2021-2022 Official Catalog

Diagnostic Medical Sonography

Overview

The Diagnostic Medical Sonography (DMS) program includes didactic, laboratory, and practicum components that are structured to facilitate the achievement of educational and career goals. According to the American Registry for Diagnostic Medical Sonographers (ARDMS), sonographers are “highly-skilled professionals who use specialized equipment to create images of structures inside the human body that are used by physicians to make medical diagnoses.”

Organizations such as the ARDMS certify the competency of sonographers through registration.

The Diagnostic Medical Sonography program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

CAAHEP
9355 – 113th St. N, #7709
Seminole, FL 33775
(727) 210-2350

DMS Medical Advisor: Bijan Bijan, MD
Email: drbijanbijan@gmail.com

Degrees and Certificates Offered

A.S. in Diagnostic Medical Sonography
Diagnostic Medical Sonography Certificate

Dean
Dana Wassmer

Department Chair
Cori Burns

Phone
(916) 691-7390

Email
wassmed@crc.losrios.edu

Associate Degree

A.S. in Diagnostic Medical Sonography

The CRC Diagnostic Medical Sonography (DMS) Program includes didactic, laboratory, and practicum components that are structured to facilitate the achievement of educational and career goals. According to the American Registry for Diagnostic Medical Sonographers (ARDMS), sonographers are “highly-skilled professionals who use specialized equipment to create images of structures inside the human body that are used by physicians to make medical diagnoses”. Sonographers have extensive, direct patient contact that may include performing some invasive procedures. They must be able to interact compassionately and effectively with people who range from healthy to critically ill.

Organizations such as the American Registry of Diagnostic Medical Sonographers (ARDMS) certify the competency of sonographers through registration.

Catalog Date: January 1, 2022

Degree Requirements

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<th>COURSE CODE</th>
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<tr>
<td>1st Summer Semester:</td>
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<tr>
<td>SONOG 200</td>
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<td>SONOG 202</td>
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<td>3</td>
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<td>1st Fall Semester:</td>
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<td>SONOG 205</td>
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<td>SONOG 210</td>
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<td>OB/GYN Scanning &amp; Pathology</td>
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**Enrollment Eligibility**

To be eligible for enrollment in the program, the student must meet the following criteria:

- Associate in Science degree, or higher, from a U.S. accredited college;
- a minimum of 800 hours of paid or volunteer patient care experience; hours must be documented within an official volunteer program where they report to a licensed/credentialed health care provider; home health care for a single patient is not acceptable. Applicants will need to document their 800 hours either volunteer, student extern/intern hours, or work hours in direct patient care;
- Complete the application process for enrollment in the DMS program;
- Fulfill all requirements set forth by the CRC Allied Health Practicum Guidelines including but not limited to: background clearance, physical examination, CPR Certification, immunization clearance and drug screening;
- Successfully complete with a B or better all prerequisite courses as outlined below.

- College-level Intermediate Algebra (or higher math course)
- Interpersonal Communications (or equivalent communications/speech course)
- Anatomy & Physiology (one year with lab)
- Medical Language
- Human Disease or Pathophysiology
- Conceptual Physics
- The program prerequisites do not apply to physicians who have an approved foreign transcript evaluation.

**Student Learning Outcomes**

Upon completion of this program, the student will be able to:

- Perform entry-level skills of a diagnostic sonographer in a clinical setting (PSLO #1);
- Successfully complete the American Registry of Diagnostic Medical Sonographers (ARDMS) certification examination (PSLO #2);
- Acknowledge and adhere to the scope of practice of a Diagnostic Medical Sonographer (PSLO #3).

**Career Information**

Career Opportunities: According to the ARDMS, Sonography is a dynamic profession that has grown significantly over the past 25 years. With rapidly developing new technologies and increased use of diagnostic ultrasound procedures, growth is projected to continue in the future with employment opportunities for qualified sonographers in both urban and rural areas nationwide. Sonographers and vascular technologists can choose to work in clinics, hospitals, private-practice physician offices, public-health facilities, laboratories, and other medical settings performing examinations in their areas of specialization. According to the Bureau of Labor Statistics' Occupational Outlook Website, almost two-thirds of all sonographers are employed by hospitals. The rest work in physicians' offices, medical and diagnostic laboratories/imaging centers and outpatient care centers. Employment of diagnostic medical sonographers is expected to increase by 29.4 percent, or 1,500 jobs between 2014 and 2024. As ultrasound technology evolves, it will become a more common method used to assist in diagnosing medical conditions, favored over more invasive procedures.

