

Radiation Sciences, BS

Diagnostic Medical Sonography

A diagnostic medical sonographer is a skilled professional who uses high-frequency sound wave equipment to create diagnostic images and data that assist health care professionals in their diagnosis of patients with disease. Ultrasound imaging is used on many parts of the body, including the abdomen, heart, blood vessels, and the developing fetus of a pregnant woman. When determining normal and abnormal findings, the sonographer must demonstrate sectional anatomy through transducer manipulation. The sonographer uses independent judgment in recognizing the need to extend the scope of the study according to the diagnostic findings. The sonographer spends extended time with the patient obtaining a thorough history of symptoms, explaining the exam, answering questions, and performing the exam.

Each of the radiation sciences diagnostic medical sonography (DMS) degree tracks consist of two professional programs —DMS and cardiac and vascular sonography or DMS and general and vascular sonography. Each of these three-year programs is selective and competitive; acceptance is not guaranteed. Students must satisfy all UI admission requirements, complete all prerequisites, and be accepted into the diagnostic medical sonography professional program following an application and selection process; see Diagnostic Medical Sonography on the Radiation Sciences Program website.

Diagnostic Medical Sonography and Cardiac and Vascular Sonography

The diagnostic medical sonography program in cardiac and vascular sonography provides a multispecialty education in cardiac (echocardiography) and vascular sonography (ultrasound imaging). Students learn about sonographic imaging and evaluation, hemodynamics and Doppler evaluation, sonography equipment, sectional anatomy, pathology, patient care, medical ethics, emotional intelligence, and quality assurance methods. They become proficient in using sonographic imaging equipment and in performing cardiac and vascular sonographic procedures, including invasive procedures, emergency exams, and 3D imaging. They also participate in supervised clinical education. An elective course and lab in pediatric cardiac sonography is available.

Upon completing the program, graduates are eligible to apply for the national certification exams in diagnostic medical sonography in the specialty areas of cardiac (echocardiography) and vascular technology.

Students who have completed all prerequisite courses by June 1 (except physics, which may be completed in the summer session) are eligible to apply to this three-year program. Application deadline is Jan. 15. Up to eight students are accepted into this track each year, which begins in the fall.

DMS and Cardiac and Vascular Sonography: Required Courses

Upon acceptance into the diagnostic medical sonography and cardiac and vascular professional program, students will complete required courses and internships during their second, third, and fourth years.

Course #	Title	Hours
All of these:		
RSCI:4110	Vascular Anatomy (online)	3
RSCI:4130	Electrocardiogram and Hemodynamics (online)	3
RSCT:4100	Sectional Anatomy for Imaging Sciences (online)	3
RSMS:3100	Cardiac Sonography I	3
RSMS:3101	Cardiac Sonography I Lab	2
RSMS:3110	Foundations of Sonography	3
RSMS:3111	Foundations of Sonography Lab	1
RSMS:3115	Diagnostic Medical Sonography Clinical Internship I	2
RSMS:3140	Vascular Sonography I	3
RSMS:3141	Vascular Sonography I Lab	1
RSMS:3150	Cardiac Physiology and Hemodynamics	3
RSMS:3205	Cardiac Sonography II	3
RSMS:3206	Cardiac Sonography II Lab	1
RSMS:3215	Diagnostic Medical Sonography Clinical Internship II	3
RSMS:3230	Sonography Principles, Physics, and Instrumentation	3
RSMS:3231	Sonography Principles, Physics, and Instrumentation Lab	1
RSMS:3270	Vascular Sonography II	3
RSMS:3315	Diagnostic Medical Sonography Clinical Internship III	4
RSMS:3376	Vascular Sonography II Lab	1
RSMS:4110	Advanced Sonography	3
RSMS:4111	Advanced Sonography Lab	1
RSMS:4115	Diagnostic Medical Sonography Clinical Internship IV	5
RSMS:4120	Advanced Cardiac Sonography	3
RSMS:4121	Advanced Cardiac Sonography Lab	1
RSMS:4215	Diagnostic Medical Sonography Clinical Internship V	5
RSMS:4220	Multidisciplinary Capstone Seminar	3
RSP:2110	Pathology for Radiation Sciences	2
RSP:2120	Patient Care for the Radiation Sciences	3
RSP:3210	Medical Ethics and Law	2

