



University of Findlay

Diagnostic Medical Sonography

Fall 2018

**Diagnostic Medical Sonography Programs
Prospective Student Information**

**General Sonography
Vascular Sonography
Echocardiography**

WHAT IS DIAGNOSTIC MEDICAL SONOGRAPHY?

Diagnostic Medical Sonography is a medical imaging modality that uses sound waves to identify and evaluate soft tissue structures in the human body for disease and pathology.

WHAT DOES A DIAGNOSTIC MEDICAL SONOGRAPHER DO?

The diagnostic medical sonographer is a healthcare professional who performs diagnostic ultrasound examinations under a physician's supervision. To perform imaging evaluations on patients in the clinical setting, sonographers are required to integrate medical knowledge of anatomy and physiology, pathology, and ultrasound physics. Among the parts of the body most commonly evaluated with sonography are the heart and blood vessels, abdominal organs, superficial structures, pelvic organs and the developing fetus.

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.

The professional responsibilities include, but are not limited, to:

- obtaining and recording an accurate patient history
- performing diagnostic procedures and obtaining diagnostic images
- analyzing technical information
- using independent judgment in recognizing the need to extend the scope of the procedure according to the diagnostic findings
- providing an oral or written summary of the technical findings to the physician for medical diagnosis
- providing quality patient care
- collaborating with physicians and other members of the health care team.

Sonographers must also be knowledgeable about and limit the risk from possible exposure to blood and body fluids. Many sonographers also assist in electronic and clerical scheduling, record keeping, and computerized image archiving. Sonographers may also have managerial or supervisory responsibilities.

Students and sonographers must comply with the ethical behavior expected of a healthcare professional. Additional information regarding ethical and professional behavior is provided in the Clinical Scope of Practice at www.sdms.org.

TECHNICAL STANDARDS

The following criteria define the technical standards applicants are generally expected to meet in order to participate and function in the laboratory, classroom and clinical setting. These technical standards are necessary and essential to provide for the health and safety of students and of the patients receiving care.

All students in the Diagnostic Medical Sonography Programs must possess the intellectual ability to learn, integrate, analyze, and synthesize data. Students must have functional use of the senses of vision and hearing and motor function capabilities to meet the demands of the profession.

Students must:

1. Observe patients, manipulate equipment, and evaluate image quality.
 - A. Observe changes in patient condition
 - B. Utilizing equipment for maximum diagnostic results to include computers
 - C. Differentiate primary colors, shades of gray, and real-time images, as well as, delineate spatial relationships, borders, visual comparisons and pathological entities in two and three-dimensional planes
2. Demonstrate sufficient hearing to access patient needs and communicate verbally with other health care providers.
 - A. Acquire information
 - B. Perceive nonverbal communication
 - C. Differentiate Doppler signals
 - D. Hear audible alarms
3. Demonstrate sufficient verbal and written skills to communicate needs promptly and efficiently in English.
 - A. Must verbally instruct patients
 - B. Speak in a way that is clearly understood by the average person at close range
 - C. Foster mature, sensitive, and effective relationships with patients, colleagues and other health care professionals
 - D. Demonstrate patient confidentiality and medical ethics
4. Demonstrate sufficient gross and fine motor coordination to respond promptly and ensure patient safety.
 - A. Safely perform imaging procedures
 - B. Assess and comprehend the condition of the patient
 - C. Ability to lift 50 pounds
5. Demonstrate satisfactory intellectual and emotional functions to exercise independent judgment and discretion in the safe technical performance of sonographic imaging procedures.
 - A. Function effectively under stress
 - B. Adapt to changing environments and exhibit independent judgment and critical thinking
 - C. Demonstrate professionalism, compassion, altruism, empathy, integrity, concern for others, interest, and motivation
6. Maintain CPR certification

CAREER OPPORTUNITIES FOR SONOGRAPHERS

Sonography is a dynamic profession that has grown significantly over the past 20 years. The U.S. Bureau of Labor states that employment of diagnostic medical sonographers is expected to grow by 39 percent from 2012 to 2022, which is much faster than the average for all occupations.

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. Graduates of our sonography programs 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. Career advancement opportunities exist in higher education, administration, research and with commercial companies in roles such as educators, application specialists or sales representatives.

SALARIES FOR SONOGRAPHERS

In addition to excellent career opportunities, salaries for sonographers are competitive with, or higher than other professionals with similar levels of education. According to the 2016 SDMS Salary and Benefit Survey Report, the median salary for sonographers is \$70,720 annually. According to the US Department of Labor, employment of Diagnostic Medical Sonographer is projected to grow 26% from 2014 – 2024.

WHY CHOOSE THE UNIVERSITY OF FINDLAY DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAMS?

The mission of the University of Findlay is to equip our students for meaningful lives and productive careers. The Diagnostic Medical Sonography Programs are committed to provide an intellectually stimulating and challenging environment where competency based education in sonography is focused on the needs of the patient and intended to produce competent professionals of the highest caliber. The programs modeled the institutions mission when developing program goals and the curriculum. Program goals, educational structure, outcomes assessment and course objectives are in alignment with both the institutions and programs mission statements.

Sonography faculty have extensive backgrounds in higher education, teaching and advising, and working with a diverse student population to achieve their goals. The faculty are passionate about students, ensuring their success and cultivating their potential. Additionally, the unique academic and clinical component of the programs, offers the students a fast track to their careers.

PROGRAM ACCREDITATION

The University of Findlay Diagnostic Medical Sonography Programs are accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon recommendation of the Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS).