**Certificate of Achievement**

**Diagnostic Medical Sonography Certificate**

The CRC Diagnostic Medical Sonography (DMS) Program includes didactic, laboratory, and practicum components that are structured to facilitate the achievement of educational and career goals. According to the American Registry for Diagnostic Medical Sonographers (ARDMS), sonographers are "highly-skilled professionals who use specialized equipment to create images of structures inside the human body that are used by physicians to make medical diagnoses." Sonographers have extensive, direct patient contact that may include performing some invasive procedures. They must be able to interact compassionately and effectively with people who range from healthy to critically ill.

Students must achieve a "C" or better in all SONOG didactic courses and a "Pass" in all practicum courses to remain in, and progress through, the DMS program. Students who do not achieve these minimum expectations will be dismissed from the program.

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**Catalog Date**: January 1, 2022
Certificate Requirements

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<td>SONOG 250</td>
<td>Sonography Interpretation &amp; ARDMS/ARRT Exam Review</td>
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<td>SONOG 255</td>
<td>Clinical Experience IV</td>
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<td><strong>Total Units:</strong></td>
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- Complete the application process for enrollment in the DMS program;
- Fulfill all requirements set forth by the CRC Allied Health Practicum Guidelines including but not limited to: background clearance, physical examination, CPR Certification, immunization clearance and drug screening;
- Successfully complete with a B or better all pre-requisite courses as outlined below within the last five (5) years:
  - College-level Intermediate Algebra (or higher math course)
  - Interpersonal Communications (or equivalent communications/speech course)
  - Anatomy & Physiology (one year with lab)
  - Medical Language
  - Human Disease or Pathophysiology
  - Conceptual Physics
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Diagnostic Medical Sonography (SONOG) Courses

SONOG 200 Introduction to Sonography

- **Units:** 3
- **Hours:** 54 hours LEC
- **Prerequisite:** None
- **Corequisite:** SONOG 202
- **Enrollment Limitation:** This course is only available to students who have been accepted into the most recent cohort and who remain in good standing within the DMS program. Students must take this course for a letter grade, and must earn a grade of "C" or better in this course to remain in the DMS program.
This course is designed for students in the Diagnostic Medical Sonography (DMS) program. The course will introduce fundamental sonography theory including terminology and equipment. Students will be instructed in sonographer and patient safety, including ergonomics, legal, ethical and regulatory issues. Scope of practice, patient care techniques, assessment and treatment will be introduced. Emphasis will be placed on interaction with diverse patient populations.

This course must be taken for a letter grade, and students must achieve a "C" or better to remain in the DMS program.

**SONOG 202 Sectional Anatomy for Medical Imaging**

**Units:** 3  
**Hours:** 54 hours LEC  
**Prerequisite:** None  
**Corequisite:** SONOG 200  
**Enrollment Limitation:** This course is only available to students who have been accepted into the most recent cohort and who remain in good standing within the DMS program. Students must take this course for a letter grade, and must earn a grade of “C” or better in this course to remain in the DMS program.

This is an introductory course in cross-sectional anatomy. Basic principles of human anatomy are presented in cross section and multi-planes and applied to Sonographic images, along with comparison modalities in the diagnostic imaging fields. This course builds upon basic understanding of human anatomy and physiology as it relates specifically to diagnostic imaging in an integrated fashion. This course provides critical cross-sectional analysis of human anatomy in preparation for abdominal, pelvic, vascular and small parts scanning, including sonographic terminology and directional anatomy in the cross-sectional planes. This course is only available to students who have been accepted in to the CRC Diagnostic Medical Sonography program. This course must be taken for a letter grade, and students must achieve a “C” or better to remain in the DMS program.

**SONOG 205 Ultrasound Physics & Instrumentation**

**Units:** 3  
**Hours:** 54 hours LEC  
**Prerequisite:** SONOG 202 with a grade of “C” or better  
**Corequisite:** SONOG 210 and 240  
**Enrollment Limitation:** This course is only available to students who have been accepted into the most recent cohort and who remain in good standing within the DMS program. Students must take this course for a letter grade, and must earn a grade of “C” or better in this course to remain in the DMS program.

This course covers the basic principles of diagnostic ultrasound physics and instrumentation. Topics include acoustical physics, Doppler effect, color flow imaging and the effects of ultrasound waves on human tissue. The course will cover transducer designs, quality assurance, bio-effects and imaging artifacts. The fundamentals of instrumentation, equipment design and application will be included. Hands-on instruction may be provided to introduce the student to necessary elementary scanning skills. This course is available to students who have been accepted in to the DMS program. This course must be taken for a letter grade, and students must achieve a “C” or better to remain in the DMS program.

