

# DIAGNOSTIC MEDICAL SONOGRAPHY (DMS)

## **DMS 100. Foundations of Diagnostic Imaging. 1 Credit.**

This course provides the student with a basic knowledge of the fundamentals of diagnostic imaging practice. Topics include defining diagnostic imaging as it relates to all imaging modalities, historical development of the profession, introduction to current and emerging practice arenas, and application of professional terminology. Students complete a self-study in medical terminology.

**Prerequisites:** None

**Offered:** Every year, Fall

## **DMS 101. Introduction to Diagnostic Medical Sonography. 3 Credits.**

This is an introductory course to the field of diagnostic medical sonography. This course is taken in conjunction with DMS 101L. Throughout the course, the career of sonography is defined. Students are introduced to terminology pertaining to ultrasound as well as the physics responsible for its production. Cross-sectional anatomy pertaining to the abdomen, thyroid gland, scrotum and prostate is presented. Normal sonographic anatomy of the abdomen and small parts also is presented.

**Prerequisites:** Take DMS 100.

**Corequisites:** Take DMS 101L.

**Offered:** Every year, Spring

## **DMS 101L. Sonography Laboratory Practicum I. 1 Credit.**

This is an introductory lab course to the field of diagnostic medical sonography. This course is taken in conjunction with DMS 101. To produce high-quality diagnostic images, it is necessary for the students to have a thorough understanding of image orientation, acoustic properties, scanning techniques and image documentation. The students have the opportunity to utilize ultrasound equipment to learn to identify normal sonographic anatomy of the abdomen and small parts and begin to develop scanning techniques.

**Prerequisites:** Take DMS 100.

**Corequisites:** Take DMS 101.

**Offered:** Every year, Spring

## **DMS 200. Sonography Physics and Instrumentation I. 3 Credits.**

This core course is designed to prepare the student toward eligibility for the Sonography Physics and Instrumentation portion of the American Registry of Diagnostic Medical Sonographers (ARDMS) registry exam. The course encompasses the theoretical concepts and practical applications related to ultrasound physics and instrumentation. Concepts include: sound, sound waves, pulse waves, intensities, interaction of sound and media, transducers, sound beams and display modes. These concepts are tied in with terms used in Introduction to Sonography course and how they apply to practical, daily scanning skills.

**Prerequisites:** Take DMS 101, DMS 101L, PHY 101, MA 275.

**Offered:** Every year, Fall

## **DMS 201. Sonography Physics and Instrumentation II. 3 Credits.**

This core course is designed to prepare the student toward eligibility for the Sonography Physics and Instrumentation portion of the American Registry of Diagnostic Medical Sonographers (ARDMS) registry exam. The course encompasses the theoretical concepts and practical applications related to ultrasound physics and instrumentation. Concepts include: two dimensional imaging, real-time imaging, displays, harmonics, contrast agents, hemodynamics, Doppler, artifacts, quality assurance and bioeffects. These concepts are tied in with terms used in the Physics and Instrumentation I course and how they apply to practical, daily scanning skills.

**Prerequisites:** Take DMS 200.

**Offered:** Every year, Spring

## **DMS 205. Human Anatomy Lab I. 1 Credit.**

This course presents in-depth consideration of human anatomy within systems located in the neck, abdomen and pelvis. Students discuss the structure and function of each anatomic component within each region. Conventional anatomic illustrations are correlated with their sonographic counterpart. The sonographic appearance of specific structures is correlated to images obtained using other advanced imaging modalities such as computed tomography and magnetic resonance imaging.

**Prerequisites:** Take BIO 212, BIO 212L.

**Offered:** Every year, Fall

## **DMS 206. Human Anatomy Lab II. 1 Credit.**

This course presents in-depth consideration of human anatomy within systems located in the upper and lower extremity. For each region, students discuss the structure and function of each anatomic component. Conventional anatomic illustrations are correlated with their sonographic counterpart. The sonographic appearance of specific structures is correlated to images obtained using other advanced imaging modalities such as computed tomography and magnetic resonance imaging?.

**Prerequisites:** Take DMS 205.

**Offered:** Every year, Spring

## **DMS 210. Abdominal and Small Parts Sonography. 3 Credits.**

This course is designed to prepare the student toward eligibility for the abdomen (AB) portion of the ARDMS Registry. This course is taken in conjunction with DMS 210L. The course encompasses all aspects of abdominal and small parts scanning including: anatomy and vasculature, normal variants and congenital abnormalities, pathology, organ function and laboratory tests. The course continues to emphasize cumulative learning to include materials covered in prior ultrasound directed courses.