Commission on Accreditation of Allied Health Education Programs
25400 US Highway 19 North, Suite 158
Clearwater, FL 33763
727-210-2350
www.caahep.org

ADVISORY COMMITTEE

The advisory committee for the sonography programs consists of representatives from program clinical education centers, the sonography community at-large, a medical director, a public member, and a student representative. The committee is charged with the responsibility of assisting the programs in formulating and revising appropriate goals and learning domains, monitoring needs and expectations and ensuring program responsiveness to change. Refer to the program website for an updated list of Advisory Committee Members.

LOCATION/FACILITIES

The Diagnostic Medical Sonography programs are located in the Diagnostic Services Building located at 401 Trenton Avenue. The Diagnostic Medical Sonography Programs have dedicated classrooms and labs which house state-of-the-art equipment and instructional aides.

University facilities that are available to all university students which may be of interest to Sonography students include: The Ralph and Gladys Koehler Fitness and Recreation Complex (indoor track, basketball, volleyball, tennis courts, Student Recreation Center), Croy Physical Education Center (gymnasium, swimming pool, and basketball court), the Gardner Fitness Center (exercise and weight rooms), Shafer Library, Alumni Memorial Union, Bucher Center (enrollment services, counseling services), Buford Center for Diversity and Service and the Cosiano Health Center.

PROGRAM OVERVIEW

The University of Findlay offers a Bachelor of Science Degree and an Associate of Arts Degree with a major in General Sonography, Vascular Sonography or Echocardiography. A Certificate of Completion is offered to credentialed health professionals or others whom have earned a previous Bachelor of Science Degree who opt to enhance their skillsets and careers.

The Diagnostic Medical Sonography programs at the University of Findlay offer a unique and innovative approach to sonography education. Students will spend approximately 40 hours per week on campus in the classroom and laboratory setting for one semester. Upon completion of the academic portion of the program, students will spend 35 weeks in a clinical education center at 40 hours per week to equal 1,400 hours. In the clinical setting students will apply knowledge acquired on campus in direct patient care settings.

CREDIT FOR PREVIOUS DIAGNOSTIC MEDICAL SONOGRAPHY EDUCATION

Previous educational sonography experiences are not considered to fulfill the requirements of the courses within the Diagnostic Medical Sonography Programs.

PROGRAM PREREQUISITES/REQUIREMENTS

Diagnostic Sonography Program applicants must complete all following prerequisite courses with a "C" or better:

- Anatomy and Physiology I
- Anatomy and Physiology II
- General Physics with Lab or higher
- College Algebra or higher
- Communication Course:
 - English
 - Composition
 - Speech
 - Argumentation and Debate
- Medical Ethics (Certificate Only)

CLINICAL EDUCATION CENTERS

The Diagnostic Medical Sonography Programs are associated with a number of approved clinical education centers throughout the United States and may be available in your hometown. Clinical education will be completed under the supervision of credentialed sonographers. Students may solicit facilities to become Clinical Education Centers upon approval from the sonography program office.

STUDENT OBSERVATION HOURS

Students are required to spend a minimum of four hours observing in a department which offers the specialty of his/her choice. Students interested in more than one program should observe in each area for four hours. Observation time must be completed in a hospital based sonography department. Observation hours must be documented on the Student Observation Form available from the Diagnostic Medical Sonography Program Office. Upon completion of the observation/s, the students are required to return the signed form to the Diagnostic Medical Sonography Program Office.

Prospective students must demonstrate professional attributes during the observation process. Professionalism as defined by the sonography programs covers such areas as attitude, judgment, honesty, integrity and attire. Students whom do not demonstrate professionalism may be denied admission.

ADMISSION INFORMATION

Prospective applicants are encouraged to apply at least 9-12 months prior to the desired beginning class date since enrollment in the program is limited and clinical placement is competitive. Students may only request acceptance into one program and applicants who fail to return the acceptance card to the Diagnostic Medical Sonography Program Office by the deadline date, will be removed from the admissions list.

Applications are accepted throughout the calendar year with designated deadlines. Please note that applications received after the deadline will be reviewed at the discretion of the Admissions Committee, and will only be considered if time and program availability permits.

Admission into a sonography program is limited due to the availability of clinical education centers. Students will be evaluated and ranked based upon their overall grade point average, number of remaining courses toward degree completion, status as a current UF student, and date of application for the sonography program.

In the event that a student is not selected for admission into a sonography program, the student must notify the Diagnostic Sonography Program Office if they would like to be reevaluated for the next program start date or if they would like their file closed. Students who do not respond will have their file closed, and must repeat the application process for any future program admission.

Any University of Findlay student that has received an Academic Integrity violation will not be considered for admission into the sonography programs.

A student under academic/disciplinary suspension or dismissal from another college/university or an accredited diagnostic medical sonography program will not be considered for enrollment until eligible to return to his/her former program.

A student under academic/disciplinary suspension or dismissal from any program at the University of Findlay, will not be considered for enrollment. Students found in violation of any established University policies also will not be considered for enrollment.

ADMISSION PROCESS

STEP 1 -

Complete the undergraduate application for admission to the University of Findlay. Contact the Office of Admissions at admissions@findlay.edu or 419-434-4732 with any questions.

Students must apply to the University of Findlay via the University's webpage or in person at the Admissions Office.

<https://www.findlay.edu/admissions/undergraduate/Apply-Now>

STEP 2 -

Complete the Diagnostic Medical Sonography (DMS) application. Once formal acceptance to the university has been completed, students are required to complete an application to the Diagnostic Medical Sonography Programs which is available in the Diagnostic Medical Sonography Office or on the program website. A non-refundable \$50.00 application fee must accompany the Diagnostic Medical Sonography application form. Applications received without the application fee are not processed. Contact the Diagnostic Medical Sonography Programs Office at dms@findlay.edu or 419-434-5886 with any questions.

