

## DMS Diagnostic Medical Sonography

### **DMS 105 Ultrasound Physics/Instrumentation I (2-0) 2 crs.**

Instructs students in the ultrasound imaging programs in the principles of ultrasound physics and instrumentation. Examines continuous and pulsed sound, sound wave intensities, interaction of sound and media, sound propagation, axial resolution, transducer basics, anatomy of a sound wave, and basic display modalities.

**Prerequisite:** Admission into the DMS program.

### **DMS 106 Ultrasound Physics/Instrumentation II (2-0) 2 crs.**

Continues to instruct students in the ultrasound imaging programs in the principles of ultrasound physics and instrumentation. Examines real time imaging, ultrasound instrumentation, displays, signal processing, harmonics, and Doppler principles. Concludes with imaging artifacts, bioeffects, and quality assurance.

**Prerequisite:** DMS 105 with a grade of C or better.

### **DMS 107 Sonography Theory I (2-0) 2 crs.**

Discusses the role of a sonographer and the sonography profession. Examines the different sonography specialty areas and related sonographic exams. Explores the ultrasound cross sectional anatomy of the abdomen, pelvis, chest and neck. Maps the circulation of the cerebral vascular system. Introduces the normal and abnormal cerebrovascular ultrasound. Investigates cerebrovascular disease and trains the student to interpret cerebrovascular ultrasound exams.

**Corequisite:** DMS 109

### **DMS 108 Sonography Theory II (2-0) 2 crs.**

Builds on the theoretical foundations covered in Sonography Theory I. Explores the ultrasound cross sectional vascular anatomy of the extremities. Maps the circulation from the trunk to the periphery. Introduces the normal and abnormal peripheral arterial and venous sonogram. Investigates peripheral vascular disease. Trains the student to interpret peripheral arterial and venous sonographic studies.

**Prerequisite:** DMS 107 with a grade of C or better.

**Corequisite:** DMS 110.

### **DMS 109 Sonography Lab I (0-2) 1 cr.**

Provides laboratory practice in the basics of ultrasound imaging. Introduces professional expectations of the student sonographer. Covers proper procedure and body mechanics for an ultrasound exam. Orients the student to imaging body habitus. Instructs on the operation of ultrasound equipment. Trains the student to perform diagnostic carotid sonograms. Pass/fail grade.

**Corequisite:** DMS 107.

### **DMS 110 Sonography Lab II (0-2) 1 cr.**

Provides laboratory practice in peripheral vascular ultrasound imaging. Trains the student to perform diagnostic peripheral arterial and venous sonographic examinations. Non-imaging physiological peripheral arterial examination techniques are also covered. Expands upon the professional expectations of the student sonographer. Pass/fail grade.

**Prerequisite:** DMS 109 with a grade of C or better.

**Corequisite:** DMS 108.

### **DMS 112 Sonography Lab III (0-2) 1 cr.**

Provides additional laboratory practice in common vascular ultrasound exams. This course is not required for graduation. Pass/fail grade.

### **DMS 201 Introduction to the Medical Sonography Clinical (2-3) 3 crs.**

Prepares the student for their role as a medical sonographer in the hospital setting. Covers relevant policies, procedures, and considerations for working in the hospital, caring for patients, and completing sonograms in the clinical environment. Grooms the student for entrance into the sonography profession. Includes simulated and observational hospital experiences.

**Corequisite:** DMS 204, DMS 205, and DMS 206.

### **DMS 204 Abdominal and Small Parts Sonography Theory I (4-0) 4 crs.**

Explores the ultrasound cross sectional anatomy of the major structures and organs of the abdomen. Maps the related abdominal circulation. Introduces the normal and abnormal ultrasound of the liver, gallbladder, pancreas, spleen and urinary system. Investigates pathologies of these same structures. Trains the student to interpret these pathologies on ultrasound.

**Prerequisite:** DMS 106 with a grade of C or better.

**Corequisite:** DMS 205 and DMS 206.

### **DMS 205 Obstetrical and Gynecological Sonography Theory I (3-0) 3 crs.**

Explores the ultrasound cross sectional anatomy of the female pelvis. Maps the related pelvic circulation. Introduces the normal and abnormal ultrasound of the uterus, ovaries, adnexa, neonatal and pediatric pelvis, and the first trimester pregnancy. Investigates pathologies of these same structures. Trains the student to interpret these pathologies on ultrasound. Introduces the role of ultrasound in evaluating female infertility.

