

DIAGNOSTIC MEDICAL SONOGRAPHY - AAS DEGREE PROGRAM

Offered at AUS, FW, HNL, MCA, and SA

Program Description:

The program is designed to prepare students for entry-level employment as a competent Diagnostic Medical Sonographer via online and residential classroom and clinical hands-on training, as well as through professional development. The Graduates will have theoretical pathologic sonography of the abdomen, superficial structures and obstetrics and gynecology, as well as general education courses. Graduates will learn and demonstrate scanning techniques and protocols of the abdomen, superficial structures and obstetrics/gynecology in the laboratory and clinical settings, integrating the lectures with clinical education. Sonographers perform ultrasound procedures in clinics, hospitals, and acute or long-term care facilities.

Program Goals:

To prepare competent entry-level general sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.

Program Requirements:

Each participant must possess a high school diploma or GED and can read and write English. Students entering the program must first pass the Scholastic Level Exam with a minimum score of 21. Participants must have good vision, coordination, health, be neat, and professional. Applicants must complete a criminal background check. Students, who have criminal histories, must have already completed the Declaratory Order of Eligibility (DOE) for licensure through the ARDMS and ARRT and provide a copy of the eligibility letter prior to acceptance into the program.

The college uses an applicant ranking system to select the most qualified candidates for program openings, please see the DMS Admissions Selection process below.

Program Length: The length of time normally required to complete the program is ninety - six (96) weeks.

Delivery Method: Hybrid Program delivered by both residential and distance education. Courses with a (*) may be delivered via blended or full distance education.

COURSE #	COURSE NAME	LECTURE HOURS	LAB HOURS	CLINICAL HOURS	TOTAL HOURS	SEMESTER CREDITS
SEMESTER I						
MATH 1314	<i>College Algebra*</i>	48	0	0	48	3.0
ENGL 101	<i>English Composition*</i>	48	0	0	48	3.0
HPRS 101	<i>Medical Terminology*</i>	48	0	0	48	3.0
PHYS 100	<i>General Physics*</i>	48	0	0	48	3.0
APS 101	<i>Anatomy & Physiology*</i>	48	32	0	80	4.0
LES 100	<i>Law and Ethics in Allied Health*</i>	30	0	0	30	2.0
Total		270	32	0	302	18.0
SEMESTER II						
DBS 201	Patient Care and Professionalism	30	15	0	45	2.5
DBS 202	Introduction to Sonography	30	30	0	60	3.0
DBS 290	Ultrasound Physics and Instrumentation	90	15	0	105	6.5
Total		150	60	0	210	12
SEMESTER III						
DBS 390	Ultrasound Physics Prep	15	0	0	15	1.0
DMS 340	Abdominal Sonography	45	45	0	90	4.5
DMS 350	Gynecological Sonography	45	45	0	90	4.5
DMS 360	Abdominal Vascular Sonography	30	30	0	60	3.0
Total		135	120	0	255	13.0
SEMESTER IV						
DMS 470	Small Parts Sonography	30	15	0	45	2.5
DMS 480	Obstetrical Sonography	75	45	0	120	6.5
DMSC 1	Clinical Practicum I	0	0	240	240	5.0
Total		105	60	240	405	14.0
SEMESTER V						
DBS 560	Introduction to Vascular Sonography	45	45	0	90	4.5
DMSC 2	Clinical Practicum II	0	0	360	360	8.0
Total		45	45	360	450	12.5
SEMESTER VI						
PSYT 101	<i>Introduction to Psychology*</i>	48	0	0	48	3.0
DMS 600	Ultrasound Review and Exam Prep	30	15	0	45	2.5
DMSC 3	Clinical Practicum III	0	0	360	360	8.0
Total		78	15	360	453	13.5
Program Total		783	332	960	2075	83.0

* Courses delivered via distance education

NOTE: Students are required to successfully pass all courses, including general education courses, with a minimum GPA of 2.0 within the maximum allowable time frame. Upon successful completion of all course work, externship, and payment of all monies due, the student is awarded an Associate of Applied Science Degree (AAS)

COURSE DESCRIPTIONS

Course descriptions include the course number, title, and synopsis, a listing of lecture, laboratory, externship hours, total clock hours and academic credits. For example, the listing “15/30/0/45/2.0” indicates that the course consists of 15 hours of lecture, 30 hours of laboratory, 0 externship hours, 45 total clock hours and 2.0 academic credit.