<http://www.findlay.edu/healthprofessions/sonography/Admission-Information>

- Mail the application and the \$50.00 DMS application fee to:

The University of Findlay
Diagnostic Medical Sonography Programs
1000 North Main Street
Findlay, OH 45840
419-434-5886

When a student has a completed file and it is submitted by the deadline dates, the application will be reviewed for admission. A completed file includes:

- UF acceptance
- Completion of the program application and fee
- A minimum cumulative GPA of 2.5
- Submission of most recent transcripts
- Documentation of observation hours
- Completion of program prerequisites with a "C" or higher

STUDENT SELECTION PROCESS

The number of accepted students is limited by the number of available clinical education centers available for each concentration. The following criteria will be used to rank students for acceptance:

- Cumulative GPA will be multiplied by 15 for a maximum of 60 points
- Points for any remaining courses required for degree completion will be awarded as follows:
 - The maximum 40 points will be given to students that have all required degree courses with the exception of the sonography program courses completed
 - 35 points will be given for students having 1-2 courses remaining
 - 28 points will be given for students having 3-6 courses remaining
 - 15 points will be given for students having 7-10 courses remaining
 - No points will be given for students having 11 or more courses remaining
- Three points will be given to current UF students
- In the event that students earn the same number of points, selection will be determined by the earliest date of program application

The Admissions Committee will notify students of their conditional acceptance into the program within two weeks after the deadline date. Students are provided two weeks to notify the Diagnostic Sonography Program Office of their acceptance into the program.

Program applicants will be placed into one of three categories as follows: conditionally accepted, alternate or denied.

The number of available clinical education centers limits the number of students that a concentration can accept. The top point earners in each concentration with documentation of all prerequisite courses completed with a C (73%) or higher are conditionally accepted into the sonography program and remaining students are placed on the alternate list or are denied.

Alternate students are ranked using the same point system. Students are placed on the alternate list if the program does not have documentation that all program pre-requisites have been completed at the time of review. Status as an alternate may change to conditionally accepted once all program pre-requisites have been completed. Alternate status is also dependent upon clinical education center availability and admission is not guaranteed.

Denied students may seek readmission and are required to notify the program office of their intentions.

CLINICAL EDUCATION CENTER INTERVIEW PROCESS

All students must interview and be accepted at a Clinical Education Center. Students will receive a list of available centers in which to indicate the order of preference they would like for clinical education center interviews. The form must be returned by the deadline. The dates of returned preference forms may be used to determine which students interview at their top choices, if students select the same centers.

The program cannot guarantee that students will be placed at their first, second or third choice. Clinical education center placement is dependent upon clinical center availability

and input from the clinical education center. The clinical education center reserves the right to accept or decline a student for an interview or clinical education placement.

Students are not permitted to contact the centers for any reason until instructed to do so by the Clinical Coordinator. All students must have secured a Clinical Education Center by the established deadline date.

The program will notify the student as soon as possible of his/her confirmation by the facility for clinical education once all students have completed the interview process and the program receives follow up information from the centers.

The student must submit to the clinical education center all required documents related to each center's specific requirements. Supporting documentation may include all official transcripts, health forms and background check information.

OTHER PROGRAM REQUIREMENTS

After securing a clinical education center, students will be provided a list of other program requirements to complete. All students are required to complete a physical examination, be current with specific immunizations including the Influenza vaccination, be CPR certified, undergo a background check and drug screen, and submit proper documentation. All costs are the student's responsibility.

Fall Start Deadlines For Echocardiography and General Sonography Programs	
January 15 th	Completed file due
January 30 th	Admission Committee will review student files
February 15 th	Acceptance Letters sent to students
March 1 st	Seat acceptance verification due
March 15 th	Students receive clinical interview process information
April 15 th	Students must have clinical education center secured

Spring Start Deadlines For Vascular Sonography Program	
June 1 st	Completed file due
June 15 th	Admission Committee will review student files
July 1 st	Acceptance Letters sent to students
July 15 th	Seat acceptance verification due
Aug 1 st	Students receive clinical interview process information
September 1 st	Students must have clinical education center secured

CURRICULUM:

Diagnostic Medical Sonography students are highly encouraged to complete all degree requirements prior to the start of the program. The Diagnostic Medical Sonography Programs consists of the following academic courses:

All students enrolled in General Sonography will complete the following courses:

DMSA 400 Introduction to Sonography - This course focuses on defining the scope of practice of the sonographer in the clinical setting and the basic skills required for patient care. Topics will include communication skills, basic vital signs, medical emergencies, invasive procedures and isolation techniques, history of sonography, career options and professional societies. Additionally, students will learn basic imaging characteristics, proper ergonomics and fundamental scanning skills.

DMSA 405 Cross-Sectional Anatomy for Sonographers - Provides information on cross-sectional anatomy in the human body with an emphasis on the organs of sonographic interest. Different scanning planes are represented including longitudinal, transverse, coronal and oblique views to include correlation with other imaging modalities.

DMSA 410 Language of Sonography - This course is the study of the terminology used routinely in the medical environment and specifically in the field of Diagnostic Medical Sonography. The information will be presented according to anatomical systems. This course is designated for students who are accepted into one of the Diagnostic Medical Sonography programs or for those who are pre-Diagnostic Medical Sonography students.

DMSA 415 Physics and Instrumentation- Discusses the fundamental principles of ultrasound physics along with the design and operation of the ultrasound equipment. Topics include wave characteristics, artifacts, propagation, acoustic variables, the Doppler effect, color flow mapping, hemodynamics, biological effects and review of mathematical skills. Students will be expected to sit for the American Registry of Diagnostic Medical Sonographers (ARDMS) Sonography Principles and Instrumentation (Physics) Examination prior to graduation.

DMSA 420 Pathophysiology for Sonographers- Explores the pathogenesis of disease processes and their impact on the human body. Correlation of pertinent patient history, laboratory data and imaging information will be emphasized to increase the necessary analytical skills of differential diagnosis. Emphasis is placed on selected diseases encountered by the sonographer.

