

# RADIOGRAPHY/DIAGNOSTIC MEDICAL SONOGRAPHY (526)

## Radiography Courses (526-1xx)

### Diagnostic Medical Sonography Courses (526-2xx)

#### 526-149 - Radiographic Procedures 1

Prepares radiography students to perform routine radiographic procedures of the chest, abdomen, upper and lower extremities, and pelvis. Course includes considerations for mobile and trauma procedures. Students apply knowledge of human anatomy to position the patient correctly to achieve and evaluate optimal diagnostic quality images which includes identifying radiographically significant anatomy. (Prerequisites: 806-177 General Anatomy and Physiology; admission to the Radiography program)

5 Credit hours

54 Lecture hours

72 Lab hours

#### 526-158 - Introduction to Radiography

Introduces students to the role of radiography in health care. Students apply healthcare communication techniques. Students are introduced to legal and ethical considerations, patient interactions and management, patient and provider safety, and pharmacology. (Prerequisites: Admission to the Radiography program; Criminal Background Check and Health Requirement Verification required.)

3 Credit hours

36 Lecture hours

36 Lab hours

#### 526-159 - Radiographic Imaging

Introduces radiography students to the process and components of imaging. Students determine the factors that affect image quality including receptor exposure, spatial resolution, and distortion. (Prerequisite: Admission to the Radiography program)

3 Credit hours

36 Lecture hours

36 Lab hours

#### 526-168 - Radiography Clinical 1

This beginning-level clinical course prepares radiography students to perform radiologic procedures on patients with extensive supervision and direction. Students apply radiation protection and standard precautions in the production of radiographs in a healthcare setting while adhering to legal and ethical guidelines. An emphasis of the course is the development of communication and critical thinking skills appropriate to the clinical setting. (Prerequisites: Admission to the Radiography program; Criminal Background Check and Health Requirement Verification required.)

1 Credit hours

108 Other hours

#### 526-174 - ARRT Certification Seminar

Provides preparation for the national certification examination prepared by the American Registry of Radiologic Technologists. Simulated registry examinations are utilized. (Corequisite: 526-198 Radiography Clinical 6)

2 Credit hours

36 Lecture hours

#### 526-189 - Radiographic Pathology

Prepares radiography students to determine the basic radiographic manifestations of pathological conditions. Students classify trauma related to site, complications, and prognosis and locate the radiographic appearance of pathologies. (Prerequisites: 526-194 Imaging Equipment Operation; 526-195 Radiographic Image Analysis; 526-199 Radiography Clinical 4. Corequisites: 526-190 Radiography Clinical 5; 526-197 Radiation Protection and Biology; 526-231 Imaging Modalities)

1 Credit hours

18 Lecture hours

#### 526-190 - Radiography Clinical 5

This fifth-level clinical course prepares radiography students to perform radiologic procedures on patients with some supervision. Students apply radiation protection and standard precautions in the production of radiographs in a healthcare setting while adhering to legal and ethical guidelines. Students are encouraged to demonstrate independent judgment in the performance of clinical competencies. (Prerequisites: 526-194 Imaging Equipment Operation; 526-195 Radiographic Image Analysis; 526-199 Radiography Clinical 4; Criminal Background Check and Health Requirement Verification required. Corequisites: 526-189 Radiographic Pathology; 526-197 Radiation Protection and Biology; 526-231 Imaging Modalities)

4 Credit hours

432 Other hours

#### 526-191 - Radiographic Procedures 2

Prepares radiography students to perform routine radiographic procedures of the skull, facial bones, sinus, spine, bony thorax, gastrointestinal, urological, and special studies. Course includes considerations for contrast, mobile, surgical and trauma procedures. Students apply knowledge of human anatomy to position the patient correctly to achieve and evaluate optimal diagnostic quality images which includes identifying radiographically significant anatomy. (Prerequisites: 526-149 Radiographic Procedures 1; 526-158 Introduction to Radiography; 526-159 Radiographic Imaging; 526-168 Radiography Clinical 1; 806-177 General Anatomy and Physiology. Corequisites: 526-192 Radiography Clinical 2; 526-230 Advanced Radiographic Imaging)

