

DIAGNOSTIC MEDICAL IMAGING SONOGRAPHY (DMIS)

DMIS 1100

Intro to Diagnostic Medical Sonography

3 Credit Hours

History of ultrasound including medical applications. Description of the roles, responsibilities and rules of the diagnostic medical sonographer. Introduction to the fundamental principles of the use and maintenance of ultrasound equipment. Indications of diagnostic sonography procedures, positioning, safety and image processing. Legal and ethical issues in an ultrasound department. (2 lecture hours, 2 lab hours)

Prerequisite: Admission to the Diagnostic Medical Imaging Sonography program or consent of instructor.

DMIS 1101

Sonographic Physics & Instrumentation I

3 Credit Hours

Introduction to physics of acoustics and sonographic instrumentation. Production and types of sound waves discussed. Demonstration of propagation of ultrasound through tissues, transducers, pulse-echo instruments and display methods. (2 lecture hours, 2 lab hours)

Prerequisite: Admission to the Diagnostic Medical Imaging Sonography program or consent of instructor.

DMIS 1102

Sonographic Physics & Instrumentation II

3 Credit Hours

Continuation of pulse-echo instrumentation including harmonics, image artifacts and color flow imaging with Doppler instrumentation. Bioeffects and safety in ultrasound imaging. Quality management applied to Sonography. (2 lecture hours, 2 lab hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program, DMIS 1100, and DMIS 1101, or consent of instructor.

DMIS 1105

Intro to Pathophysiology for Sonographer

2 Credit Hours

Student will be introduced to physiological processes associated with disease and/or injury in the body systems. Pathology cases are illustrated with review of diagnostic medical imaging studies including Sonography, Computed Tomography, Magnetic Resonance Imaging, Radiography, and Nuclear Medicine. (2 lecture hours)

Prerequisite: HLTHS 1110 with a grade of B or better, or equivalent, and ANAT 1552 or ANAT 1572 with a grade of B or better, or equivalent or consent of instructor.

DMIS 1110

Patient Care Skills for Sonographers

2 Credit Hours

Students will be introduced to patient care skills applied to the role of a Sonographer in an imaging department. Topics will include patient care skills, scanning ergonomics, patient confidentiality, and communication skills with hospital personnel as applied to all areas of sonography. (1 lecture hour, 2 lab hours)

Prerequisite: HLTHS 1110 with a grade of B or better, or equivalent or concurrent enrollment in HLTHS 1110; and ANAT 1552 with a grade of B or better, or equivalent or concurrent enrollment in ANAT 1552, or ANAT 1572 with a grade of B or better, or equivalent or concurrent enrollment in ANAT 1572.

DMIS 1112

Clinical Education II

3 Credit Hours

Students will participate in a clinical experience in Sonography at a health care institution. Students will apply concepts and skills learned in DMIS courses at the health care institution. (24 clinical hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program is required. DMIS 1100, DMIS 1101, and DMIS 1120, all with a grade of C or better, or equivalent. Clinical Education Sonography courses from other colleges under approved cooperative agreements.

DMIS 1113

Clinical Education III

2 Credit Hours

Students will continue Sonography clinical experience in a health care institution. Students will continue applying concepts and skills learned in DMIS courses at the health care institution. (16 clinical hours)

Prerequisite: Admission to program is required and DMIS 1102, DMIS 1112, DMIS 1121, and DMIS 1131 or consent of instructor or Clinical Education Sonography courses from other colleges under approved cooperative agreements.

DMIS 1114

Clinical Education IV

3 Credit Hours

Students will continue Sonography clinical experience in a health care institution. Students will continue applying concepts and skills learned in DMIS courses at the health care institution. (24 clinical hours)

Prerequisite: Admission to the program is required and DMIS 1113, with a grade of C or better, or equivalent or Clinical Education Sonography courses from other colleges under approved cooperative agreements.

DMIS 1120

Sonographic Cross-Sectional Anatomy

3 Credit Hours

Introduction to the basics of cross-sectional anatomy as interpreted on diagnostic sonographic images. Sectional human anatomy in the transverse, sagittal and coronal planes. Correlation of anatomy with cadavers and ultrasound images. (2 lecture hours, 2 lab hours)

Prerequisite: Admission to the Diagnostic Medical Imaging Sonography program or consent of instructor.

DMIS 1121

Fundamentals of OB/GYN I

3 Credit Hours

Students will be introduced to the female reproductive system as it relates to Sonography. Topics will include imaging in the first trimester of pregnancy and non-gravid uterus, review of ultrasound images of normal anatomy and pathology, ultrasound appearance of the cervix, uterus, fallopian tubes, ovaries, placenta, and fetus. Management of gynecologic infertility and post menopausal women will also be discussed. (2 lecture hours, 2 lab hours)

Prerequisite: Admission to program is required or consent of instructor.