DMSA 425 Capstone- This course will introduce the student to basic interview skills, professional portfolio and resume development. Emphasis will be placed the Society of Diagnostic Medical Sonographers (SDMS) scope of practice and career options.

DMSG 400 General Sonography I- Discusses the normal anatomy and physiology related to the major abdominal organs, major abdominal vessels and superficial structures in the adult and pediatric patient. Topics include sonographic appearance, clinical assessment, evaluation protocols, technical factors and image quality.

DMSG 405 General Sonography II- Discusses the normal anatomy and physiology related to the non-gravid female and pediatric pelvis and normal obstetrics. Topics include sonographic

appearance, clinical assessment, evaluation protocols, technical factors and image quality.

DMSG 410 General Sonography III- Discusses pathology of the major abdominal organs and major abdominal vessels and superficial structures in the adult and pediatric patient. Topics include sonographic appearance, clinical assessment, evaluation protocols, technical factors and image quality.

DMSG 415 General Sonography IV - Discusses the pathology related to the non-gravid female and pediatric pelvis as well as obstetrical exams. Topics include sonographic appearance, clinical assessment, evaluation protocols, technical factors and image quality.

DMSG 420 Clinical Education I- This course will provide basic instruction and scanning experience in sonography in a hospital or other healthcare setting. The student will be able to demonstrate the ability to perform basic sonographic examinations according to the protocols established by the program and healthcare facility utilizing sonographic equipment.

DMSG 425 Clinical Education II - This course will provide basic instruction and scanning experience in sonography in a hospital or other healthcare setting. The student will be able to demonstrate the ability to perform basic sonographic examinations according to the protocols established by the program and healthcare facility utilizing sonographic equipment at the level of an entry level sonographer.

All students enrolled in Vascular Sonography must complete the following courses:

DMSA 400 Introduction to Sonography - This course focuses on defining the scope of practice of the sonographer in the clinical setting and the basic skills required for patient care. Topics will include communication skills, basic vital signs, medical emergencies, invasive procedures and isolation techniques, history of sonography, career options and professional societies. Additionally, students will learn basic imaging characteristics, proper ergonomics and fundamental scanning skills.

DMSA 405 Cross-Sectional Anatomy for Sonographers - Provides information on cross-sectional anatomy in the human body with an emphasis on the organs of sonographic interest. Different scanning planes are represented including longitudinal, transverse, coronal and oblique views to include correlation with other imaging modalities.

DMSA 410 Language of Sonography - This course is the study of the terminology used routinely in the medical environment and specifically in the field of Diagnostic Medical Sonography. The information will be presented according to anatomical systems. This course is designated for students who are accepted into one of the Diagnostic Medical Sonography programs or for those who are pre-Diagnostic Medical Sonography students.

DMSA 415 Physics and Instrumentation- Discusses the fundamental principles of ultrasound physics along with the design and operation of the ultrasound equipment. Topics include wave characteristics, artifacts, propagation, acoustic variables, the Doppler effect, color flow mapping, hemodynamics, biological effects and review of mathematical skills. Students will be expected to sit for the American Registry of Diagnostic Medical Sonographers (ARDMS) Sonography Principles and Instrumentation (Physics) Examination prior to graduation.

DMSA 420 Pathophysiology for Sonographers- Explores the pathogenesis of disease processes and their impact on the human body. Correlation of pertinent patient history, laboratory data and imaging information will be emphasized to increase the necessary analytical skills of differential diagnosis. Emphasis is placed on selected diseases encountered by the sonographer.

DMSA 425 Capstone- This course will introduce the student to basic interview skills, professional portfolio and resume development. Emphasis will be placed the Society of Diagnostic Medical Sonographers (SDMS) scope of practice and career options.

DMSV 400 Vascular Sonography I- Discusses the normal anatomy, physiology and hemodynamics of arterial and venous systems. Introduce students to the arterial and venous anatomy of the upper and lower extremities. Topics include sonographic appearance, clinical assessment, evaluation protocols, technical factors and image quality.

DMSV 405 Vascular Sonography II - Duplex ultrasound procedures used to assess normal and abnormal vasculature in the abdomen of the adult and pediatric patient are presented in this course. Topics include sonographic appearance, clinical assessment, evaluation protocols, technical factors and image quality.

DMSV 410 Vascular Sonography III- The theories, techniques and processes for non-imaging physiological testing are presented. Experiential learning will be emphasized.

DMSV 415 Vascular Sonography IV- The theories, techniques and processes of performing transcranial Doppler and advanced vascular examinations will be presented. Topics include the evaluation of grafts, arteriovenous fistulas, pseudoaneurysms, and intraoperative procedures. Topics include sonographic appearance, clinical assessment, evaluation protocols, technical factors and image quality.

DMSV 420 Vascular Sonography V- Normal and abnormal vascularity of the male and female pelvis will be presented.

DMSV 425 Clinical Education I- This course will provide basic instruction and scanning experience in sonography in a hospital or other healthcare setting. The student will be able to demonstrate the ability to perform basic sonographic examinations according to the protocols established by the program and healthcare facility utilizing sonographic equipment.

DMSV 430 Clinical Education II- This course will provide basic instruction and scanning experience in sonography in a hospital or other healthcare setting. The student will be able to demonstrate the ability to perform basic sonographic examinations according to the protocols established by the program and healthcare facility utilizing sonographic equipment at the level of an entry level sonographer.

All students enrolled in Echocardiography must complete the following courses:

DMSA 400 Introduction to Sonography - This course focuses on defining the scope of practice of the sonographer in the clinical setting and the basic skills required for patient care. Topics will include communication skills, basic vital signs, medical emergencies, invasive procedures and isolation techniques, history of sonography, career options and professional societies. Additionally, students will learn basic imaging characteristics, proper ergonomics and fundamental scanning skills.

