### 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: 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 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 100, DMS 100L.

**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, Spring

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, Spring

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 210L DMS 220 DMS 220L.
Corequisites: Take DMS 330.
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 330L.
Offered: Every year, Fall

DMS 330L. OB/GYN Sonography Lab Practicum. 1 Credit.
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 OB/GYN ARDMS Registry exam. This course is taken in conjunction with
DMS 330L. This course is taken in conjunction with DMS 340L. 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 330L.
Offered: Every year, Fall

DMS 330L. OB/GYN Sonography Lab Practicum. 1 Credit.
This 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 330L.
Offered: Every year, Fall

DMS 330L. OB/GYN Sonography Lab Practicum. 1 Credit.
This course is dedicated to the instruction 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. 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 330 DMS 330L.
Corequisites: Take DMS 340L.
Offered: Every year, Spring

DMS 340. Breast Sonography. 3 Credits.
This course is dedicated to the instruction 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 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 340L, 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.
Prerequisites: Take DMS 101 DMS 101L DMS 210 DMS 210L DMS 220
DMS 220L DMS 330 DMS 330L DMS 340 DMS 340L.
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.
Prerequisites: Take DMS 101 DMS 101L DMS 210 DMS 210L DMS 220
DMS 220L DMS 330 DMS 330L DMS 340 DMS 340L.
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.
Corequisites: Take DMS 350.
Offered: Every year, Fall

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