnostic medical sonography, including sonographic principles and instrumentation, other imaging modalities, and medical terminology.

Prerequisite: MEDI 201 or RADT 201, and admission into the diagnostic medical sonography concentration.

Offered: Fall.

**DMS 301 - Abdominal Sonography** I (1.5)

This course introduces the student to scanning lower extremity vascular sonography. The student then progresses to abdominal vasculature, neck sonography & sonography of the kidneys.

Prerequisite: Admission into the diagnostic medical sonography concentration.

Offered: Spring.

**DMS 302 – Scan Lab I** (1)

This Scan lab specifically introduces scanning techniques, scan protocols and procedures within the laboratory setting. 2 contact hours.

Prerequisite: DMS 300.

Offered: Spring.

**DMS 303 - Abdominal Sonography II** (1.5)

This course is designed to give the student an understanding of abdominal and small parts anatomy, physiology, pathophysiology, sonographic presentation, and the clinical presentation of multiple disease states.

Prerequisite: DMS 301.

Offered: Summer.

**DMS 305 - Obstetrical and Gynecological Sonography I** (1.5)

Students gain knowledge of the menstrual cycle and sonographic anatomy of the female pelvis. Emphasis is placed on normal pelvic anatomy and an introduction to early pregnancy and its complications.

Prerequisite: Admission into the diagnostic medical sonography concentration.

Offered: Spring.

**DMS 306 Obstetrical and Gynecological Sonography II** (1.5)

Students will learn first and second trimester anatomy and pathologies. Students will also learn sonographic measurements performed in the first trimester.

Prerequisite: DMS 305.

Offered: Summer.

**DMS 307 - Sonographic Principles and Instrumentation** (3)

Imaging techniques that use high frequency sound production are introduced. Included is in-depth study of the characteristics of ultrasound and its interaction with human tissue.

Prerequisite: DMS 303.

Offered: Spring.

**DMS 310 - Clinical Practice I** (6)

Students are introduced to clinical and practical experience in diagnostic medical imaging. They must demonstrate the structures of the abdomen and gravid and non-gravid female pelvis, using sonography under known conditions. 24 contact hours.

Prerequisite: Admission into the diagnostic medical sonography concentration.

Offered: Spring.

**DMS 312 – Scan Lab II** (1)

Topics of this course include: post thyroidectomy, liver and biliary system, and upper extremity venous. 2 contact hours.

Prerequisite: DMS 302.

Offered: Summer.

**DMS 330 - Clinical Practice II** (8)

This is a continuation of DMS 310. Students perform sonographic examinations and learn to recognize normal and abnormal sonographic patterns in the abdomen, female pelvis, and fetus. 24 contact hours.

Prerequisite: DMS 310.

Offered: Summer.

**DMS 333 - Abdominal Sonography III** (1.5)

Students will learn abdominal sonography, including the pancreas and spleen. The student will also be introduced to MSK imaging and abdominal organ imaging.

Prerequisite: DMS 303.

Offered: Fall.

**DMS 335 - Obstetrical and Gynecological Sonography III** (1.5)

Students will learn third trimester anatomy and pathologies, fetal heart and brain, and fetal thoracic pathologies. The student will be introduced to fetal echocardiography and 3D and 4D obstetrical sonography.

Prerequisite: DMS 306.

Offered: Fall.

**DMS 403 - Abdominal Sonography IV** (1.5)

Students will learn about scrotum, breast, abdomen wall and cavities, and GI tract sonography. Contrast agents and their use in ultrasound and invasive procedures will also be covered.

Prerequisite: DMS 333.

Offered: Spring.

**DMS 406 – Obstetrical and Gynecological Sonography IV** (1.5)

Students will learn sonography of post-partum uterus and interventional obstetrics/gynecology with sonographic guidance. Pediatric sonography, and preparation for the ARDMS exam are included.

Prerequisite: DMS 335

Offered: Spring

**DMS 410 - Clinical Practice III** (8)

This is a continuation of DMS 330. 24 contact hours.

Prerequisite: DMS 330.

Offered: Fall.

**DMS 412 Scan Lab III** (1)

Topics of this course include: pancreatic and splenic sonography, and MSK of the shoulder. 2 contact hours

Prerequisite: DMS 312

Offered: Fall.