DMSA 405 Cross-Sectional Anatomy for Sonographers - Provides information on cross-sectional anatomy in the human body with an emphasis on the organs of sonographic interest. Different scanning planes are represented including longitudinal, transverse, coronal and oblique views to include correlation with other imaging modalities.

DMSA 410 Language of Sonography - This course is the study of the terminology used routinely in the medical environment and specifically in the field of Diagnostic Medical Sonography. The information will be presented according to anatomical systems. This course is designated for students who are accepted into one of the Diagnostic Medical Sonography programs or for those who are pre-Diagnostic Medical Sonography students.

DMSA 415 Physics and Instrumentation- Discusses the fundamental principles of ultrasound physics along with the design and operation of the ultrasound equipment. Topics include wave characteristics, artifacts, propagation, acoustic variables, the Doppler effect, color flow mapping, hemodynamics, biological effects and review of mathematical skills. Students will be expected to sit for the American Registry of Diagnostic Medical Sonographers (ARDMS) Sonography Principles and Instrumentation (Physics) Examination prior to graduation.

DMSA 420 Pathophysiology for Sonographers- Explores the pathogenesis of disease processes and their impact on the human body. Correlation of pertinent patient history, laboratory data and imaging information will be emphasized to increase the necessary analytical skills of differential diagnosis. Emphasis is placed on selected diseases encountered by the sonographer.

DMSA 425 Capstone- This course will introduce the student to basic interview skills, professional portfolio and resume development. Emphasis will be placed the Society of Diagnostic Medical Sonographers (SDMS) scope of practice and career options.

DMSE 400 Echocardiography I- This course provides a foundation in the principles of echocardiography and gray scale duplex imaging of arterial and venous sonography. This course involves understanding and recognition of normal cardiovascular anatomy, the electrophysiology of the heart, the conduction system and mechanical events of the cardiac cycle. This course discusses mechanical and electrical events in cardiovascular hemodynamics.

DMSE 405 Echocardiography II- This course provides a foundation in the principles of pre-load and after-load, valvular disease, ischemic cardiac diseases, myocardial diseases as well as endocardial diseases, pulmonic arterial diseases, disease of the aorta and great vessels, and trauma. Each section of diseases will be discussed in detail regarding causes, signs, symptoms, echocardiographic findings, and complications.

DMSE 410 Echocardiography III- This course involves understanding of clinical pharmacology. Pharmacology, indications and contraindications of common drugs used in cardiac patients. Pharmacology of provocative stress agents and their uses/adverse effects will be discussed. This course also discusses potential side effects of cardiac medications on the cardiac function and the related echocardiographic findings.

DMSE 415 Echocardiography IV- This course covers prosthetic valves, cardiac surgeries in adult population, pericardial diseases and cardiac tumors. Each section of diseases will be discussed in detail regarding causes, signs, symptoms, echocardiographic findings and complications. This course also discusses echocardiographic evaluation of cardiac surgery patients.

DMSE 420 Echocardiography V- This course also involves understanding the indications and utility of advances in echocardiography such as; Stress Echocardiography, Transesophageal Echocardiography, Intraoperative Echocardiography, Contrast Echocardiography, and also 3D Echocardiography and Echo guided procedures.

DMSE 425 Clinical Education I- This course will provide basic instruction and scanning experience in sonography in a hospital or other healthcare setting. The student will be able to demonstrate the ability to perform basic sonographic examinations according to the protocols established by the program and healthcare facility utilizing sonographic equipment.

DMSE 430 Clinical Education II- This course will provide basic instruction and scanning experience in sonography in a hospital or other healthcare setting. The student will be able to demonstrate the ability to perform basic sonographic examinations according to the protocols established by the program and healthcare facility utilizing sonographic equipment at the level of an entry level sonographer.

TOTAL PROGRAM CONTACT HOURS

Didactic Education Hours	512
Clinical Education Hours	1320
<u>Clinical Vacation/Sick Hours</u>	<u>80</u>
Total Clinical Hours	1400

Students receive clinical education at one or more of the clinical education centers for a period of 1320 contact hours. The student receives instruction and participates in the performance of all types of clinical sonography procedures, patient care, administrative duties, equipment usage and quality control.

Students may take up to 80 hours of vacation/sick time during their clinical education. Time in excess of 80 hours must be made up prior to graduation.

INTERNATIONAL STUDENTS

Applicants receiving their post-secondary education outside the United States must have their credentials evaluated by an acceptable credentials evaluation service or The University of Findlay to show U.S. equivalency. Official transcripts or mark sheets and degree completion certificate in English attested to by a school official may be sent to the Diagnostic Medical Sonography Program Office to be evaluated by the University of Findlay's International Academic Advising and Services Office.

In addition, an official TOEFL score or IELTS results taken in the past two years must be sent to The Diagnostic Medical Sonography Program Office.

If the TOEFL score is below 600 or if no score is provided, the applicant will need to successfully complete the Intensive English Language Program prior to entering a Diagnostic Medical Sonography Program. The TOEFL-iBT score must be an 89 total and 26 speaking, 24 writing, 21 reading and 18 listening or the applicant will need to successfully complete the Intensive English Language Program prior to entering a Diagnostic Medical Sonography Program.

IELTS results must be an overall band score of 6.0 or higher or the applicant will need to successfully complete the Intensive English Language Program prior to entering a Diagnostic Medical Sonography Program.

