

# DIAGNOSTIC MEDICAL SONOGRAPHY (DMS)

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## **DMS 1000 Principles of Sonography (3 Credits)**

This course will introduce the student to the principles of Diagnostic Medical Sonography. Lecture and videos will include normal sonographic cross-section anatomy, medical terminology, ethical and professional behavior, patient care, ultrasound equipment, and scanning protocols. Students will recognize normal anatomy on a sonogram and describe basic protocols of ultrasound examinations. Introduction to ultrasound equipment and acoustic properties will be discussed.

Prerequisites: Acceptance into the DMS Program; BIO 2112, ENG 1010, MATH 1600, PHYS 1101

Previous: Legacy Equivalent(s): DMS\* 100

## **DMS 1000L Lab Principles of Sonography (2 Credits)**

This course introduces the student to basic ultrasound scan skills in the DMS 1000. Students will demonstrate proper ergonomics and operation of the ultrasound equipment. Students will recognize normal anatomy on sonographic images and demonstrate patient care and the professional behaviors of a healthcare member.

Previous: Legacy Equivalent(s): DMS\* 100L

## **DMS 1095 Clinical Practicum I (2 Credits)**

Students will be assigned to a clinical site for two days per week throughout the semester. With supervision, students will assist with patient care, patient interviews, and sonographic exams.

Prerequisites: DMS 1000, DMS 1000L

Corequisite: DMS 1121 and DMS 1121L

Previous: Legacy Equivalent(s): DMS\* 122

## **DMS 1120 Abdomen/Small Parts Sonography I (3 Credits)**

Through lecture this course will focus on the sonographic appearance of disease processes in the abdomen and in superficial organs. This includes: indications for examination, testing, patient history, laboratory values, and outcomes. In addition, the greyscale and doppler appearance of pathology, and necessary scanning modifications will be covered. Differential diagnoses, treatments, patient outcomes, and the use of other correlating imaging modalities will be discussed.

Prerequisites: DMS 1000, DMS 1000L

Corequisite: DMS 1095

Previous: Legacy Equivalent(s): DMS\* 120

## **DMS 1120L Abdomen/Small Parts Sonography I Lab (1 Credits)**

This course is the laboratory DMS 1120. This course reviews the proper manipulation of ultrasound machine controls and transducer manipulations to obtain diagnostic quality images. Instruction will cover scanning normal anatomy, protocols for images, and utilize proper ergonomics while scanning. Students will learn to conduct patient interviews and demonstrate patient care skills. Instructions for proper use of Color and spectral Doppler will be introduced. Students will be able to perform abdomen and small parts protocols.

Previous: Legacy Equivalent(s): DMS\* 120L

## **DMS 1121 Obstetrics and Gynecology Sonography I (3 Credits)**

This course will cover sonographic anatomy, pathologies and scanning techniques for the non-gravid female pelvis. Correlation with lab values, and other imaging modalities will be discussed. Application of Doppler will be included. Ultrasound imaging of the gravid pelvis includes the normal first, second and third trimester of the developing fetus will be discussed. Obstetrical protocols and measurements with correlation to gestational age will be reviewed.

Prerequisites: DMS 1000, DMS 1000L

Corequisite: DMS 1095

Previous: Legacy Equivalent(s): DMS\* 121

## **DMS 1121L Obstetrics and Gynecology Sonography I Lab (1 Credits)**

This course is the laboratory DMS 1121. This course will include scanning techniques for the non-gravid and gravid pelvis utilizing simulators and phantoms. Students will demonstrate patient care skills and proper ergonomics in the on-campus laboratory. Labs will focus on the sonographic appearance of the non-gravid and gravid female pelvis. Students will be able to produce diagnostic quality ultrasound images and perform pelvic protocols. Application of color and spectral Doppler will be demonstrated. Students will be introduced to scanning the normal first, second and third trimester fetus. Students will obtain fetal measurements using simulation and correlate to gestational age.

Previous: Legacy Equivalent(s): DMS\* 121L

## **DMS 1123 Vascular Sonography I (3 Credits)**

Educates the student in the fundamentals of vascular sonography and pathology. Instruction will cover vascular embryology, hemodynamics, color and spectral Doppler, imaging protocols, pathophysiology, etiology of disease, congenital and acquired variants and abnormalities. Focus will be on extracranial and extremity venous and arterial studies.

Prerequisites: DMS 1095

Corequisite: DMS 1195

Previous: Legacy Equivalent(s): DMS\* 123

## **DMS 1123L Vascular Sonography 1 Lab (1 Credits)**

This course is the laboratory component to DMS 1123. This course will include a focus on the scanning techniques, ergonomics, machine controls and image optimization of the upper and lower extremity arterial, venous, and carotid ultrasound examinations. Hemodynamics and application of spectral and color doppler will be applied. Students will learn techniques for the physiologic examinations both with and without exercise. Students will be able to perform vascular protocols of the upper, lower extremities arterial, venous, carotid arteries and physiologic examinations.