**DMS 422 Scan Lab IV** (1)

Topics of this course include: testes, breast, and carotid artery imaging. 2 contact hours.

Prerequisite: DMS 312

Offered: Spring.

**DMS 430 - Clinical Practice IV** (6)

This is a continuation of DMS 410. 18 contact hours.

Prerequisite: DMS 410.

Offered: Spring.

**[NOTE: MRI is currently in the wrong location in the catalog—should all go before Management-MGT]**

MRI - Magnetic Resonance Imaging

**MRI 301 - Introduction to Magnetic Resonance Imaging** (3)

This course covers basic MRI history, instrumentation, safety, positioning, equipment, coils and an overview of the department. Also included are basic pharmacology, venipuncture and intravenous contrast media administration.

Prerequisite: MEDI 201 or RADT 201, and acceptance into the MRI clinical program.

Offered: Spring.

**MRI 309 - Clinical Observation** (3.5)

This course provides an introduction to the clinical practice of MRI, with emphasis on departmental procedures, MRI safety, and patient care. This course offers practical experience observing and applying health care principles. 10.5 contact hours.

Prerequisite: Acceptance into the MRI clinical program.

Offered: Spring.

**MRI 310 - Clinical Practice I** (8)

Students gain skills required to achieve clinical competencies in a variety of MRI procedures. This course allows practice of MRI skills and leads to proficiency in MRI and patient care. 24 contact hours.

Prerequisite: MRI 301

Offered: Summer.

**MRI 311 - Cross Sectional Anatomy and Imaging Procedures I** (3)

This course covers anatomy in multiple orthogonal planes, including head, spine, neck and thorax. Bone, muscles, vascular structures and organs are examined. Includes discussion of imaging techniques and procedures.

Prerequisite: MRI 301

Offered: Summer.

**MRI 321 - Physical Principles I** (3)

This course covers a comprehensive overview of MRI principles to include: MRI signal production, tissue characteristics, widely used pulse sequences, image formation and image contrast.

Prerequisite: MRI 301

Offered: Summer.

**MRI 410 - Clinical Practice II** (8)

This course continues the experiences learned in MRI 310, including routine MRI procedures in various clinical settings on all patient types. Emphasis is placed on gaining confidence and manipulating parameters. 24 contact hours.

Prerequisite: MRI 310.

Offered: Fall.

**MRI 411 - Cross Sectional Anatomy and Imaging Procedures II** (3)

This is a continuation of MRI 311, discussing cross sectional anatomy of the abdomen, pelvis and upper and lower extremities, with continued emphasis on imaging techniques, procedures and protocols.

Prerequisite: MRI 311.

Offered: Fall.

**MRI 420 - Clinical Practice III** (6)

This course continues experiences learned in MRI 410, including advanced MRI procedures in various clinical settings on all patient types. This course prepares students to become independent functioning MRI technologists. 18 contact hours.

Prerequisite: MRI 410.

Offered: Spring.

**MRI 421 - Physical Principles II** (3)

This course is a continuation of MRI 321, providing an overview of encoding, data collection, image formation, K-space, acquisitions, advanced pulse sequence, flow phenomenon, MRA, cardiac MRI, and quality assurance.

Prerequisite: MRI 321.

Offered: Fall.

**MRI 430 - Registry Review** (3)

Students will review the specifications of the ARRT MRI examination, which include the guidelines for application, study strategies, and content included in the exam.

Prerequisite: MRI 410

Offered: Spring.

**MRI 455 - MRI Pathology** (1.5)

This course covers common pathologies found in MRI, and the appearance of these pathologies in various imaging protocols. Emphasis is placed on commonly imaged body systems and areas.

Prerequisite: MRI 410.

Offered: Spring.

**(THIS IS A NEW PREFIX THAT WILL GO BETWEEN MTET-Mathematics for Elementary Teachers AND MEDT-Medical Technology.)**

MEDI – Medical Imaging

**MEDI**

Topics include the history of medical imaging, the technologist's role on the health care team, equipment, clinical settings, and the various modalities in diagnostic imaging (formerly RADT 201 Orientation to Medical Imaging)

**MEDI 202 – Introduction to Medical Imaging** (1.5)

Presents the history of various specialties in medical imaging, and the technologist's role in the health care team. Safety and ethics, accreditation, certification, and professional organizations will also be discussed.