Examples of acceptable credentials evaluation services are:

The International Education Research Foundation
Credentials Evaluation Service
P.O. Box 66940
Los Angeles, CA 90066
(310) 390-6276

World Education Services, Inc.
P.O. Box 745
Old Chelsea Station
New York, NY 10113-0745
(212) 966-6311

This evaluation must be completed and submitted directly to the Diagnostic Medical Sonography Program Office by an acceptable credentials evaluation service. The Diagnostic Medical Sonography Programs do not pay fees associated with transcript evaluation.

CALENDAR

The Echocardiography and General Sonography programs accept students for an August start date. The Vascular Sonography program accepts students for a January start date.

The University of Findlay and the Diagnostic Medical Sonography Programs honor the following legal holidays:

New Year's Day	Independence Day
Martin Luther King Day	Labor Day
Good Friday	Thanksgiving Day
Memorial Day	Christmas Day

During the academic semester, the academic calendar is followed.

The University of Findlay and the Diagnostic Medical Sonography Programs reserve the right to adjust this calendar when necessary.

TUITION/FEES

Cost of the 2018-2019 Diagnostic Medical Sonography Programs:

**Tuition	\$ 25,500.00	
Student Activity Fee	300.00	(non-refundable)
General Service Fee	1,215.00	(non-refundable)
DMS Lab Fee	150.00	
Trajecsys	110.00	
ARDMS SPI Exam	225.00	
<u>One ARDMS Specialty Exam</u>	<u>250.00</u>	
Total	\$ 27,750.00	

Optional:

Housing	\$1,700.00	
<u>Board</u>	<u>2,495.00</u>	(if a meal plan is selected)
Total with Housing/Board	\$31,945.00	

**The Sonography Program tuition will be divided between 3 semesters at a rate of \$510 per credit hour with a total of 50 credit hours. Students will be charged for 24 credit hours for the first semester or academic portion of the program. Students will then be billed for 12 ½ and 13 ½ credit hours, respectively, for the final two semesters in which they are in the clinical component of the program.

Additional expenses will include membership dues for one or more professional societies.

All students are required to have health insurance coverage throughout the time in the Sonography Program, both the academic and clinical components. Students are responsible for purchasing their own health insurance and providing proof of coverage prior to the beginning of the didactic component of the program.

HOW TO PAY YOUR TUITION BILL

Student account payments are accepted by the following methods:

- **Pay by Electronic Check - Recommended**
Log on to www.findlay.edu. On the *Quick Find* menu choose *Payments Online* and follow the prompts.
- **Mail a check** to: The University of Findlay, 1000 North Main St, Findlay OH 45840. Make checks payable to "University of Findlay." Be sure to provide the student's ID number and full name.
- **Pay In-Person**
Pay by cash or check at the Business Office which is located in Old Main. The office is open Monday through Friday from 8 a.m. – 4:30 p.m. Payments received after 3:30 p.m. are applied to the next business day.
- **Pay after Hours**
Deposit checks in a sealed envelope in the 24-hour drop box around the corner from the Business Office window. Be sure to provide the student's ID number and full name.
- **Pay online by Credit Card**
Web pay with American Express, Discover, MasterCard or Visa credit cards. Log onto www.findlay.edu. On the *Quick Find* menu choose *Payments Online* and follow the prompts. There is a service charge for the convenience of making online credit card payments. The fee will be displayed for your review and acceptance before the payment is

processed.

PAYMENT AGREEMENT

Students who choose to defer payment must complete an official UF Payment Agreement to make four equal monthly payments for the semester. If your financial aid is coming through another school, please contact the University of Findlay Business Office at 419-434-4584 for instructions.

- For students in the academic phase of the program in the fall semester, the payments are due Aug. 15, Sept. 15, Oct. 15 and Nov. 15.
- For students in the academic phase of the program in the spring semester, the payments are due Dec. 15, Jan. 15, Feb. 15, and Mar. 15.
- Interest is charged at 1.5 percent each month on any outstanding balances.

HOUSING

UF offers on-campus housing during the academic portion of the Sonography Programs. Housing is available on a first-come, first-serve basis and will be discussed in the letter of conditional acceptance into the program. Houses are non-coed, will be rented only to Diagnostic Services Department students, and are located nearby so students could easily walk to class. These are not new homes, but they are safe, clean, and inexpensive.

Each student will have a private bedroom that can be secured; the kitchen, living room area, and bathroom(s) will be shared. The bedroom will have an extra-long twin bed, a desk, dresser and a place to hang clothes. The living room will have furniture, and the kitchen will contain a stove, refrigerator, microwave, table and chairs. A washer and dryer will also be supplied. Students should bring their own bed clothes, towels, personal items, lamps, dishes, cookware, etc.

Utilities, including cable and internet, are included. The full amount will be billed to student's account and may be paid through the Business Office along with tuition. For questions about housing, please contact Shari Hellman, Director of Housing, at (419) 434-4570 or shellman@findlay.edu.

Housing Requirements:

- A. As a condition of being admitted to UF every full-time undergraduate student who, **prior to the start of an academic year**, is under the age of 22 and has a class standing at UF of either freshman (0-27 credit hours completed), sophomore (27.01-57 credit hours completed), or junior (57.01-87 credit hours completed) must reside in on-campus housing for the entire academic year. Class standing is determined strictly by number of credit hours successfully completed.
- B. A student classified at UF as one of the following **prior to the start of an academic year** is not required to live on campus: senior (87.01 or more credit hours completed), graduate student, veteran, married student, part-time student, student age 22 or older, or a student commuting from the home of a parent, grandparent, or legal guardian (who lives within the 30-mile commuting radius). If a student in this category chooses to live on campus, then he or she is subject to all terms stated in the Housing License Agreement (see section C below).
- C. Once a student is assigned to on-campus housing, the Housing License Agreement is in effect for the entire academic year and may only be terminated for the following reasons: the student

withdraws from the University; or the student is required to live away from Findlay in order to fulfill an academic program requirement (e.g. internship).

