

MEDICAL SCIENCES (MED) - ROCK COUNTY

Courses

MED 300 PATIENT CARE 2 Units

This course introduces students to the occupation of radiography and the health care team. Students study the history of radiography, professional organizations, career opportunities, organization, and management. Additional topics of study include radiation protection, medical ethics and the law, cultural awareness, and patient care measures in radiography.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 301 RADIOGRAPHIC ANATOMY I 4 Units

A comprehensive discussion of the anatomy and physiology of the chest, abdomen and upper and lower extremities is offered. Students will identify anatomy from radiographic images.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 302 RADIOGRAPHIC PHYSICS I 2 Units

This course begins students' study of radiographic production, equipment, and properties of ionizing radiation. Units of measurement, concept of energy, structure of matter, and the X-ray tube are covered. Beginning concepts of technical factors are introduced.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 303 RADIOGRAPHIC POSITIONING I 3 Units

This course complements Radiographic Anatomy I. The positions of the patient and placement of the radiographic tube necessary to demonstrate the anatomy of the chest, abdomen, and upper and lower extremities are studied. Adaptations are presented for abnormal situations. Students return-demonstrate these positions during lab periods.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 304 CLINICAL RADIOGRAPHY I 6 Units

This course familiarizes students with the computer system, PACS system, and department/room equipment where clinical experiences are conducted. Students demonstrate knowledge of the department workflow and the positions and projections acquired in the first semester.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 305 IMAGE ANALYSIS I 2 Units

In this complementary course to Radiographic Anatomy I, images are evaluated for technique, contrast, density, positioning, and image quality. Students are required to determine the image quality of assigned images.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 306 VENIPUNCTURE AND PHARMACOLOGY 1 Units

This course instructs students on the theory, practice, and basic techniques of venipuncture and the administration of contrast media and IV medication. The different types of contrast media are studied; both indications and contraindications are discussed. Students learn the symptoms of side effects, adverse reactions, and appropriate radiographer responses to these emergencies. Also provided to the student is a basic understanding of drugs, drug classifications, and other areas describing drugs and their actions on the body.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 310 FOUNDATIONS OF SONOGRAPHY 3 Units

This course provides an overview of diagnostic medical sonography (DMS) and its role in health care delivery. It is designed to orient students to the profession of diagnostic medical sonography by developing students' understanding of medical techniques, relative medical terminology, medical ethics and law, healthcare trends, and professionalism. Key topics discussed include basic sonographic terminology, stress management, historical and current applications of ultrasound, leadership roles, ethics and professionalism, patient rights, resume building, interview tactics, and potential career opportunities.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 311 SONOGRAPHY IN PATIENT CARE 3 Units

This course provides an orientation to the DMS program. Course content also includes in-depth discussion and training on topics relevant to careers in DMS. The course is designed to facilitate students' understanding of the software used during the DMS program, particularly in clinical experiences, knobology, ergonomics, and ultrasound department workflow. An introduction to cross-sectional anatomy, exam protocols, and patient prep will be discussed.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 312 ABDOMINAL SONOGRAPHY I 2 Units

This course details the anatomy, physiology, and pathology of the following organs: liver, gallbladder/biliary system, pancreas, genitourinary system, spleen, adrenals, and retroperitoneum. Detailed instruction is given in the basic methods of routine abdominal examinations. Students will learn the sonographic appearance of the abdominal organs in both normal and pathological situations. Basic Doppler flow characteristics are also discussed.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 318 SONOGRAPHY PRACTICUM I 4 Units

This lab course will introduce the concepts and principles of sonographic imaging with emphasis on the application of instrumentation, basic scanning techniques, and identification of cross-sectional anatomy in the appropriate scan planes. Students will scan abdominal structures. Students receive clinical instruction, guidance, and supervision as they begin gaining hands-on experience, acquire, clinical competencies, and learn to produce sonographic images.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 351 RADIOGRAPHIC ANATOMY II 2 Units

A comprehensive discussion of the anatomy and physiology of the spine and GI-GU areas is offered. Students identify anatomy from radiographic images.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 352 RADIOGRAPHIC PHYSICS II 3 Units

During the second semester of Radiographic Physics, students learn the circuitry of the x-ray system including generators and motors. Students conduct in-depth studies of technique and image and radiographic quality.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 353 RADIOGRAPHIC POSITIONING II 3 Units

This course complements Radiographic Anatomy II. The positions of the patient and placement of the radiographic tube necessary to demonstrate the anatomy of the spine and GI-GU are studied. Adaptations will be presented for abnormal situations. Students will return demonstrate these positions in a lab period.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 354 CLINICAL RADIOGRAPHY II 6 Units

During the second semester of Clinical Radiography, students further familiarize themselves with the computer system, PACS system, and department/room equipment. Students demonstrate knowledge of the department workflow, the positions and projections taught in the second semester, and build upon knowledge obtained from the previous semester.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 355 IMAGE ANALYSIS II 2 Units