Prerequisite: MEDI 201 or RADT 201, and acceptance into a Medical Imaging clinical program

Offered: Fall

**MEDI 255 - Patient Care Interventions for Allied Health** (1.5)

Includes patient interactions, history taking, recording vital signs, transport, immobilization, and infection control. An introduction to pharmacology, contrast media, and medical emergencies will be included.  (formerly RADT 255 Patient Car Interventions for Allied Health)

Prerequisite: MEDI 201 or RADT 201, and acceptance into a Medical Imaging clinical program.

Offered: Fall

**MEDI 491-494 – Independent Study in Medical Imaging** (1-4)

The experimental aspects and recent advances in different fields of medical imaging are examined. A research project in the field is required.

Prerequisite: Acceptance into a Medical Imaging Clinical Program, consent of instructor, program director and dean.

Offered: As needed.

NMT - Nuclear Medicine Technology

**NMT 231 - Clinical Observation** (3.5)

The clinical practice of nuclear medicine is introduced, with emphasis on hospital policies and procedures, radiation safety, and patient care. Practical experience is given in observing and applying health care principles. 10.5 contact hours.

Prerequisite: MEDI 201 or RADT 201, and acceptance into the medical imaging with concentration in nuclear medicine technology program.

Offered: Spring.

**NMT 301 - Introduction to Nuclear Medicine Technology** (3)

This is an introduction to the science and practice of nuclear medicine technology. Topics include the organization of diagnostic departments and the responsibilities of the professional nuclear medicine technologist.

Prerequisite: MEDI 201 or RADT 201, and acceptance into the medical imaging with concentration in nuclear medicine technology program.

Offered: Spring.

**NMT 311 - Radiation Safety** (1)

This course covers principles and applications of radiation safety and protection. Specific topics include personal monitoring, regulations, waste disposal and radiotherapy.

Prerequisite: MEDI 201 or RADT 201, and acceptance into the medical imaging program with concentration in nuclear medicine technology program.

Offered: Spring.

NMT 321 - Diagnostic Nuclear Medicine Procedures I (3)

Topics covered are anatomy and physiology, pathophysiology, radiopharmacy, imaging techniques, and the interpretation of images. The course is taught using an integrated systems approach as applied to nuclear medicine.

Prerequisite: MEDI 201 or RADT 201, and acceptance into the medical imaging with concentration in nuclear medicine technology program.

Offered: Spring.

**NMT 325 Radiation Physics** (1)

This course covers concepts and physical principles that govern radioactivity and interactions of ionizing radiation with matter. Students will learn the law of radioactive decay and biological effects of radiation.

Prerequisite: NMT 301.

Offered: Summer.

**NMT 332 - Clinical Diagnostic Procedures** **I** (8)

Students learn the skills required to achieve clinical competencies in a variety of nuclear medicine procedures. Emphasis is on the integration of clinical and didactic education. 24 contact hours.

Prerequisite: RADT 201 and acceptance into the medical imaging with concentration in nuclear medicine technology.

Offered: Summer.

**NMT 402 - Instrumentation** (1.5)

The principles of operation and quality control are defined for all nonimaging and imaging instruments in nuclear medicine.

Prerequisite: NMT 311.

Offered: Fall.

**NMT 405 - Radiopharmacy** (1)

The theory and practice of radiopharmacy and radiochemistry are defined and discussed, including preparation, calculation of doses, quality control, radiation safety, and applicable regulations.

Prerequisite: NMT 301.

Offered: Summer.

**NMT 421 - Diagnostic Nuclear Medicine Procedures II** (3)

This is a continuation of NMT 321.

Prerequisite: NMT 321.

Offered: Summer.

**NMT 425 - Diagnostic Nuclear Medicine Procedures III** (3)

This is a continuation of NMT 421.

Prerequisite: NMT 421.

Offered: Fall.

**NMT 430 - Registry Review** (2)

Students prepare for the national certification exam offered by the Nuclear Medicine Technology Certification Board.

Prerequisite: NMT 311.

Offered: Spring.