Previous: Legacy Equivalent(s): DMS\* 123L

## **DMS 1124 Sonographic Physics and Instrumentation I (4 Credits)**

This course covers the principles of sonographic physics. Lectures on sound waves, transducers, processing, recording, resolution, hemodynamics, Doppler principles, artifacts, biological effects, and quality assurance. Students will become proficient in optimizing techniques using the principles of sonographic physics to obtain high-quality diagnostic sonographic images. This course will prepare students for their national certification examination.

Prerequisites: DMS 1095

Corequisite: DMS 1195

Previous: Legacy Equivalent(s): DMS\* 124

**DMS 1195 Clinical Practicum II (2 Credits)**

During this course students will be assigned to a clinical site for two days per week throughout the semester. Students will perform complete sonographic exams with supervision, optimize the sonographic images, use advanced Doppler functions, and identify when artifacts and/or pathology are present.

Prerequisites: DMS 1095

Previous: Legacy Equivalent(s): DMS\* 125

**DMS 2095 Clinical Internship I (4 Credits)**

Students will be assigned to a clinical site for approximately five days per week throughout the course. With supervision, students will independently conduct patient interviews and perform sonographic exams. Students will identify common pathology, describe sonographic findings, and begin to formulate differential diagnoses.

Prerequisites: DMS 1195

Previous: Legacy Equivalent(s): DMS\* 220

**DMS 2195 Clinical Practicum III (3 Credits)**

Students will be assigned to a clinical site for approximately three days per week throughout the semester. Students will review requisitions, conduct patient interviews, and perform advanced sonographic exams with supervision. Students will apply critical thinking skills to identify complex sonographic pathologies, adjust scanning technique and protocol, analyze sonographic findings, and formulate differential diagnoses.

Prerequisites: DMS 2095

Corequisite: DMS 2222

Previous: Legacy Equivalent(s): DMS\* 223

**DMS 2221 Abdomen/Small Parts Sonography II (3 Credits)**

Through lecture and applied lab, this course will focus on the sonographic appearance of disease processes in pediatrics, male pelvic organs, the gastrointestinal system, and superficial structures. Instruction will cover indications for testing, patient history, laboratory values, a review of normal anatomy, the grayscale and Doppler appearance of pathology, and necessary scanning modifications when pathology is noted. Differential diagnoses, treatments, patient outcomes, and the correlation of other imaging modalities will also be discussed. After successful completion of the program, students will be eligible to take their national certification examination in Abdomen-extended through the American Registry of Diagnostic Sonography (ARDMS).

Prerequisites: DMS 2095

Corequisite: DMS 2195

Previous: Legacy Equivalent(s): DMS\* 221

**DMS 2222 Vascular Sonography II (3 Credits)**

A continuation of Vascular Sonography I and educates the student in advanced vascular sonography and pathology. Didactic and laboratory instruction will cover intracranial and visceral vascular anatomy and pathophysiology, vascular variants, embryology, pharmacology, etiology of disease, physiological vascular testing, surgical procedures, vascular imaging modalities, analysis of waveforms, and statistics.

Prerequisites: DMS 2095

Corequisite: DMS 2195

Previous: Legacy Equivalent(s): DMS\* 222

**DMS 2225 Obstetrics and Gynecology Sonography II (3 Credits)**

This course focuses on the sonographic appearance of obstetrical abnormalities in the first, second and third trimester. Laboratory values, patient history, differential diagnosis and outcomes will be presented. The role of ultrasound in maternal and fetal management will be discussed. Instruction will include prenatal testing, procedures, fetal monitoring, and Doppler applications. Abnormalities specific to multi-gestations will also be presented. Students will become skilled in recognizing fetal abnormalities and be prepared for the obstetrical portion of their national examination.

Prerequisites: DMS 2295

Corequisite: DMS 2395

Previous: Legacy Equivalent(s): DMS\* 225

**DMS 2226 Advances in Sonography Seminar (3 Credits)**

Through lecture and lab, this course will cover the role of the sonographer in guided interventional procedures. The risks, benefits, sterile techniques and indications will be discussed. Protocols for FAST exams in the emergency department will be reviewed. Sonography for detection of foreign bodies will be introduced. Current ultrasound applications and ultrasound of the non-cardiac chest will be covered. This course provides students the opportunity to explore the latest advances in sonographic technology through researching new technologies or application for their capstone project.

Prerequisites: DMS 2295

Corequisite: DMS 2395

Previous: Legacy Equivalent(s): DMS\* 226

**DMS 2295 Clinical Internship II (1 Credits)**

Students will be assigned to a clinical site for approximately five days per week throughout the course. Students will review requisitions, conduct patient interviews, perform advanced sonographic exams with supervision and apply critical thinking skills to analyze the findings and formulate differential diagnoses.

Prerequisites: DMS 2195

Previous: Legacy Equivalent(s): DMS\* 224

**DMS 2395 Clinical Practicum IV (3 Credits)**

Students will be assigned to a clinical site for approximately three days per week throughout the semester. Students will review requisitions, conduct patient interviews, and perform advanced sonographic exams with supervision. Students will apply critical thinking skills to identify complex sonographic pathologies, adjust scanning technique and protocol, analyze sonographic findings, and formulate differential diagnoses.

Prerequisites: DMS 2295

Corequisite: DMS 2226

Previous: Legacy Equivalent(s): DMS\* 227