Diagnostic Medical Sonography Program Courses (Radiation Sciences) (RSMS)

This is a list of all diagnostic medical sonography program courses. For more information, see Radiation Sciences.

**RSMS:3100 Cardiac Sonography I** 3 s.h.
Anatomy and physiology of cardiovascular system imaged sonographically; proper sonographic imaging techniques, normal anatomy, exam protocol, and proper instrument settings; pathology and pathophysiology of common conditions related to adult cardiovascular system. Prerequisites: RSMS:3110 with a minimum grade of C.

**RSMS:3101 Cardiac Sonography I Lab** 2 s.h.
Laboratory-based learning and simulation experience involving basic sonographic adult cardiac imaging and clinical history analysis; students perform sonographic exams utilizing scanning simulation to develop skills in sonographic anatomy recognition, scan plane orientation, transducer manipulation, instrumentation, and exam protocols. Prerequisites: RSMS:3111 with a minimum grade of C. Corequisites: RSMS:3100.

**RSMS:3110 Foundations of Sonography** 3 s.h.
Sonography history, ergonomics, terminology, image orientation; basic theories of sound waves, echo production, transducers, equipment operation, body imaging, Doppler, hemodynamics.

**RSMS:3111 Foundations of Sonography Lab** 1 s.h.
Sonography history, ergonomics, terminology, image orientation; basic theories of sound waves, echo production, transducers, equipment operation, body imaging, Doppler, and hemodynamics. Corequisites: RSMS:3110.

**RSMS:3115 Diagnostic Medical Sonography Clinical Internship I** 2 s.h.
Introductory clinical experience in health care setting developing a basic understanding of sonography clinical environment and professional practice standards; applying patient care techniques and developing professional communication skills. Prerequisites: RSP:2120.

**RSMS:3120 Abdominal Sonography I** 3 s.h.
Embryology, anatomy, and physiology of various abdominal structures imaged sonographically; abdominal vasculature, hepatobiliary system, pancreas, urinary system, adrenals, spleen, male anatomy; proper sonographic imaging techniques, including appearance of normal anatomy, imaging protocol, proper instrument settings. Prerequisites: RSMS:3110 with a minimum grade of C.

**RSMS:3121 Abdominal Sonography I Lab** 1 s.h.
Laboratory-based learning and simulation experience in sonographic abdominal imaging; students perform exams utilizing scanning simulation to develop skills in sonographic anatomy recognition, scan plane orientation, transducer manipulation, instrumentation, and exam protocols. Prerequisites: RSMS:3111 with a minimum grade of C. Corequisites: RSMS:3120.

**RSMS:3130 Obstetrical and Gynecological Sonography I** 3 s.h.
Embryology, anatomy, and physiology of the female reproductive system and developing fetus; proper sonographic imaging techniques, including appearance of normal anatomy, imaging protocol, proper instrument settings. Prerequisites: RSMS:3110 with a minimum instrument grade of C.

**RSMS:3131 Obstetrical and Gynecological Sonography I Lab** 1 s.h.
Laboratory-based learning and simulation experience involving basic sonographic obstetrical and gynecological imaging and clinical history analysis; students perform sonographic exams utilizing scanning simulation to develop skills in sonographic anatomy recognition, scan plane orientation, transducer manipulation, instrumentation, and exam protocols. Prerequisites: RSMS:3111 with a minimum grade of C. Corequisites: RSMS:3130.

**RSMS:3140 Vascular Sonography I** 3 s.h.
Anatomy and physiology of peripheral and cerebral vascular systems; analysis of hemodynamics, Doppler waveforms, pressure measurements, plethysmography, sonographic appearance, scanning techniques; evaluation of pathology and pathophysiology common to the lower extremity arterial and venous systems, and cerebrovascular system. Prerequisites: RSMS:3110 with a minimum grade of C.

**RSMS:3141 Vascular Sonography I Lab** 1 s.h.
Laboratory-based learning and simulation experience involving basic vascular sonographic imaging and clinical history analysis; students perform non-imaging vascular physiologic tests and sonographic exams utilizing scanning simulation to develop skills in sonographic anatomy recognition, scan plane orientation, transducer manipulation, instrumentation, and exam protocols. Prerequisites: RSMS:3111 with a minimum grade of C. Corequisites: RSMS:3140.

**RSMS:3150 Cardiac Physiology and Hemodynamics** 3 s.h.
Analysis of cardiac physiology and hemodynamics related to sonography; correlation with Doppler application in cardiovascular imaging, ECG, auscultation, cardiac catheterization; advanced and developing imaging techniques.

**RSMS:3205 Cardiac Sonography II** 3 s.h.
Sonographic evaluation of advanced pathophysiology of human heart; sonographic appearance, imaging techniques, and exam modification. Prerequisites: RSMS:3100.

**RSMS:3206 Cardiac Sonography II Lab** 1 s.h.
Laboratory-based learning and simulation experience involving the application of advanced sonographic cardiac imaging and clinical history analysis. Prerequisites: RSMS:3101. Corequisites: RSMS:3205.

**RSMS:3215 Diagnostic Medical Sonography Clinical Internship II** 3 s.h.
Application of basic skills of sonographic imaging and physiologic vascular testing in the health care setting.
RSMS:3230 Sonography Principles, Physics, and Instrumentation

Physical principles of sound waves, their applications to imaging of the human body, operation and physical characteristics of various ultrasound transducers, method by which the sound wave is converted into a visual image, instrumentation components and their functions, Doppler principles, image artifacts, advanced hemodynamics, and spectral Doppler waveform analysis. Prerequisites: RSMS:3110.