Requests to reside off campus or terminate a Housing License Agreement must be initiated at the Office of Student Services. Requests will be referred to the housing appeals committee for review. Upon review, the committee will render a decision. This decision shall be final and is not subject to appeal. All students will be charged for housing (and meals, if applicable) until given written permission from the committee to reside off campus.

ID CARDS

Program students will obtain an Oiler OneCard (University ID) through the Information Booth located in the Alumni Memorial Union (AMU). Please have your UF ID number available. Cards are needed to identify yourself to Security (upon demand), check books out of the library, eat in the cafeteria, access computer labs, cash checks on campus, and to attend many of the activities scheduled on campus. The Oiler OneCard should be carried at all times. A \$30 fee is charged (payable at the Business Office) for replacement of a lost Oiler OneCard.

An additional photo identification will be necessary for the student to obtain prior to attending clinical education. This photo identification must be worn at all times during clinical education.

OTHER EXPENSES

An estimated cost of textbooks is approximately \$1,000.00. This includes the cost of the Trajecsys Clinical Reporting System. This electronic documentation software may be purchased at the University of Findlay Bookstore or through direct payment to Trajecsys.

Each student must undergo a physical exam required by the clinical education center and/or the Diagnostic Medical Sonography Programs. The University of Findlay requires a background check, drug testing or screening, and vaccination against many communicable diseases. All costs for any physical exam and/or medical testing, screening, vaccinations and background checks are the responsibility of the student.

The student will also incur expenses during the clinical education session which may include (but not be limited to) room and board, transportation, uniforms, and other miscellaneous expenses such as postage for submission of assignments and application fees for the national certification exams.

Professional society member fees – Students are required to apply and pay the dues associated with the professional society membership(s) that would pertain to the student's field of concentration. At the appropriate time, faculty members will distribute the application for completion. The applications and fees will then be collected and sent to the appropriate society, as a group, by the program office.

Society of Diagnostic Medical Sonography (SDMS) – Current membership benefits and dues can be found at: <http://www.sdms.org/membership/join-sdms/member-benefits/student-benefits>.

American Society of Echocardiography (ASE) – Current information concerning applying for and the benefits can be found at: <http://asecho.org/wordpress/wp-content/uploads/2016/11/1154ASE-New-Members-App-FNA.pdf>.

Society for Vascular Ultrasound (SVU) – Current membership information can be found at: <http://connect.svunet.org/svunet/membershipmain/students>.

ADDITIONAL INFORMATION

While every effort is made to ensure the accuracy of the information contained herein, the University of Findlay and the Diagnostic Medical Sonography Programs reserve the right to make changes at any time without prior notice.

The University of Findlay and the Diagnostic Medical Sonography Programs are committed to the policy that all persons shall have equal access to its programs, facilities, and employment. No student shall be subject to discrimination in violation of State or Federal Law.

Any student admitted to the University of Findlay and the Diagnostic Medical Sonography Programs who has documentation identifying a learning disability has the right to request and receive modifications in accordance with Title V, Section 504 of the Rehabilitation Act of 1973. Any student who displays characteristics typical of a learning disability may request accommodations.

Information pertaining to the Student Right-to-Know and Campus Security Act is available upon request from the University's Office of Admissions and the Office of Student Services.

PROGRAM POLICIES AND PROCEDURES

Additional information regarding the sonography programs, policies, and procedures will be provided to the sonography student during the Diagnostic Medical Sonography Programs Orientation Session held on the first day of class. A sonography Student Handbook outlining program policies and procedures is distributed and reviewed on the first day of class.

FREQUENTLY ASKED QUESTIONS

Thank you for showing interest in the Diagnostic Medical Sonography Programs at the University of Findlay.

Do I need prior medical experience to apply to any of the Diagnostic Medical Sonography Programs?

Prior medical experience via working or volunteering is not required for admission to any of the Diagnostic Medical Sonography Programs.

Do I need a four-year degree to work as a diagnostic medical sonographer?

At this time, a four-year college degree is not mandated, but it is encouraged.

How do I obtain national certification as a diagnostic medical sonographer, vascular sonographer or echocardiographer?

Upon successful completion of an accredited program you can apply and take the national certification exams.

How many students do the Diagnostic Medical Sonography Programs accept?

The number of students accepted into each sonography program will vary depending upon

clinical education center availability. The Diagnostic Medical Sonography Program Office and the Clinical Coordinator maintain current lists of available clinical education centers.

What if I was convicted of a crime?

Student background checks are required. Students whose background check is returned with adverse findings are encouraged to submit this information to the American Registry of Diagnostic Medical Sonographers (ARDMS). The ARDMS will determine whether or not the student can sit for the credentialing examinations. All applicants for the ARDMS examination must determine their eligibility, based upon the ARDMS Compliance Policy. This policy can be found on the [ARDMS](#) website.

What is the policy regarding drug testing?

A drug screen will be needed prior to entering clinical education. If at any time a student is suspected of being under the influence of alcohol or drugs, the student will be required to undergo drug testing. All testing will be at the expense of the student.

Students should refer to the University of Findlay's Drug and Alcohol Policy. These policies can be found in the University of Findlay Undergraduate Catalog and on the university web page.

What happens to my application when it is received in the Diagnostic Medical Sonography Program office?

A file is created for you and placed in the applicant files for the specific class to which you have applied. You will receive an acknowledgement of your application, application fee and any other pertinent documentation that may have already been received.

What happens if I don't meet the application deadline for the class that I want to attend?

Applications received after the deadline will be reviewed at the discretion of the Admissions Committee and will only be considered if time and space permits

Do I need to have all of the prerequisite courses completed prior to applying to the program?