**SONOG 210 Abdominal Scanning and Pathology**

**Units:** 4  
**Hours:** 36 hours LEC; 108 hours LAB  
**Prerequisite:** SONOG 202 with a grade of “C” or better  
**Corequisite:** SONOG 210 and 240  
**Enrollment Limitation:** This course is only available to students who have been accepted into the most recent cohort and who remain in good standing within the DMS program. Students must take this course for a letter grade, and must earn a grade of “C” or better in this course to remain in the DMS program.

This course will provide a study of the clinical applications of abdominal sonography, including positioning and scanning protocol. Anatomical structures will include: abdominal vasculature; liver; gallbladder and biliary system; pancreas; spleen; and kidneys. Specific pathology and clinical symptomatology will be covered as they relate to the sonographic appearance of these structures. Interpretation and critique of normal and abnormal anatomy with correlation of clinical, didactic and image information will be presented. This course is available to students who have been accepted in to the DMS program. This course must be taken for a letter grade, and students must achieve a “C” or better to remain in the DMS program.

**SONOG 215 Clinical Experience I**

**Units:** 7  
**Hours:** 384 hours LAB  
**Prerequisite:** SONOG 210 with a grade of “C” or better  
**Corequisite:** SONOG 220  
**Enrollment Limitation:** This course is only available to students who have been accepted into the most recent cohort and who remain in good standing within the DMS program. This course is graded “P/NP”, and students must earn a grade of “P” in this course to remain in the DMS program. Enrollment in all clinical experience courses requires all of the following: 1) successful completion of the ARDMS Sonography Principles & Instrumentation (SPI) exam; 2) must have obtained an approved clinical placement assigned by the CRC DMS program coordinator; and 3) must be enrolled in all co-requisite courses.

This course will provide basic instruction and scanning experience in sonography in a hospital or other healthcare setting. The student will be learn to demonstrate the ability to perform basic sonographic examinations according to the protocols established by the program and healthcare facility utilizing sonographic equipment. The directed practice experience will also serve to familiarize the student with the hospital setting, sonography department and other related clinical training aspects including Health Insurance Portability and Accountability Act (HIPAA) law. This course is only available to students who currently enrolled in the DMS program and have met the pre-requisites, co-requisites and have met all enrollment limitations. This course is graded as “Pass/No Pass”, and students must achieve a “Pass” to remain in the DMS program.

**SONOG 220 OB/GYN Scanning & Pathology**

**Units:** 4  
**Hours:** 36 hours LEC; 108 hours LAB  
**Prerequisite:** SONOG 240 with a grade of “C” or better  
**Corequisite:** SONOG 215  
**Enrollment Limitation:** This course is only available to students who have been accepted into the most recent cohort and who remain in good standing within the DMS program. Students must take this course for a letter grade, and must earn a grade of “C” or better in this course to remain in the DMS program.

This course is designed for students in the Diagnostic Medical Sonography (DMS) program. The course will introduce fundamental sonography theory including terminology and equipment. Students will be instructed in sonographer and patient safety, including ergonomics, legal, ethical and regulatory issues. Scope of practice, patient care techniques, assessment and treatment will be introduced. Emphasis will be placed on interaction with diverse patient populations.
This course will cover the anatomy and pathology related to the sonography of the female reproductive system, pregnant and non-pregnant. It will include an assessment of fetal gestational age, fetal anatomy and pathology, as well as associated maternal conditions throughout all trimesters. Topics of discussion include related clinical symptoms, sonographic appearances, scanning techniques and protocols. This course is available to students who have been accepted in to the most recent DMS cohort. This course must be taken for a letter grade, and students must achieve a "C" or better to remain in the DMS program.

SONOG 225 Clinical Experience II

Units: 7
Hours: 384 hours LAB
Prerequisite: SONOG 220 with a grade of "C" or better
Corequisite: SONOG 228
Enrollment Limitation: This course is only available to students who have been accepted into the most recent cohort and who remain in good standing within the DMS program.
Catalog Date: January 1, 2022

This course will provide intermediate-level instruction and scanning experience in a hospital or other healthcare setting. The student will be able to demonstrate the ability to perform abdominal, OB/GYN and small parts sonographic examinations of patients according to the protocols established by the program and healthcare facility utilizing sonographic equipment. This course is available to students who have been accepted in to the most recent DMS cohort. This course is graded "Pass/No Pass", and students must achieve a "Pass" to remain in the DMS program.