**Prerequisite:** DMS 106 with a grade of C or better.

**Corequisite:** DMS 204 and DMS 206.

### **DMS 206 Medical Sonography Lab I (0-4) 2 crs.**

Provides supervised laboratory instruction and practice in abdominal and gynecologic ultrasound imaging. Trains the student to perform an ultrasound of the aorta, liver, gallbladder, pancreas, spleen, urinary system, non-cardiac chest, and female pelvis. Reinforces the professional expectations of the student sonographer. Pass/fail grade.

**Prerequisite:** DMS 106 with a grade of C or better.

**Corequisite:** DMS 204 and DMS 205.

### **DMS 207 Medical Sonography Clinical I (0-25) 5 crs.**

Provides the student with practical clinical experience performing abdominal, small parts, vascular, obstetrical and gynecological ultrasound in a hospital or other clinical setting. Orients the student to that hospital environment and the specific policies and procedures for completing sonograms in that medical setting. Allows the student to perform these ultrasounds on patients under the close supervision of clinical staff. Provides an opportunity for students to develop and demonstrate the knowledge base, clinical skills, and professional skills required of an entry level sonographer.

**Prerequisite:** DMS 201, DMS 204, DMS 205 and DMS 206 with grades of C or better.

### **DMS 208 Abdominal and Small Parts Sonography Theory II (4-0) 4 crs.**

Continues to explore the ultrasound cross sectional anatomy of the abdomen and of specific small parts. Introduces the normal and abnormal ultrasound of the thyroid, scrotum, pediatric abdomen, gastrointestinal tract, abdominal walls and cavities, liver and urinary circulation, breast, neonatal spine and brain, and some specific musculoskeletal structures. Investigates pathologies of these same structures. Trains the student to interpret these pathologies on ultrasound. Reinforces vascular interpretation skills covered in previous coursework. Introduces ultrasound-guided interventional techniques and emergent abdominal ultrasound procedures.

**Prerequisite:** DMS 204 with a grade of C or better.

**Corequisite:** DMS 209 and DMS 210.

**DMS 209 Medical Sonography Lab II (0-4) 2 crs.**

Continues supervised laboratory instruction and practice in abdominal, gynecologic, and vascular ultrasound; expanding into more advanced or targeted ultrasound imaging. Trains the student to perform liver and kidney doppler as well as thyroid, breast, scrotal, transvaginal, obstetric and common musculoskeletal sonographic examinations. Reinforces the professional expectations of the student sonographer. Pass/fail grade.

**Prerequisite:** DMS 206 with a grade of C or better.

**Corequisite:** DMS 208 and DMS 210.

**DMS 210 Obstetrical and Gynecological Sonography Theory II (3-0) 3 crs.**

Builds on the theoretical foundations covered in DMS 205 (Obstetrical and Gynecological Sonography Theory I.) Explores the ultrasound cross-sectional anatomy of the second and third trimesters. Maps fetal embryology. Introduces the normal and abnormal ultrasound of the first, second and third trimester pregnancy. Investigates pathologies of the pregnant uterus and the developing fetus. Trains the student to interpret these pathologies on ultrasound. Introduces 3D and 4D sonographic evaluations of fetal anomalies.

**Prerequisite:** DMS 205 with a grade of C or better.

**Corequisite:** DMS 208 and DMS 209.

**DMS 211 Medical Sonography Clinical II (0-25) 5 crs.**

Continues the student's practical clinical experience performing abdominal, small parts, vascular, obstetrical and gynecological ultrasounds in a hospital or other clinical setting. Allows the student to perform these ultrasounds on patients under the close supervision of clinical staff. Continues to provide an opportunity for students to develop and demonstrate the knowledge base, clinical skills, and professional skills required of an entry-level sonographer.

**Prerequisite:** DMS 207 with a grade of C or better.

**DMS 260 Advanced Sonography Seminar (1-0) 1 cr.**

Introduces new or advanced topics in sonography. Explores the evolution and provides necessary background in terms of related anatomy, hemodynamics, physics and pathology. Presents related ultrasound case studies and trains in the interpretation of the ultrasound examination. Covers implications to the performance of the sonographic procedure including protocols, modalities and specific assessment techniques. Enhances the skill of the sonographer past entry level. May be repeated up to six credit hours.