DMIS 1122

Fundamentals of OB/GYN II

3 Credit Hours

Students will be introduced to fetal ultrasound techniques in the second and third trimester. Topics will include multiple gestation pregnancies, antenatal syndromes, congenital fetal disorders, placenta, umbilical cord, and membrane conditions. Fetal growth assessment and management of growth disorders will also be discussed. (2 lecture hours, 2 lab hours)

Prerequisite: Admission to program is required and DMIS 1121 with a grade of C or better, or equivalent or consent of instructor.

DMIS 1131

Abdomen/Superficial Structures I

3 Credit Hours

Students will be introduced to abdominal cross-sectional anatomy with the use of ultrasound. Topics will include vascular and abdominal organ systems with normal and pathologic conditions. Ultrasound evaluations will include upper abdominal organs such as liver, and gallbladder and biliary tree, spleen, pancreas, great vessels, scrotum, prostate, and urinary tract. (2 lecture hours, 2 lab hours)

Prerequisite: Admission to program is required and DMIS 1100, DMIS 1101, and DMIS 1120, all with a grade of C or better, or equivalent.

DMIS 1132

Abdomen/Superficial Structures II

2 Credit Hours

Continuation of anatomy and pathology of the abdominal and superficial structures in ultrasound imaging. Areas include: thyroid, parathyroid, breast, neck, thorax, gastrointestinal tract, musculoskeletal system, extracranial vessels and neonatal brain. Introduction of color flow Doppler techniques. (2 lecture hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program and DMIS 1121, DMIS 1131, and DMIS 1141 or consent of instructor.

DMIS 1140

Fundamentals of Breast Sonography

2 Credit Hours

Students will be introduced to the fundamentals of breast Sonography. This course reviews the identification of sonographic physics-related artifacts in normal and abnormal breast tissue and anatomy. Correlation with other imaging modalities and surgical techniques in breast pathology are also included. (2 lecture hours)

Prerequisite: Admission to program is required. DMIS 1102 with a grade of C or better, or equivalent or Registered Diagnostic Medical Sonographer (ARDMS) or Registered Sonographer in ARDMS or ARRT.

DMIS 1141

Case Study Critique I

1 Credit Hour

Students will present diagnostic medical ultrasound cases of normal and abnormal anatomy. Students will discuss imaging techniques and image quality of cases presented. (1 lecture hour)

Prerequisite: Admission to program is required and DMIS 1100 and DMIS 1101, both with a grade of C or better, or equivalent or consent of instructor.

DMIS 1142

Case Study Critique II

1 Credit Hour

Students will present advanced diagnostic medical ultrasound cases of normal and abnormal anatomy. Students will discuss imaging techniques and image quality of cases presented. (1 lecture hour)

Prerequisite: Admission to program is required and DMIS 1131, DMIS 1132, and DMIS 1141, all with a grade of C or better, or equivalent or consent of instructor.

DMIS 1151

Hands-On Scanning Lab 1

1 Credit Hour

Overview and emphasis of principles taught in DMIS-1100 in Abdominal/Superficial Structures and Obstetrics/Gynecology. Students perform hands-on scanning techniques in the scanning lab. Various scanning techniques are demonstrated on fellow students under the guidance of the instructor. Proper techniques in manipulating the transducer probe are demonstrated. Identification of organ systems and corresponding ultrasound images. (2 lab hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography Program or consent of instructor.

DMIS 1152

Hands-On Scanning Lab 2

1 Credit Hour

Course will expand on principles of Abdominal/Superficial Structures and Obstetrics/Gynecology. Students will perform advanced hands-on scanning techniques utilizing proper manipulation of transducer probes. (2 lab hours)

Prerequisite: Admission to program is required. Concurrent enrollment is required in DMIS 1151 or consent of instructor.

DMIS 1153

Hands-On Scanning Lab 3

1 Credit Hour

Continuation of principles taught in Diagnostic Medical Imaging Sonography 1152 in Abdominal/Superficial Structures and Obstetrics/Gynecology. Emphasis placed on advanced skills in obstetrical scanning. Students perform hands-on scanning techniques on volunteer patients under the guidance of the instructor. Proper techniques in manipulating the transducer probe are demonstrated. Identification of organ systems and corresponding ultrasound images. (2 lab hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program and DMIS 1152 or consent of instructor.