SONOG 228 Advanced OB/GYN Pathology

Units: 2
Hours: 36 hours LEC
Prerequisite: SONOG 220 with a grade of "C" or better
Corequisite: SONOG 228
Enrollment Limitation: This course is only available to students who have been accepted into the most recent cohort and who remain in good standing within the DMS program.
Catalog Date: January 1, 2022

This course builds upon lessons from SONOG 220 covering OB/GYN pathology and maternal-fetal complications. This course covers: High Risk Obstetrics in Sonography, Fetal Structural Abnormalities, Genetic Abnormalities and Syndromes. This course will also cover clinical assessments including interventional procedures and post-partum complications as well as pathology involving infertility. Topics of discussion include related clinical symptoms, sonographic appearances, scanning techniques and protocols. This course is available to students who have been accepted in to the most recent DMS cohort. This course must be taken for a letter grade, and students must achieve a "C" or better to remain in the DMS program.

SONOG 230 Vascular Scanning

Units: 4
Hours: 36 hours LEC; 108 hours LAB
Prerequisite: SONOG 225 with a grade of "C" or better
Corequisite: SONOG 235
Enrollment Limitation: This course is only available to students who have been accepted into the most recent cohort and who remain in good standing within the DMS program.
Catalog Date: January 1, 2022

This course covers the basic positioning and scanning protocol of the vascular system. Terminology specific to the hemodynamics of the arterial, venous and cerebrovascular applications will be presented. Normal, abnormal and pathologic states of the vascular system, including the carotid and lower extremities, will be included. This course is available to students who have been accepted in to the most recent DMS cohort. This course must be taken for a letter grade, and students must achieve a "C" or better to remain in the DMS program.

SONOG 235 Clinical Experience III

Units: 9
Hours: 512 hours LAB
Prerequisite: SONOG 228 with a grade of "C" or better
Corequisite: SONOG 230
Enrollment Limitation: This course is only available to students who have been accepted into the most recent cohort and who remain in good standing within the DMS program.
Catalog Date: January 1, 2022

This course will provide intermediate/advanced-level instruction, supervision and scanning experience in a hospital or other healthcare setting. The student will be able to demonstrate the ability to perform abdominal, OB/GYN, small parts and/or vascular sonographic examinations of patients according to the protocols established by the program and healthcare facility utilizing sonographic equipment. This course is available to students who have been accepted in to the most recent DMS cohort. This course is graded "Pass/No Pass", and students must achieve a "Pass" to remain in the DMS program.

SONOG 240 Superficial & Small Parts Scanning

Units: 3
Hours: 36 hours LEC; 54 hours LAB
Prerequisite: SONOG 202 with a grade of "C" or better
Corequisite: SONOG 210
Enrollment Limitation: This course is only available to students who have been accepted into the most recent cohort and who remain in good standing within the DMS program.
Catalog Date: January 1, 2022

This course covers the basic positioning and scanning of pediatric, small part and superficial structures; related anatomy and pathology; clinical symptomatology and how they relate to the sonographic appearance. Interpretation of normal and abnormal anatomy with correlation of clinical information will also be presented. This course is available to students who have been accepted in to the most recent DMS cohort. This course must be taken for a letter grade, and students must achieve a "C" or better to remain in the DMS program.
This course will cover advanced interpretation and critique of abdominal, OB/GYN, vascular, superficial and small parts sonographs. This course serves as a continuation of previous, basic knowledge within the Diagnostic Medical Sonography program. This course will also provide students with guidance to assist them in their independent study and preparation for the ARDMS and AART examinations. This course is available to students who have been accepted in to the most recent DMS cohort. This course must be taken for a letter grade, and students must achieve a "C" or better to remain in the DMS program.

**SONOG 255 Clinical Experience IV**

This course is the final directed practice study course in the Diagnostic Medical Sonography program. The course incorporates all areas of study including the abdomen, OB/GYN, vascular, superficial and small parts scanning. The student will be able to perform advanced sonographic examinations in a healthcare facility according to the protocols and criteria established by the CRC DMS program. Students will complete all final program competency evaluations and demonstrate the ability to perform all required examinations, including the ability to scan independently, under the direction of the assigned primary clinical site preceptor(s). This course is graded "Pass/No Pass", and students must achieve a "Pass" to remain in the DMS program.