**Prerequisites:** Take DMS 101, DMS 101L.

**Corequisites:** Take DMS 210L.

**Offered:** Every year, Fall

## **DMS 210L. Abdominal and Small Parts Sonography Lab Practicum. 1 Credit.**

This lab course is designed to prepare the student toward eligibility for the abdomen (AB) portion of the ARDMS Registry. This course is taken in conjunction with DMS 210. The course encompasses all aspects of abdominal and small parts scanning including: anatomy and vasculature, normal variants and congenital abnormalities, pathology, organ function and laboratory tests. The students utilize ultrasound equipment to learn to identify sonographic anatomy of the abdomen and small parts and develop scanning techniques. The students learn to review and critique sonographic images.

**Prerequisites:** Take DMS 101, DMS 101L.

**Corequisites:** Take DMS 210.

**Offered:** Every year, Fall

- DMS 220. Vascular Sonography.** **3 Credits.**  
 This course is dedicated to the instruction of vascular sonography. It is designed to prepare students for the (VT) portion of the ARDMS registry exams. This course is taken in conjunction with DMS 220L. Anatomy pertaining to the vascular system is reviewed. Sonographic anatomy and pathologic conditions of the upper and lower extremity veins, the aorta, abdominal vasculature, the upper and lower extremity arteries, the carotid arteries and intracranial arteries are presented. Venous and arterial physiologic testing, interventional vascular procedures, surgery and other treatment options are introduced.  
**Prerequisites:** Take DMS 101 DMS 101L DMS 210 DMS 210L.  
**Corequisites:** Take DMS 220L.  
**Offered:** Every year, Spring
- DMS 220L. Vascular Sonography Lab Practicum.** **1 Credit.**  
 This lab course is dedicated to the instruction of vascular sonography. It is designed to prepare students for the (VT) portion of the ARDMS registry exams. This course is taken in conjunction with DMS 220. Sonographic anatomy and pathologic conditions of extremity veins, the aorta, abdominal vasculature, extremity arteries, the carotid arteries and intracranial arteries are presented. The students utilize ultrasound equipment to learn to identify sonographic anatomy of the vascular system and develop scanning techniques. The students learn to review and critique sonographic images.  
**Prerequisites:** Take DMS 101 DMS 101L DMS 210 DMS 210L.  
**Corequisites:** Take DMS 220.  
**Offered:** Every year, Spring
- DMS 250. Sonography Clinical Education I.** **3 Credits.**  
 This course is designed to develop the student's sonographic scanning skills and interpersonal communication skills through experiences in the clinical setting.  
**Prerequisites:** Take DMS 101 MA 275.  
**Corequisites:** Take DMS 210 DMS 210L.  
**Offered:** Every year, Fall
- DMS 260. Sonography Clinical Education II.** **3 Credits.**  
 This course, a continuation of DMS 250, is a clinical experience under the supervision of certified clinical instructors and clinical staff. Clinical competency and proficiency related to the performance of the sonographic procedures are developed and assessed.  
**Prerequisites:** Take DMS 250.  
**Corequisites:** Take DMS 220 DMS 220L.  
**Offered:** Every year, Spring
- DMS 270. Sonography Clinical Education III.** **5 Credits.**  
 This course, a continuation of DMS 260, is a clinical experience under the supervision of certified clinical instructors and clinical staff. Clinical competency and proficiency related to the performance of the sonographic procedures are developed and assessed.  
**Prerequisites:** Take DMS 260.  
**Offered:** Every year, Summer
- DMS 297. Methods of Patient Care.** **2 Credits.**  
 This course focuses on a study of skills in providing humanistic care for the well, acute or chronically ill individual, including preparing patients for invasive as well as non-invasive imaging studies; basic clinical skills in infection control, including aseptic technique, venipuncture, vital signs and O2 administration; effective communication with emphasis on problem-solving skills. (2 lab hrs.)  
**Prerequisites:** Take DMS 101, DMS 101L.  
**Corequisites:** Take DMS 297L.  
**Offered:** Every year, Fall
- DMS 297L. Methods of Patient Care Lab.** **1 Credit.**  
 This lab develops preclinical competency for the procedures described and demonstrated in DMS 297.  
**Prerequisites:** Take DMS 101, DMS 101L.  
**Corequisites:** Take DMS 297.  
**Offered:** Every year, Fall
- DMS 299. Independent Study.** **1-6 Credits.**  
**Prerequisites:** None  
**Offered:** As needed
- DMS 330. OB/GYN Sonography.** **3 Credits.**  
 This course is designed to prepare the student toward eligibility for the OB/GYN ARDMS Registry exam. This course is taken in conjunction with DMS 330L. The course encompasses all aspects of gynecology, and obstetrical scanning including: anatomy and vasculature, normal variants and congenital anomalies, pathology, organ function and laboratory tests. The course continues to emphasize cumulative learning to include materials covered in prior ultrasound directed courses.  
**Prerequisites:** Take DMS 101 DMS 101L DMS 210 DMS 210I DMS 220 DMS 220L.  
**Corequisites:** Take DMS 330L.  
**Offered:** Every year, Fall
- DMS 330L. OB/GYN Sonography Lab Practicum.** **1 Credit.**  
 This lab course is designed to prepare the student toward eligibility for the OB/GYN ARDMS Registry. This course is taken in conjunction with DMS 330. The course encompasses all aspects of gynecology, and obstetrical scanning including: anatomy and vasculature, normal variants and congenital anomalies, pathology, organ function and laboratory tests. The students utilize ultrasound equipment to learn to identify sonographic anatomy of the female pelvis and develop scanning techniques. The students learn to review and critique sonographic images.  
**Prerequisites:** Take DMS 101 DMS 101L DMS 210 DMS 210L DMS 220 DMS 220L.  
**Corequisites:** Take DMS 330.  
**Offered:** Every year, Fall
- DMS 340. Breast Sonography.** **3 Credits.**  
 This course is dedicated to the instruction of the growing field of breast sonography. It is designed to prepare the student toward eligibility for the breast portion of the ARDMS Registry. This course is taken in conjunction with DMS 340L. To produce high-quality diagnostic images, it is necessary for students to have a thorough understanding of the anatomy and physiology of the breast as well as the normal and abnormal sonographic appearance of breast tissue.  
**Prerequisites:** Take DMS 101 DMS 101L DMS 210 DMS 220 DMS 220L DMS 330 DMS 330L.  
**Corequisites:** Take DMS 340L.  
**Offered:** Every year, Spring
- DMS 340L. Breast Sonography Lab Practicum.** **1 Credit.**  
 This course is dedicated to the instruction of the growing field of breast sonography. This lab course, taken in conjunction with DMS 340, prepares the student toward eligibility for the breast portion of the ARDMS Registry. The students utilize ultrasound equipment to identify sonographic anatomy of the breast and develop scanning techniques. The students learn to review and compare sonographic and mammographic images.  
**Prerequisites:** Take DMS 101 DMS 101L DMS 210 DMS 210L DMS 330 DMS 330L.  
**Corequisites:** Take DMS 340.  
**Offered:** Every year, Spring