DMIS 1154

Hands-On Scanning Lab 4

1 Credit Hour

The course will expand on principles of Abdominal and Superficial Structures and Obstetrics and Gynecology. Students will perform advanced hands-on scanning techniques utilizing proper manipulation of transducer probes. Emphasis will be placed on students demonstrating their scanning skills on patient volunteers. (2 lab hours)

Prerequisite: Admission to the program is required. DMIS 1153 with a grade of C or better, or equivalent or consent of instructor.

DMIS 1160

Legal Issues of Health Care-Sonography

1 Credit Hour

Students will be introduced to the legal system as it applies to the medical field. Medical malpractice cases will be reviewed and discussed. Students will be taught how to protect themselves from becoming involved in a medical malpractice case. (1 lecture hours)

Prerequisite: Admission to the program is required. DMIS 1121 and DMIS 1131, both with a grade of C or better, or equivalent or consent of instructor.

DMIS 1820***Selected Topics I***

1-3 Credit Hours

Introductory exploration and analysis of selected topics with a specific theme indicated by course title listed in college class schedule. This course may be taken four times for credit as long as different topics are selected. (1 to 3 lecture hours)

Prerequisite: Currently enrolled in the Diagnostic Medical Imaging Sonography Program or consent of instructor.

DMIS 1822***Selected Topics III***

1-3 Credit Hours

Introductory exploration and analysis of selected topics with a specific theme indicated by course title listed in college class schedule. This course may be taken four times for credit as long as different topics are selected. (1 lecture hour, 2 to 4 lab hours)

Prerequisite: Currently enrolled in the Diagnostic Medical Imaging Sonography Program or consent of instructor.

DMIS 1823***Selected Topics IV***

1-3 Credit Hours

Introductory exploration and analysis of selected topics with a specific theme indicated by course title listed in college class schedule. This course may be taken four times for credit as long as different topics are selected. (2 to 6 lab hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program or consent of instructor.

DMIS 1824***Selected Topics V***

1-2 Credit Hours

Introductory exploration and analysis of selected topics with a specific theme indicated by course title listed in college class schedule. This course may be taken four times for credit as long as different topics are selected. (1 to 2 lecture hours)

Prerequisite: Currently enrolled in the Diagnostic Medical Imaging Sonography program or consent of instructor.

DMIS 1826***Selected Topics VII***

1 Credit Hour

Introductory exploration and analysis of selected topics with a specific theme indicated by course title listed in the college class schedule. This course may be taken four times for credit as long as different topics are selected. (2 lab hours)

Prerequisite: Currently enrolled in the Diagnostic Medical Imaging Sonography program or consent of instructor.

DMIS 1840***Independent Study***

1-4 Credit Hours

Exploration and analysis of topics within the discipline to meet individual student-defined course description, goals, objectives, topical outline and methods of evaluation in coordination with and approved by the instructor. This course may be taken four times for credit as long as different topics are selected. (1 to 4 lecture hours)

Prerequisite: Consent of instructor is required.

DMIS 2200***Vascular Hemodynamics and Physics***

2 Credit Hours

A review of the circulatory system blood as fluid, and how blood circulates. A description of the various forms of energy and how they affect blood movement will be covered. The principles of blood movement, conduits and circulation will be examined along with laboratory demonstration of these principles. The Doppler effect and the Doppler will be explained and applied. Various Doppler Instruments used to assess blood flow in vascular ultrasound will be reviewed and utilized in class and lab. (1 lecture hour, 2 lab hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program is required.

DMIS 2201***Abdominal and Peripheral Arterial***

3 Credit Hours

Evaluation of blood vessels, their purpose and composition, detailed physiology of the arterial blood flow system and ultrasound testing with direct and indirect methods. Arterial anatomy of the abdomen, pelvic, and upper extremities as well as the lower extremities will be reviewed. Diseases of the arterial system and their effects will be addressed with indications for ultrasound arterial examinations and treatments. (3 lecture hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program and concurrent enrollment required in DMIS 2221 or consent of instructor.

DMIS 2203***Cerebrovascular Ultrasound***

2 Credit Hours

Overview of the purpose and composition of blood vessels and the physiology of the cerebrovascular system. Cerebrovascular anatomy are reviewed. Disease of the cerebrovascular system are addressed with the indications for ultrasound cerebrovascular examinations. A review and demonstration of cerebrovascular ultrasound testing and findings and other laboratory modalities. Treatments for various diseases of the cerebrovascular system are addressed. Cerebrovascular testing as a part of ongoing, post-intervention patent management are included. (2 lecture hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program and concurrent enrollment required in DMIS 2223 or consent of instructor.