In this complementary course to Radiographic Anatomy II, images are evaluated for technique, contrast, density, positioning, and image quality. Students are required to determine the image quality of assigned images.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 356 RADIOBIOLOGY/RADIATION PROTECTION 2 Units

The effects of radiation on cells, tissues, organs, and systems of the human body are studied. The rationale behind radiation protection methods and government regulations are covered. Students learn the specific methods for protecting patients and operators from unnecessary exposure to ionizing radiation.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 360 SONOGRAPHY PRINCIPLES & INSTRUMENTATION 3 Units

This course imparts to students the fundamental principles of ultrasound physics and instrumentation. Students first learn principles of sound generation and propagation, sound interaction with tissue, the instrumentation utilized to produce and detect diagnostic medical ultrasound, systems operation, modes of pulsed-wave and continuous wave propagation, transducer technology, image storage, retrieval and sharing systems. Thereafter, students receive instruction on Doppler instrumentation (color, spectral, and power), hemodynamics, artifacts, quality assurance, bio-effects and safety, and emerging technologies.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 361 OBSTETRICS AND GYNECOLOGY SONOGRAPHY I 2 Units

This course details anatomy, physiology and pathology of the female reproductive organs, pelvic musculature, and pelvic ligaments. Detailed instruction is given in basic methods of routine pelvic examinations including endovaginal exams. Students will identify the sonographic appearance and Doppler characteristics of the pelvic organs in both normal and abnormal conditions. This course also details the anatomy, embryology, physiology and pathology of the first trimester pregnancy. Students will be able to recognize the ultrasound appearance of first-trimester pregnancy and the female pelvis in both normal and abnormal situations.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 362 ABDOMINAL SONOGRAPHY II 2 Units

This course is a continuation of the study of abdominal anatomy, physiology, pathology, and pathophysiology. Superficial structures, non-cardiac chest, and pediatric specialty exams will also be discussed along with specific scanning protocols and techniques. Correlation between Doppler and disease processes will be examined.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 368 SONOGRAPHY PRACTICUM II 3 Units

In this second practicum course, students continue emphasis on proper transducer manipulation, the use of anatomical windows to produce quality images, following a prescribed protocol, and writing a technical impression. Students will scan the abdominal organs and begin to scan the vascular system. Students continue to receive clinical instruction, guidance, and supervision through hands-on experiences, acquisition of clinical competencies, and production of sonographic images.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 369 SONOGRAPHY CLINICAL LAB I 6 Units

During this first semester of clinical training, students concentrate primarily on developing abdominal scanning and equipment competencies. The majority of competencies focus on abdominal scanning including liver, gallbladder, aorta, pancreas, kidneys, and spleen. Students are given detailed instruction in the operation of the sonographic equipment and correct ergonomics. Basic Doppler evaluation will be taught. All competencies must be successfully completed to pass the clinical portion of the semester.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 401 RADIOGRAPHIC ANATOMY III 2 Units

A comprehensive discussion of the anatomy of the skull is presented. Students identify anatomy from radiographic images.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 402 RADIOGRAPHIC PHYSICS III 2 Units

A study of all phases of digital radiography and fluoroscopy systems is presented in this last course of Radiographic Physics. A detailed description of all equipment and how images are produced is provided. Digital and computer radiography are compared. Quality assurance is introduced to describe testing devices and procedures used to assure consistency in quality images. State and Federal impacts are discussed.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 403 RADIOGRAPHIC POSITIONING III 2 Units

In this complementary course to Radiographic Anatomy III, the positions of the patient and placement of the radiographic tube necessary to demonstrate the anatomy of the skull are studied. Adaptations are presented for abnormal situations. Students return demonstrate these positions in a lab period.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 404 CLINICAL RADIOGRAPHY III 6 Units

During the third semester of Clinical Radiography students further familiarize themselves with the computer system, PACS system, and the department/room equipment. Students demonstrate knowledge of the department workflow, the positions and projections taught in the third semester, and build on knowledge obtained from the previous two semesters.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 405 IMAGE ANALYSIS III 2 Units

In this complementary course to Radiographic Anatomy III, images are evaluated for technique, contrast, density, positioning, and image quality. Students are required to determine the image quality of assigned images.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 406 PATHOLOGY 2 Units

A basic study of the disease process on body systems is presented. The nature, cause, development, and consequences of pathology are discussed. Radiographic demonstration of the various disease processes are reviewed for technique, quality, and presentation.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 410 VASCULAR SONOGRAPHY I 2 Units

This course is the study of vascular anatomy, physiology, hemodynamics, waveform analysis, and treatment of vascular disease. This course will stress the importance of clinical history, physical assessment, and appropriate exam protocol. Emphasis will be placed on carotid duplex imaging, upper and lower extremity arterial and venous duplex imaging, and ankle brachial indices.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 417 SONOGRAPHY PRINCIPLES & INSTRUMENTATION REGISTRY REVIEW 2 Units

This course reviews concepts imparted in MED 360 to prepare students to sit for the American Registry for Diagnostic Medical Sonography (ARDMS) Sonography Principles and Instrumentation (SPI) examination.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 418 SONOGRAPHY PRACTICUM III 3 Units