**DMS 350. Musculoskeletal Sonography. 3 Credits.**

This course, taken in conjunction with DMS 350L, is designed to prepare the student toward eligibility for the MSK ARDMS Registry. The course encompasses all aspects of MSK scanning including: anatomy and vasculature, normal variants, physiology, pathology, interventional procedures. The course continues to emphasize cumulative learning to include materials covered in prior ultrasound directed courses.

**Corequisites:** Take DMS 350L

**Offered:** Every year, Spring

**DMS 350L. MSK Sonography Lab Practicum. 1 Credit.**

This lab course, taken in conjunction with DMS 350, is designed to prepare the student toward eligibility for the MSK ARDMS Registry. The course encompasses all aspects of MSK scanning including: anatomy and vasculature, normal variants, physiology, pathology and interventional procedures. The students utilize ultrasound equipment to identify MSK sonographic anatomy of the upper and lower extremities and develop scanning techniques. The students learn to review and critique sonographic images.

**Corequisites:** Take DMS 350

**Offered:** Every year, Spring

**DMS 380. Sonography Clinical Education IV. 3 Credits.**

This course, a continuation of DMS 270, is a clinical experience under the supervision of certified clinical instructors and clinical staff. Clinical competency and proficiency related to the performance of the sonographic procedures are developed and assessed.

**Prerequisites:** Take DMS 270.

**Corequisites:** Take DMS 330 DMS 330L.

**Offered:** Every year, Fall

**DMS 390. Sonography Clinical Education V. 3 Credits.**

This course, a continuation of DMS 380 is a clinical experience under the supervision of certified clinical instructors and clinical staff. Clinical competency and proficiency related to the performance of the sonographic procedures are developed and assessed.

**Prerequisites:** Take DMS 380.

**Offered:** Every year, Spring

**DMS 414. Research Analysis and Critique (RS 414). 3 Credits.**

This course explores the basic elements of health care research including different types of research models and research strategies. Students explore the difference between a variety of publication types, including editorial, case studies and peer-reviewed research articles. Students also learn techniques for database queries.

**Prerequisites:** Take DMS 101.

**Offered:** Every year, Fall

**DMS 499. Capstone (RS 499). 3 Credits.**

This capstone course is intended for radiologic sciences majors and diagnostic medical sonography majors in their final semester. Students are required to develop a research project as it relates to the field of diagnostic imaging. The project may relate to the student's chosen focus and must include either a formal thesis paper or poster presentation.

**Prerequisites:** Take DMS 414.

**Offered:** Every year, Spring