5 Credit hours

54 Lecture hours

72 Lab hours

54 Lecture hours

72 Lab hours

72 Lab hours

72 Lab hours

#### 526-192 - Radiography Clinical 2

This second level clinical course continues to prepare radiography students to perform radiologic procedures on patients with considerable direct and limited indirect supervision. Students apply radiation protection and standard precautions in the production of radiographic images in a health care setting while adhering to legal and ethical guidelines. An emphasis of the course is the development of communication and critical thinking skills appropriate to the clinical setting. (Prerequisites: 526-149 Radiographic Procedures 1; 526-158 Introduction to Radiography; 526-159 Radiographic Imaging; 526-168 Radiography Clinical Practice 1; Criminal Background Check and Health Requirement Verification required. Corequisites: 526-191 Radiographic Procedures 2; 526-230 Advanced Radiographic Imaging)

4 Credit hours

432 Other hours

**526-193 - Radiography Clinical 3**

This third level clinical course prepares radiography students to perform radiologic procedures on patients with varying degrees of direct and indirect supervision. Students apply radiation protection and standard precautions in the production of radiographic images in a health care setting while adhering to legal and ethical guidelines. An emphasis of the course is the demonstration of communication and critical thinking skills appropriate to the clinical setting. (Prerequisites: 526-191 Radiographic Procedures 2; 526-192 Radiography Clinical 2; 526-230 Advanced Radiographic Imaging; Criminal Background Check and Health Requirement Verification required.)

1 Credit hours

108 Other hours

**526-194 - Imaging Equipment Operation**

Introduces radiography students to the principles and application of x-ray technology. Students analyze how x-rays are produced and determine the corrective actions necessary for common equipment malfunctions. (Prerequisite: 526-193 Radiography Clinical 3. Corequisites: 526-195 Radiographic Image Analysis; 526-199 Radiography Clinical Practice 4)

3 Credit hours

54 Lecture hours

**526-195 - Radiographic Image Analysis**

Prepares radiography students to analyze radiographic images for quality. Students apply quality control tests to determine the causes of image problems including equipment malfunctions and procedural errors. (Prerequisite: 526-193 Radiography Clinical Practice 3. Corequisites: 526-194 Imaging Equipment Operation; 526-199 Radiography Clinical 4)

2 Credit hours

18 Lecture hours

36 Lab hours

**526-197 - Radiation Protection and Biology**

Prepares radiography students to protect themselves and others from exposure to radioactivity. Students examine the characteristics of radiation and how radiation affects cell biology. Students apply standards and guidelines for radiation exposure. (Prerequisites: 526-194 Imaging Equipment Operation; 526-195 Radiographic Image Analysis; 526-199 Radiography Clinical 4. Corequisites: 526-189 Radiographic Pathology; 526-190 Radiography Clinical 5; 526-231 Imaging Modalities)

3 Credit hours

54 Lecture hours

**526-198 - Radiography Clinical 6**

This final clinical course requires radiography students to integrate and apply all knowledge learned in previous courses to the production of high-quality images in the clinical setting with minimal direct and primarily indirect supervision. Students apply radiation protection and standard precautions in the production of images in a health care setting while adhering to legal and ethical guidelines. Students are encouraged to demonstrate independent judgment in the performance of clinical competencies. (Prerequisites: 526-189 Radiographic Pathology; 526-190 Radiography Clinical 5; 526-197 Radiation Protection and Biology; Criminal Background Check and Health Requirement Verification required. Corequisite: 526-174 ARRT Certification Seminar)

1 Credit hours

108 Other hours

**526-199 - Radiography Clinical 4**

This fourth level clinical course prepares radiography students to perform radiologic procedures on patients. The student transitions from direct to indirect supervision as competency performance increases. Students apply radiation protection and standard precautions in the production of radiographic images in a health care setting while adhering to legal and ethical guidelines. Students are encouraged to demonstrate independent judgment in the performance of clinical competencies. (Prerequisite: 526-193 Radiography Clinical 3. Corequisites: 526-194 Imaging Equipment Operation; 526-195 Radiographic Image Analysis; Criminal Background Check and Health Requirement Verification required.)