RSP:3220	Radiation Sciences Quality Management and Health Care Administration	2
RSP:4110	Research Methodology for Radiation Sciences	3
RSRT:3220	Emotional Intelligence for the Health Care Professional	2
Recommended elective credit:		
RSMS:3305	Pediatric Cardiac Sonography (online elective)	3
RSMS:3306	Pediatric Cardiac Sonography Laboratory	1

Diagnostic Medical Sonography and General and Vascular Sonography

The diagnostic medical sonography program in general and vascular sonography provides a multispecialty education in obstetrical, abdominal, and vascular sonography (ultrasound imaging). Students learn about sonographic imaging and evaluation, hemodynamics and Doppler evaluation, sonography equipment, sectional anatomy, pathology, patient care, medical ethics, emotional intelligence, and quality assurance methods. They become proficient in using sonographic imaging equipment and in performing obstetrical and gynecological, abdominal, and vascular sonographic procedures, including invasive procedures, emergency exams, pediatric sonography, and 3D imaging. They also participate in supervised clinical education. An elective course in breast sonography is available.

Upon completing the program, graduates are eligible to apply for the national certification exams in diagnostic medical sonography in the specialty areas of obstetrics and gynecology, abdomen, and vascular technology.

Students who will have completed all prerequisite courses by June 1 (except physics, which may be completed in the summer session) are eligible to apply to this three-year program. Application deadline is Jan. 15. Up to 12 students are accepted into this track each year, which begins in the fall.

DMS and General and Vascular Sonography: Required Courses

Upon acceptance into the diagnostic medical sonography and general and vascular professional program, students will complete required courses and internships during their second, third, and fourth years.

Course #	Title	Hours
All of these:		
RSCI:4110	Vascular Anatomy (online)	3
RSCI:4130	Electrocardiogram and Hemodynamics (online)	3
RSCT:4100	Sectional Anatomy for Imaging Sciences (online)	3
RSMS:3110	Foundations of Sonography	3
RSMS:3111	Foundations of Sonography Lab	1
RSMS:3115	Diagnostic Medical Sonography Clinical Internship I	2
RSMS:3120	Abdominal Sonography I	3
RSMS:3121	Abdominal Sonography I Lab	1

RSMS:3130	Obstetrical and Gynecological Sonography I	3
RSMS:3131	Obstetrical and Gynecological Sonography I Lab	1
RSMS:3140	Vascular Sonography I	3
RSMS:3141	Vascular Sonography I Lab	1
RSMS:3215	Diagnostic Medical Sonography Clinical Internship II	3
RSMS:3230	Sonography Principles, Physics, and Instrumentation	3
RSMS:3231	Sonography Principles, Physics, and Instrumentation Lab	1
RSMS:3240	Abdominal Sonography II	3
RSMS:3250	Obstetrical and Gynecological Sonography II	3
RSMS:3270	Vascular Sonography II	3
RSMS:3300	Pediatric Sonography (online)	3
RSMS:3315	Diagnostic Medical Sonography Clinical Internship III	4
RSMS:3325	Abdominal Sonography II Lab	1
RSMS:3376	Vascular Sonography II Lab	1
RSMS:4110	Advanced Sonography	3
RSMS:4111	Advanced Sonography Lab	1
RSMS:4115	Diagnostic Medical Sonography Clinical Internship IV	5
RSMS:4215	Diagnostic Medical Sonography Clinical Internship V	5
RSMS:4220	Multidisciplinary Capstone Seminar	3
RSP:2110	Pathology for Radiation Sciences	2
RSP:2120	Patient Care for the Radiation Sciences	3
RSP:3210	Medical Ethics and Law	2
RSP:3220	Radiation Sciences Quality Management and Health Care Administration	2
RSP:4110	Research Methodology for Radiation Sciences	3
RSRT:3220	Emotional Intelligence for the Health Care Professional	2
Recommended elective credit:		
RSMS:3260	Breast Sonography (online elective)	2

DMS Recommended Pre-Major Work

In addition to the prerequisite courses listed under Requirements in this section of the catalog, the program recommends the following coursework.

Course #	Title	Hours
All of these:		
RSP:1100	Introduction to the Radiation Sciences	1
PSY:1010	Your Brain Unlocked: Learning About Learning	1
STAT:1020	Elementary Statistics and Inference	3
One of these:		
BIOL:1140	Human Biology: Nonmajors	4
HHP:1400	Human Anatomy and Physiology	3
One of these:		
BAIS:1500	Business Computing Essentials	2
CS:1020	Principles of Computing	3