MATH 1314	COLLEGE ALGEBRA	48/0/0/48/3.0
The students will identify and operate with absolute value equations and inequalities, will acquire graphing skills, inverse functions, logarithmic and exponential functions, polynomial and rational functions, piece-wise defined functions, theory of equations and matrices. PREREQUISITE: NONE		
ENGL 101	ENGLISH COMPOSITION	48/0/0/48/3.0
This is a course in the principles of effective writing. The course is designed to develop the student's ability to write effective sentences, paragraphs and themes; and to develop the ability to read with understanding of rhetorical forms and devices with critical awareness. PREREQUISITE: NONE		
HPRS 101	MEDICAL TERMINOLOGY	48/0/0/48/3.0
This course is an introduction to medical terminology and covers terminology associated with the structure of the body, the integumentary, muscular and skeletal systems, the lymphatic, immune, and cardiovascular systems, the urinary, respiratory, digestive, and nervous systems, the eyes and ears, the reproductive and endocrine systems, diagnostic and imaging procedures, and pharmacology. PREREQUISITE: NONE		
PHYS 100	GENERAL PHYSICS	48/0/0/48/3.0
In this course, the student will gain a general understanding of physics. Topics that will be introduced in this course are related to mechanics, thermal physics, light and optics, to conclude with a review of modern physics. PREREQUISITE: COLLEGE ALGEBRA		
APS 101	ANATOMY & PHYSIOLOGY	48/32/0/80/4.0
This course provides students with the fundamental knowledge of human anatomy and physiology. Topics include structure and function of cells, tissues, organs and systems. Systems being studied in this course include the skeletal and muscular systems, integumentary system, nervous system, endocrine system, lymphatic system, respiratory system, digestive system, urinary system, reproductive system, and cardiovascular system. PREREQUISITE: NONE		
LES 100	LAW AND ETHICS IN ALLIED HEALTH	30/0/0/30/2.0
This course is a detailed study of law and ethics and how the legal system affects the medical professional. Students will discuss current issues and concepts to help prepare for many common ethical issues related to the allied health field. PREREQUISITE: NONE		
DBS 201	PATIENT CARE AND PROFESSIONALISM	30/15/0/45/2.5
This course will introduce the students to the foundation and origins of Diagnostic Medical Ultrasound. The student will receive an orientation to sonography learning dynamics, testing, and educational curricula. The students will learn patient-sonographer interaction as well as work place behaviors including: communication skills, problem solving, ethics, and professionalism. This course will also teach students about goal-setting, conflict management, building resumes, and interview techniques. PREREQUISITE: NONE		
DBS 202	INTRODUCTION TO SONOGRAPHY	30/30/0/60/3.0
This course will focus on sonographer responsibilities before and after examinations, including general patient care. There will be emphasis on image orientation, patient positioning, and transducer selection. The student will learn techniques to prevent musculoskeletal injury and technical interpretation skills correlating sonography terminology. This course includes orientation to equipment, cross sectional anatomy, sectional planes and directional terminology and some abdominal scanning in the lab. PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101		