RSMS:3231 Sonography Principles, Physics, and Instrumentation Lab

Laboratory-based learning and simulation experience in the application of sonographic imaging emphasizing physics principles, instrumentation, and quality assurance testing. Corequisites: RSMS:3230.

RSMS:3240 Abdominal Sonography II

Pathology and pathophysiology of abdominal and superficial structures imaged sonographically; interventional sonographic procedures; post-procedure protocol; associated clinical and laboratory findings; imaging techniques, analysis of findings, and documentation of pathology. Prerequisites: RSMS:3120.

RSMS:3250 Obstetrical and Gynecological Sonography II

Sonographically related pathological and abnormal congenital conditions of gynecology and obstetrics, infertility, assisted reproductive therapy, invasive procedures in obstetrics and gynecology, postpartum complications and maternal-fetal bonding; clinical findings, laboratory studies, and prognosis correlated with sonographic findings; appropriate image analysis and documentation of pathology. Prerequisites: RSMS:3130.

RSMS:3260 Breast Sonography

Embryology, anatomy, physiology, and pathophysiology of the breast as it relates to sonographic imaging; proper sonographic imaging techniques, including appearance of normal anatomy, imaging protocol, proper instrument settings; sonographic findings of diseases involving the breast.

RSMS:3270 Vascular Sonography II

Pathology and pathophysiology of complex diseases of the peripheral, cerebral, and abdominal vascular systems evaluated sonographically; associated clinical findings; techniques in physiologic, nonimaging tests, and duplex sonography; analysis of findings and documentation of pathology. Prerequisites: RSMS:3140.

RSMS:3300 Pediatric Sonography

Anatomy, sonographic anatomy, pathophysiology, sonographic appearance, and Doppler correlation of disorders affecting the pediatric population, including abdominal, musculoskeletal, peripheral vascular, and cerebrovascular systems, neonatal brain and spinal cord.

RSMS:3305 Pediatric Cardiac Sonography

Anatomy, sonographic anatomy, pathophysiology, sonographic appearance, and Doppler correlation of disorders affecting the pediatric cardiac population; associated clinical findings; techniques in sonographic imaging, analysis of findings, and documentation of pathology. Requirements: completion of or current enrollment in a diagnostic medical sonography program.

RSMS:3306 Pediatric Cardiac Sonography Laboratory

Laboratory-based learning and simulation experience involving basic sonographic pediatric cardiac imaging and clinical history analysis; students perform sonographic exams utilizing scanning simulation to develop skills in sonographic anatomy recognition, scan plane orientation, transducer manipulation, instrumentation, and exam protocols. Corequisites: RSMS:3305. Recommendations: completion of or current enrollment in a diagnostic medical sonography program.

RSMS:3315 Diagnostic Medical Sonography Clinical Internship III

Application of sonographic imaging and physiologic vascular testing skills in health care setting; students develop competency in basic exams.

RSMS:3325 Abdominal Sonography II Lab

Laboratory-based learning and simulation utilizing computer-aided learning and scanning simulation to develop skills in interventional sonographic procedures with real-time ultrasound guidance; advanced abdominal and superficial structure imaging; exploring case studies; image analysis in identifying pathologies and differential diagnoses. Prerequisites: RSMS:3121.

RSMS:3376 Vascular Sonography II Lab

Laboratory-based learning and simulation experience to develop skills in advanced sonographic imaging of the vascular system and performance of advanced nonimaging vascular physiologic tests; analysis of findings and documentation of pathology. Prerequisites: RSMS:3141.

RSMS:4110 Advanced Sonography

Exploration of advanced sonographic imaging techniques and new technologies. Prerequisites: (RSMS:3240 with a minimum grade of C and RSMS:3250 with a minimum grade of C and RSMS:3270 with a minimum grade of C) or (RSMS:3205 with a minimum grade of C and RSMS:3270 with a minimum grade of C).

RSMS:4111 Advanced Sonography Lab

Laboratory-based learning and simulated application of advanced sonographic imaging techniques and new technologies. Prerequisites: (RSMS:3325 with a minimum grade of C and RSMS:3376 with a minimum grade of C) or (RSMS:3206 with a minimum grade of C and RSMS:3376 with a minimum grade of C). Corequisites: RSMS:4110.

RSMS:4115 Diagnostic Medical Sonography Clinical Internship IV

Application of sonographic imaging and physiologic vascular testing skills in the health care setting; students develop competency in high-level procedures. Prerequisites: RSMS:3315 with a minimum grade of C and RSMS:3376 with a minimum grade of C.

RSMS:4120 Advanced Cardiac Sonography

Advanced cardiac sonographic imaging techniques, quantifications, and new technologies; analysis of applications and limitations of imaging techniques. Prerequisites: RSMS:3205 with a minimum grade of C and RSMS:3270 with a minimum grade of C.

RSMS:4121 Advanced Cardiac Sonography Lab

Laboratory-based learning and simulated application of advanced cardiac sonographic imaging techniques, quantifications, and new technologies. Prerequisites: RSMS:3206 with a minimum grade of C. Corequisites: RSMS:4120.
RSMS:4215 Diagnostic Medical Sonography Clinical Internship V  5 s.h.
Application of sonographic imaging and physiologic vascular testing skills in health care setting; students develop advanced skills. Prerequisites: RSMS:4115 with a minimum grade of C and RSMS:4110 with a minimum grade of C and RSMS:4111 with a minimum grade of C.

RSMS:4220 Multidisciplinary Capstone Seminar  3 s.h.
Case-based learning; students analyze and synthesize data, determine proper course of action, and evaluate outcomes; preparation for professional work environment. Prerequisites: RSMS:4110.