In this third practicum course, continued emphasis is placed on proper transducer manipulation, the use of anatomical windows to produce quality images, following a prescribed protocol, and writing a technical impression. Students will scan the abdominal organs and begin to scan the vascular system. Students continue to receive clinical instruction, guidance, and supervision through hands-on experiences, acquisition of clinical competencies, and production of sonographic images.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 419 SONOGRAPHY CLINICAL II 5 Units

The second course in the sequence of clinical training concentrates on abdominal and an introduction to non-invasive vascular imaging. Students will be given detailed instruction in scan techniques and clinical skills in these areas. Doppler evaluation of these organs/areas will be included; correlation between Doppler and disease processes will be examined. All competencies must be successfully completed to pass the clinical portion of the semester.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 450 RELATED IMAGING AND SPECIAL PROCEDURES 2 Units

This course imparts basic principles of Computed Tomography, Nuclear Medicine, Radiation Therapy, Ultrasound and other modalities as compared to diagnostic radiography. Other areas of study include studies that utilize contrast media and sterile technique.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 451 REGISTRY REVIEW 4 Units

During the final semester of the program, students devote concentrated time reviewing each area of the American Registry of Radiologic Technologists (ARRT) examination. A comprehensive review of each category with related testing is presented. In the final week, students are tested as if in a registry setting.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 454 CLINICAL RADIOGRAPHY IV 6 Units

During the final semester of Clinical Radiography, students further familiarize themselves with the computer system, PACS system, the department/room equipment. Students demonstrate knowledge of the department workflow, the positions and projections taught in the fourth semester, and build on knowledge obtained from the previous three semesters.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - RADIOLOGIC TECHNOLOGY EMPHASIS

MED 460 VASCULAR SONOGRAPHY II 2 Units

A study of anatomy, physiology, hemodynamics, and waveform analysis to detect disease of the vascular system. Normal and pathological states of the upper and lower extremity arterial systems, cerebrovascular, abdominal, and retroperitoneal systems will be explored. Treatments, physiological testing, and interventions will be discussed.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 461 OBSTETRICS AND GYNECOLOGY SONOGRAPHY II 2 Units

This course details the anatomy, physiology, pathology, and anomalies of second- and third-trimester pregnancy. Students are instructed in the appropriate methods for obtaining fetal measurements and detailed fetal anatomy, as well as in assessing maternal structures. Students are taught to recognize both normal and abnormal conditions associated with pregnancy.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 468 SONOGRAPHY PRACTICUM IV 2 Units

In this fourth practicum course, continued emphasis is placed on proper transducer manipulation, the use of anatomical windows to produce quality images, following a prescribed protocol, and writing a technical impression. Students will scan the abdominal organs and begin to scan the vascular system. Students continue to receive clinical instruction, guidance, and supervision through hands-on experiences, acquisition of clinical competencies, and production of sonographic images.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 469 SONOGRAPHY CLINICAL III 6 Units

The third course in the sequence of clinical training concentrates on abdomen, OB/GYN, superficial structures, vascular, and pediatric specialty scanning. Students will be given detailed instruction in scanning techniques and clinical skills including Doppler analysis in the above areas. All competencies must be successfully completed to pass the clinical portion of the semester.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 486 ABDOMINAL AND OB/GYN SONOGRAPHY REGISTRY REVIEW 2 Units

This course serves as a review for students preparing to pass the ARDMS Abdomen and OB/GYN exams. Students are given review exercises in Abdomen and OB/GYN. Students complete "mock registries" and must obtain a score of at least 75% in both concentrations in order to pass the class.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 487 VASCULAR TECHNOLOGY REGISTRY REVIEW 2 Units

This course serves as a review for students preparing to pass the ARDMS Vascular Ultrasound Registry examination. Students are given review exercises in Abdomen and OB/GYN. Students complete "mock registries" and must obtain a score of at least 75% in order to pass the class.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 488 SONOGRAPHY PRACTICUM V 3 Units

In this final practicum course, continued emphasis is placed on proper transducer manipulation, the use of anatomical windows to produce quality images, following a prescribed protocol, and writing a technical impression. Students will scan the abdominal organs and begin to scan the vascular system. Students continue to receive clinical instruction, guidance, and supervision through hands-on experiences, acquisition of clinical competencies, and production of sonographic images.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS

MED 489 SONOGRAPHY CLINICAL IV 6 Units

The fourth course in the sequence of clinical training includes competencies in the areas of abdomen, superficial structures, small parts, pediatric, vascular, and OB/GYN imaging. More detailed instruction will be given for Doppler evaluation of the portal and hepatic vessels, renal vessels and other abdominal vessels as encountered in the clinical area. Students will focus on fine tuning their scanning skills in these areas and strive to function as an entry level sonographer with minimal supervision. All competencies must be successfully completed to pass the clinical portion of the semester.

PREREQ: ACCEPTED INTO MEDICAL SCIENCES - DIAGNOSTIC SONOGRAPHY EMPHASIS