DBS 290	ULTRASOUND PHYSICS AND INSTRUMENTATION	90/15/0/105/6.5
<p>This course provides fundamental knowledge of theory based acoustic physics, ultrasound principles, and instrumentation. Students will learn how diagnostic ultrasound works and optimize image acquisition. Students will learn to recognize and compensate for acoustical artifacts. Understand acoustic energy and bio effects while applying the ALARA principle. Students will be able to apply basic concepts of acoustic physics including sound production and propagation, interaction of sound and matter, Doppler physics and principles, various Doppler methods, operator control options, methods of recording, as well as emerging technologies. This course will also teach students about patient privacy and confidentiality, professional conduct and ethics, as well as Quality control procedures. PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101</p>		
DBS 390	ULTRASOUND PHYSICS PREP	15/0/0/15/1.0
<p>This course provides students with a review of the fundamental concepts learned in Ultrasound Physics and Instrumentation to prepare students for the physics registry exam. PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101, DBS 290</p>		
DMS 340	ABDOMINAL SONOGRAPHY	45/45/0/90/4.5
<p>This course will provide student with knowledge of abdominal anatomy and physiology. Students will learn the normal and abnormal sonographic appearance of abdominal structures. This course will provide the students with knowledge of abdominal pathology and include disease processes while identifying common and major pathologies of the abdomen. The students will also learn to correlate patient history, lab values, along with other imaging modalities. Students will learn proper scanning techniques of the abdomen to include patient preparation, positioning, and transducer selection. At the conclusion of this course the student will be prepared to complete a full abdominal sonogram. PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101, LES 100, DBS 201, DBS 202, DBS 290</p>		
DMS 350	GYNECOLOGICAL SONOGRAPHY	45/45/0/90/4.5
<p>This course will provide student with knowledge of the anatomy and physiology female reproductive system. Students will learn the normal and abnormal sonographic appearance of the female pelvis. This course will provide the students with knowledge of pathology and include disease processes while identifying common and major pathologies of the female reproductive system. The students will also learn to correlate patient history, lab values, along with other imaging modalities. Students will learn proper scanning techniques of the pelvis to include patient preparation, positioning, and transducer selection. At the conclusion of this course the student will be prepared to complete a full trans-abdominal pelvic sonogram. PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101, LES 100, DBS 201, DBS 202, DBS 290</p>		
DMS 360	ABDOMINAL VASCULAR SONOGRAPHY	30/30/0/60/3.0
<p>This course will focus on the anatomy, physiology, and pathology of the vascular system within the abdominal cavity. The students will learn how to perform duplex exams of the aorta, inferior vena cava, iliac, hepatic, and portal veins. Students will learn to evaluate and correlate patient history, laboratory data, sonographic images, and other imaging modalities. PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101, LES 100, DBS 201, DBS 202, DBS 290</p>		
DMS 470	SMALL PARTS SONOGRAPHY	30/15/0/45/2.5
<p>This course is a detailed study of small parts including: Thyroid, Parathyroid, Breast, Scrotum, Prostate Gland, and other superficial structures. Students will learn the superficial anatomy and physiology, the use of interventional procedures, and optimization of technical parameter to maximize image quality in relation to the various small parts. This course will provide the students with knowledge of pathology and include disease processes while identifying common and major pathologies of the various superficial structures. At the conclusion of this course the student will be prepared to perform a thyroid sonogram. PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101, LES 100, DBS 201, DBS 202, DBS 290, DBS 390, DMS 340, DMS 350, DMS 360</p>		