4 Credit hours

432 Other hours

**526-200 - Intro to DMS**

Introduces learners to the field of Diagnostic Medical Sonography. Explores the duties and functions of the Diagnostic Medical Sonographer as well as the historical background. Learners examine the other imaging modalities as they relate to Sonography. Includes principles of patient care and legal and ethical issues related to Sonography. (Prerequisite: Acceptance into the Diagnostic Medical Sonography program)

3 Credit hours

36 Lecture hours

36 Lab hours

**526-203 - Scanning with Proficiency**

Prepares learners for the rigors of clinical imaging by performing timed abdominal and gynecological competencies. (Prerequisites: 526-207 Abdominal Sonography; 526-208 OB/GYN Sonography 1; 526-221 Sonography Physics 1)

1 Credit hours

36 Lab hours

**526-207 - Abdominal Sonography**

Prepares learners to perform ultrasounds of the abdominal organs including liver, gallbladder, biliary tree, pancreas, spleen, urinary tract, aorta and retroperitoneum. Emphasis is placed on recognizing the anatomy and pathology of the abdominal organs. Practice scan sessions included. (Prerequisites: 526-200 Intro to DMS; 806-177 General Anatomy and Physiology; 806-179 Advanced Anatomy and Physiology)

4 Credit hours

36 Lecture hours

72 Lab hours

**526-208 - OB/GYN Sonography 1**

Prepares learners to perform ultrasounds of the nongravid uterus and the first-trimester pregnancy. Explores the anatomy, physiology, and pathology of the female reproductive system as well as intrauterine and ectopic pregnancies. (Prerequisites: 526-200 Intro to DMS; 806-177 General Anatomy and Physiology; 806-179 Advanced Anatomy and Physiology)

3 Credit hours

36 Lecture hours

36 Lab hours

**526-209 - DMS Clinical Experience 1**

Opportunities to apply scanning skills in a clinical setting. Students concentrate efforts on ultrasound examination of the abdominal organs. Participation in this course will take place at a hospital or clinic. (Prerequisites: 526-207 Abdominal Sonography; 526-208 OB/GYN Sonography 1; 526-210 Cross Sectional Anatomy; 526-221 Sonography Physics 1. Criminal Background Check and Health Requirement Verification required.)

2 Credit hours

144 Other hours

**526-210 - Cross Sectional Anatomy**

Introduces cross sectional anatomy as related to Diagnostic Medical Sonography. Includes correlating images from other imaging modalities. (Prerequisite: Acceptance into the Diagnostic Medical Sonography program)

2 Credit hours

36 Lecture hours

**526-211 - Superficial Sonography**

Investigates superficial structure imaging. Includes anatomy, pathophysiology, and sonographic evaluation. Prepares learner to perform ultrasounds of the thyroid, breast, male reproductive system, musculoskeletal system, and GI tract. (Prerequisites: 526-207 Abdominal Sonography; 526-208 OB/GYN Sonography 1; 526-210 Cross Sectional Anatomy; 526-221 Sonography Physics 1)

2 Credit hours

18 Lecture hours

36 Lab hours

**526-212 - OB/GYN Sonography 2**

Prepares learners to perform ultrasounds of the second and third-trimester pregnancy. Explores the anatomy, physiology, and pathology of the female pelvis and the developing fetus. Learners will be exposed to interventional procedures related to pregnancy. (Prerequisite: 526-208 OB/GYN Sonography 1)

3 Credit hours

36 Lecture hours

36 Lab hours

**526-215 - DMS Clinical Experience 3**

Opportunities to apply scanning skills in a clinical setting. Students concentrate efforts on ultrasound examination in the clinical setting under the direction of the clinical preceptor. Participation in this course will take place at a hospital or clinic but may include case study examination, quizzes, journaling, and assignments to complete the clinical experience. (Prerequisites: 526-226 DMS Clinical Experience 2; Concurrent enrollment in 526-219 DMS Clinical Experience 4. Criminal Background Check and Health Requirement Verification required.)