DMIS 2204***Abdominal and Peripheral Venous***

2 Credit Hours

Overview of the purpose and composition of blood vessels and the physiology of the venous blood flow system. Venous anatomies of the abdomen, pelvis, upper extremities, as well as the lower extremities are addressed. Diseases of the venous system, their effects and indications for ultrasound venous examinations are included. An overview of the abdominal and peripheral venous ultrasound testing, their findings and other laboratory modalities. Treatments for various diseases of abdominal and peripheral venous systems are reviewed. (2 lecture hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program and concurrent enrollment required in DMIS 2224 or consent of instructor.

DMIS 2212***Clinical Education - Vascular Imaging 1***

3 Credit Hours

Students will participate in a clinical experience in vascular sonography at a health care institution. Students will apply concepts and skills learned in DMIS vascular courses at the health care institution. (24 clinical hours)

Prerequisite: Admission to the program is required. Clinical Education Vascular Sonography courses from other colleges under approved cooperative agreements.

DMIS 2213***Clinical Education - Vascular Imaging 2***

2 Credit Hours

Students will continue vascular sonography clinical experience in a health care institution. Students will continue applying concepts and skills learned in DMIS vascular courses at the health care institution. (16 clinical hours)

Prerequisite: Admission to the program is required and DMIS 2212 with a grade of C or better, or equivalent or Clinical Education Vascular Sonography courses from other colleges under approved cooperative agreements.

DMIS 2221***Abdominal & Peripheral Arterial Hands-On***

1 Credit Hour

An overview of abdominal and peripheral arterial ultrasound testing that offers hands-on training in the classroom with vascular ultrasound equipment. Application of principles taught in DMIS-2201. Various arterial testing techniques and scanning are demonstrated and performed on fellow students under the guidance of the instructor. Proper techniques in these testing modalities are reviewed along with proper identification of the arterial system. (2 lab hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program and concurrent enrollment in DMIS 2201.

DMIS 2223***Cerebrovascular Ultrasound Hands-On Scan***

1 Credit Hour

Continuation of DMIS 2203 that provides a further understanding of cerebrovascular ultrasound testing by offering hands-on training in the classroom with vascular ultrasound equipment. Various cerebrovascular testing techniques and scanning are demonstrated to the students. Under the guidance of the instructor, students will practice these techniques on fellow students. Proper techniques in these testing modalities will be reviewed along with proper identification of the cerebrovascular system. (2 lab hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program and concurrent enrollment required in DMIS 2203.

DMIS 2224***Abdominal & Peripheral Venous Hands-On***

1 Credit Hour

Continuation of DMIS 2204 that provides an understanding of abdominal and peripheral venous ultrasound testing by offering hands-on training in the classroom with vascular ultrasound equipment. Various venous testing techniques and scanning are demonstrated to the students. Under the guidance of the instructor the students will practice these techniques on fellow students. Proper techniques in these testing modalities are reviewed along with proper identification of the venous system. (2 lab hours)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program and concurrent enrollment required in DMIS 2204.

DMIS 2280***Sonographic Physics Registry and Review***

1 Credit Hour

Intensive review of topics taught in DMIS 1101 and DMIS 1102.

Preparation for taking the American Registry of Diagnostic Medical Sonography certificate examination. Review of physical principles of sound and sonographic instrumentation. Principles of propagation of ultrasound through tissues, transducers, pulse-echo instruments, image storage and display. Review of Doppler ultrasound, image artifacts and quality management. This course can only be taken on a pass/fail basis. (1 lecture hour)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program and DMIS 1102 or consent of instructor.

DMIS 2285***Clinical Sonographic Registry and Review***

1 Credit Hour

Intensive review of topics taught in DMIS 1121, DMIS 1122, DMIS 1131, and DMIS 1132. Preparation for taking the American Registry of Diagnostic Medical Sonography certification examination. Review of Diagnostic Medical Sonography applications in the specialties of abdominal/superficial structures and obstetrics/gynecology. This course can only be taken on a pass/fail basis. (1 lecture hour)

Prerequisite: Admission to Diagnostic Medical Imaging Sonography program and DMIS 1121, DMIS 1122, DMIS 1131, and DMIS 1132 or consent of instructor.

DMIS 2860***Internship (Career & Technical Ed)***

1-4 Credit Hours

Course requires participation in Career and Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. (5 to 20 lab hours)

Prerequisite: Consent of instructor and 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Dean from the academic discipline where the student is planning to earn credit.

Course types: Contemporary Life Skills (A.A., A.S., A.A.S., A.G.S.)

DMIS 2865***Internship Advanced (Career & Tech Ed)***

1-4 Credit Hours

Continuation of Internship (Career and Technical Education). Course requires participation in Career & Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. (5 to 20 lab hours)

Prerequisite: Consent of instructor and 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Dean from the academic discipline where the student is planning to earn credit.

Course types: Contemporary Life Skills (A.A., A.S., A.A.S., A.G.S.)