DMS 480	OBSTETRICAL SONOGRAPHY	75/45/0/120/6.5
<p>This course is a detailed evaluation of the gravid pelvis including normal and abnormal fetal development in the first, second, and third trimesters. This course will provide students will knowledge of fetal anomalies, genetic disorders, and other disease processes that occur during pregnancy. The students will also learn to correlate patient history, lab values, along with other imaging modalities. Students will learn proper scanning techniques of the pelvis to include patient preparation, positioning, and transducer selection. This course will introduce students to the role of ultrasound in infertility, intervention, fetal testing, and 3D/4D. At the conclusion of this course student will be prepared to recognize, identify, and appropriately document sonographic appearances of obstetric abnormalities, disease, pathology, and pathophysiology. In addition, students will be prepared to perform a sonogram determining gestation age and viability.</p> <p>PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101, LES 100, DBS 201, DBS 202, DBS 290, DBS 390, DMS 340, DMS 350, DMS 360</p>		
DMSC 1	CLINICAL PRACTICUM I	0/0/240/240/5.0
<p>This course is a supervised off-campus experience allowing the student practice in the multidisciplinary areas of diagnostic medical sonography that occurs in hospitals, clinics, and private offices. Students will be introduced to equipment operation, multiple sonographic examinations, and related clinical correlation.</p> <p>PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101, LES 100, DBS 201, DBS 202, DBS 290, DBS 390, DMS 340, DMS 350, DMS 360</p>		
DBS 560	INTRODUCTION TO VASCULAR SONOGRAPHY	45/45/0/90/4.5
<p>This course is an introduction to non-invasive vascular technology. Students will learn the anatomy, physiology, and pathology of the extra cranial vessels as well as the peripheral arterial and veins in the upper and lower extremities. Students will learn to perform duplex exams of the extra cranial vessels and the lower extremities.</p> <p>PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101, LES 100, DBS 201, DBS 202, DBS 290, DBS 390, DMS 340, DMS 350, DMS 360, DMS 470, DMS 480, DMSC 1</p>		
DMSC 2	CLINICAL PRACTICUM II	0/0/360/360/8.0
<p>This course is a supervised off-campus experience allowing the student practice in the multidisciplinary areas of diagnostic medical sonography that occurs in hospitals, clinics, and private offices. Students will be introduced to equipment operation, multiple sonographic examinations, and related clinical correlation.</p> <p>PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101, LES 100, DBS 201, DBS 202, DBS 290, DBS 390, DMS 340, DMS 350, DMS 360, DMS 470, DMS 480, DMSC 1</p>		
PSYT 101	INTRODUCTION TO PSYCHOLOGY	48/0/0/48/3.0
<p>This course covers the interrelationship between biology and human behavior. Included in the course are theories involved in sensation and perception, consciousness, learning, memory, thought language, mental abilities, motivation and emotion, effects of stress, personality traits, social psychology, and psychological disorders and their treatments. PREREQUISITE: NONE</p>		
DMS 600	ULTRASOUND REVIEW AND EXAM PREP	30/15/0/45/2.5
<p>This course provides students with a review of the ultrasound courses learned in Abdomen, Gynecology, Obstetrics, and Small Parts to prepare them for DMS registry examinations. Students will be participating in mock registry examinations including: Abdomen, Gynecology, Obstetrics, Small Parts and Ultrasound Physics.</p> <p>PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101, LES 100, DBS 201, DBS 202, DBS 290, DBS 390, DMS 340, DMS 350, DMS 360, DMS 470, DMS 480, DMSC 1, DBS 560, DMSC 2</p>		
DMSC 3	CLINICAL PRACTICUM III	0/0/360/360/8.0
<p>This course is a supervised off-campus experience allowing the student practice in the multidisciplinary areas of diagnostic medical sonography to develop the optimal skills necessary to become competent in performing sonographic examinations. All procedures covered in the curriculum will be evaluated for competency during this last clinical course.</p> <p>PREREQUISITE: MATH 1314, ENG 101, HPRS 101, PHYS 100, APS 101, LES 100, DBS 201, DBS 202, DBS 290, DBS 390, DMS 340, DMS 350, DMS 360, DMS 470, DMS 480, DMSC 1, DBS 560, DMSC 2</p>		

Diagnostic Medical Sonography – Admission Selection Process

The competitive selection process is designed to give all qualified applicants an opportunity to be a member of the class while ranking the individuals that have the best potential for success. Each applicant is interviewed by an admissions representative. The representative provides detailed information about the program and confirms student meets the DMS Program Requirements.

Once the applicant completes all the DMS Program Requirements, they must complete a panel interview with the Sonography program acceptance committee.

Applicants will be offered a position in the class based on the DMS selection ranking score and class space availability. Applicants who apply to re-enter school after a previous drop are required to follow the re-entry process outlined in the school catalog. Sonography re-enters are admitted on a space available basis and are placed at the bottom of the waiting list if the class is already filled.

Once admitted, it is important to note:

1. All Sonography students are required to submit proof of vaccination for: measles; mumps; rubella; hepatitis B; varicella; proof of vaccination by paper for tetanus, influenza (seasonal) and tuberculosis skin test (or chest x-ray & questionnaire if history of positive test), hepatitis A (depending on clinical facility), proof of health insurance and a pre-employment physical.
2. All Sonography students are required to pass urine drug screenings. If at any point the result is positive, the applicant is removed from the program and deferred from reapplying for one year at which time they may re-apply and repeat the entire admission.
3. All Sonography students must sit for the SPI prior to the end of Semester III and after the completion of the Ultrasound Physics Prep course.
4. Each graduate is expected to sit for their registry within 90 days of graduation.