2 Credit hours

288 Other hours

**526-217 - Registry Review**

Review of the competencies covered in the Diagnostic Medical Sonography program. This course prepares students to sit for the ARDMS registry exam.

1 Credit hours

18 Lecture hours

**526-219 - DMS Clinical Experience 4**

Opportunities to apply scanning skills in a clinical setting. Students concentrate efforts on ultrasound examination in the clinical setting under the direction of the clinical preceptor. Participation in this course will take place at a hospital or clinic but may include case study examination, quizzes, journaling, and assignments to complete the clinical experience. (Prerequisites: 526-226 DMS Clinical Experience 2. Concurrent enrollment in 526-215 DMS Clinical Experience 3. Criminal Background Check and Health Requirement Verification required.)

2 Credit hours

288 Other hours

**526-221 - Sonography Physics 1**

Introduces physics and instrumentation relevant to diagnostic medical sonography. Learners explore how principles of sound propagation in tissues create a sonographic image. (Prerequisites: 806-143 College Physics 1; Acceptance into the Diagnostic Medical Sonography program)

3 Credit hours

54 Lecture hours

**526-222 - Sonography Physics 2**

Continues the study of physics and instrumentation relevant to diagnostic medical sonography. The laboratory component of this course introduces the student to the concepts of ultrasound instrumentation, an introduction to ultrasonic scanning technique, and maintenance of ultrasound equipment. (Prerequisite: 526-221 Sonography Physics 1)

2 Credit hours

36 Lecture hours

**526-223 - Vascular Imaging 1**

Introduces the principles of vascular sonographic imaging. Learners perform a variety of peripheral vascular arterial and venous duplex exams. (Prerequisite: Completion of or concurrent enrollment in 526-221 Sonography Physics 1)

3 Credit hours

36 Lecture hours

36 Lab hours

**526-224 - Vascular Imaging 2**

Prepares learners to perform abdominal vascular and physiologic peripheral vascular exams. (Prerequisite: 526-223 Vascular Imaging 1)

3 Credit hours

36 Lecture hours

36 Lab hours

**526-226 - DMS Clinical Experience 2**

Opportunities to apply scanning skills in a clinical setting. Students concentrate efforts on ultrasound examination in the clinical setting under the direction of the clinical preceptor. Participation in this course will take place at a hospital or clinic but may include case study examination, quizzes, journaling, and assignments to complete the clinical experience. (Prerequisites: 526-209 DMS Clinical Experience 1. Criminal Background Check and Health Requirement Verification required.)

4 Credit hours

288 Other hours

**526-230 - Advanced Radiographic Imaging**

Explores the factors that impact image acquisition, display, archiving and retrieval. Guidelines for selecting exposure factors and evaluating images within digital systems are discussed. Principles of digital system quality assurance and maintenance are presented. (Prerequisites: 526-149 Radiographic Procedures 1; 526-158 Introduction to Radiography; 526-159 Radiographic Imaging; 526-168 Radiography Clinical 1. Completion of or concurrent enrollment in 103-159 Computer Literacy – Microsoft Office. Corequisites: 526-191 Radiographic Procedures 2; 526-192 Radiography Clinical 2)  
2 Credit hours  
18 Lecture hours  
36 Lab hours

**526-231 - Imaging Modalities**

Introduces radiography students to imaging modalities with an emphasis in computed tomography and cross-sectional anatomy. (Prerequisites: 526-194 Imaging Equipment Operation; 526-195 Radiographic Image Analysis; 526-199 Radiography Clinical 4. Corequisites: 526-189 Radiographic Pathology; 526-190 Radiography Clinical 5; 526-197 Radiation Protection and Biology)  
2 Credit hours  
18 Lecture hours  
36 Lab hours