**NMT 431 - Clinical Diagnostic Procedures II** (8)

This is a continuation of NMT 332. 24 contact hours.

Prerequisite: NMT 331.

Offered: Fall.

**NMT 432 - Clinical Diagnostic Procedures III** (6)

This course is a continuation of NMT 431. 18 contact hours.

Prerequisite: NMT 431.

Offered: Spring.

RADT - Radiologic Technology

**RADT 301 - Introduction to Radiographic Procedures** (2)

This course introduces positioning terminology, X-RAY equipment, safety and shielding.. 6 contact hours.

Prerequisite: MEDI 201 and admission into the MEDI-RT Clinical Program.

Offered: Fall.

**RADT 305 - Skeletal Anatomy** (3)

Students learn the anatomy of the skeletal system, including identification of bony processes and specific anatomical features. Students identify and describe the articulations of different bones.

Prerequisite: MEDI 201 or RADT 201.

Offered: Fall.

**RADT 306 - Radiographic Procedures** **I** (3)

Basic patient positioning, exposure factors, shielding, trauma, surgery, pediatric and mobile procedures will be explored.  Topics include: upper and lower extremity, shoulder girdle, pelvic girdle, bony thorax, and vertebral column.

Prerequisite: RADT 301 and admission into the MEDI-RT Clinical Program.

Offered: Spring.

**RADT 307 - Radiographic Procedures II** (3)

A continuation of RADT 306, this course includes positioning principles of bony thorax, skull, and contrast agent studies of the digestive, biliary, and urinary systems.

Prerequisite: RADT 306.

Offered: Spring.

**RADT 309 - Clinical Education I** (4)

In various clinical settings, students learn to produce appropriate radiographic images on all patient types. Technical factors are introduced. 16 contact hours.

Prerequisite: RADT 301.

Offered: Spring.

**RADT 310 - Clinical Education II** (8)

A continuation of RADT 309, this course includes routine radiographic procedures and technical factors. 32 contact hours.

Prerequisite: RADT 309.

Offered: Summer.

**RADT 320 - Principles of Radiography I** (3)

The discovery and properties of x-rays and the structure and function of x-ray tubes are discussed. The analysis of radiographic film quality is also explored.

Prerequisite: RADT 301.

Offered: Spring.

**RADT 321 - Principles of Radiography II** (3)

Topics include quality assurance testing, the evaluation of quality control tests, radiation monitoring, latent image formation, the use of intensifying screens, and automatic film processors.

Prerequisite: RADT 320.

Offered: Summer.

**RADT 330 - Radiation Physics I** (3)

Topics include the construction and function of x-ray tubes, the properties of x-ray emission spectra, photon interactions, and the clinical significance of photoelectric and Compton scattering.

Prerequisite: RADT 301.

Offered: Spring.

**RADT 411 - Clinical Education III** (8)

While reinforcing skills already learned, this clinical course focuses on advanced imaging procedures, including trauma and fluoroscopy procedures. 32 contact hours.

Prerequisite: RADT 310.

Offered: Fall.

**RADT 412 - Clinical Education IV** (6)

This final clinical course prepares students to become independent, functioning radiologic technologists. 24 contact hours.

Prerequisite: RADT 411.

Offered: Spring.

**RADT 425 - Ethics/Critical Thinking and Problem Solving** (3)

Topics include personal and professional values, professional standards, and legal liability in the workplace. Problem-solving techniques are taught to help students make competent, informed decisions.

Prerequisite: RADT 411.

Offered: Spring.

**RADT 431 - Radiation Physics II** (3)

Students explore electromagnetic and particulate radiation; tomography; radiosensitivity of different cell types; radiation sickness; radiation barriers; and federal, state, and local regulations concerning the use of radiation.

Prerequisite: RADT 330.

Offered: Fall.

**RADT 455 - Comprehensive Radiographic Pathology** (2)

A detailed, comprehensive pathology of organ systems relevant to radiologic technology is given.

Prerequisite: RADT 305.

Offered: Spring.

**RADT 461 - Registry Review** (3)

Students review the specifications of the American Registry of Radiologic Technologists exam, the guidelines for application, study strategies, and content included in the exam.

Prerequisite: RADT 411.

Offered: Spring.