No, but students may not begin any sonography program without successful completion of the listed prerequisite courses with a "C" or better. Students are also highly encouraged to complete all other degree requirements prior to starting any sonography program. Students who opt to complete all degree requirements prior to entering the sonography program of their choice will be able to immediately seek employment upon program completion.

If I apply and all of my documentation is received and course work is completed by the deadlines, will I automatically be accepted into the program?

No, it is an application for consideration of acceptance. Acceptance is competitive based on the number of applications received and the number of clinical education centers available.

What happens if the semester at the college that I am attending does not end until after the documentation submission date, so I don't have a transcript showing course grades?

An official transcript is needed to verify all course completion and final grades. If any of the courses are a program prerequisite, the application file will be incomplete. If the courses are degree completion courses, points will be awarded accordingly.

I received a "D" in one of the prerequisite courses. Can I still attend the program?

No. All prerequisite courses must have a "C" or higher grade. Any prerequisite course with a "C-" or below must be repeated to meet the academic admission requirements of the program.

Even if the low grade is acceptable by the college/university that you are attending, it does not meet the program requirements and therefore will need to be repeated prior to entering any sonography program.

I received a letter indicating that my file was incomplete. What does that mean, and do I need to reapply for a future class?

The Admissions Committee could not review your application because the supporting documents (i.e., official high school, college, university, postsecondary transcripts, observation documentation, etc.) were not on file by the deadline.

Students whose files are incomplete must notify the program office of their desire to be evaluated for the next class prior to the deadlines established.

I received a lettering stating that admission into one of the sonography programs was denied. Why?

Based on the documentation in your file, the Admissions Committee determined that you did not meet the criteria for admission into the program. Students are required to notify the program office of their desire to be considered for a future sonography program. If the program office does not receive confirmation from the student by the next application deadline, the student's file will be automatically closed. Once a student file is closed, students are required to submit a new application and pay the posted application fee.

Will I need a physical exam?

Yes, programmatic accreditation requires documentation that a student enrolled in a diagnostic medical sonography program be free from communicable diseases and is able to physically and mentally handle the requirements of the program. In addition, each clinical education center may require specific medical test results and exams be completed before the start of clinical education. Accepted students will be sent a list of the specific medical requirements and their deadline dates. The cost of all medical tests is the responsibility of the student.

When do classes start in the Diagnostic Medical Sonography Programs?

Diagnostic Medical Sonography programs start two academic class sessions every year. The Echocardiography and General Sonography programs' academic session begins in mid to late August. The Vascular Sonography program begins classes in early January. Dates vary from year to year and may be found on The University of Findlay webpage:

What are the class times?

Sonography classes are held from 8:00 a.m. to 12:00 Noon and 1:00 p.m. to 5:00 p.m. Monday through Friday. Class times may vary and students will receive as much advance notice as possible.

When does clinical education begin?

Your clinical education will begin immediately following the academic session. Clinical education lasts for 35 weeks. You are committed to a 40-hour week for each of the 35 weeks for a total of 1400 clinical hours.

Where can I attend clinical education?

Clinical education must be completed in an approved clinical education center. A list of these sites is available through the Diagnostic Medical Sonography Program Office.

Do I have to pay for my transportation to clinical education?

It is your responsibility to provide and pay for all expenses related to travel to and from the clinical education center.

Is housing provided during the didactic component of the program?

The University of Findlay offers on-campus housing for the semesters that you are enrolled in the Diagnostic Medical Sonography Programs; this is available on a first-come, first-serve basis. Houses are non-coed, will be rented only to DMS students, and are located nearby so students could easily walk to class.

Is housing provided during the clinical education component of the program?

Housing during the clinical education component is your responsibility. If your clinical site is in reasonable proximity to Findlay, you may be permitted to stay in the Diagnostic Services housing, based on availability.

Can I interview for clinical placement at a clinical education center where I interviewed previously and was denied acceptance during a previous academic year?

The clinical education center has the right to refuse to interview a student whom previously interviewed and was denied clinical placement.

How many students can a clinical education center take?

The number of students completing clinical education at each center is set by the programmatic accreditation agency (JRCDS) and the Diagnostic Medical Sonography Programs must adhere to its decision. Some of the facilities that the Diagnostic Medical Sonography Programs use may also be affiliated with other diagnostic medical sonography programs and therefore, may not be available for clinical education routinely. Typically, each clinical education center accepts one student.

What is the dress code for clinical education?

Students are required to wear scrubs for clinical education. A detailed list of appropriate and acceptable clinical attire is provided to the students by the Diagnostic Medical Sonography Program Office. The Clinical Dress Code Policy is in the Student Handbook and is covered during program orientation.

Can I work while I am enrolled in the program?

Any outside employment must not interfere with scheduled class times or clinical education hours. The Diagnostic Medical Sonography Programs strongly recommends that no outside employment be attempted during the program. Class time or clinical education hours will not be adjusted to meet employer needs.

Can I maintain my status as an athlete while enrolled in one of the sonography programs?

It is possible to maintain athletic status during the academic semester of the program yet it would be difficult to manage an athletic schedule during the clinical component. The schedule during the academic semester and time requirements of clinic cannot be changed to accommodate practice and game times.

Is financial aid available?

Yes, financial aid is available to students. The types and amounts of financial aid available depend on the student's need and educational goals. The Financial Aid Office at the University of Findlay can provide information to University students.

While attending the Diagnostic Medical Sonography Programs, is housing available?

University housing is available through Student Services. Information on housing is provided once the student has been conditionally accepted into one of the programs.

I have additional questions about the Diagnostic Medical Sonography Programs. Who do I contact?

You can call the Diagnostic Medical Sonography Program Office at (419) 434-5886 or e-mail us at dms@findlay.edu.

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Findlay, OH 45840
Telephone: (419) 434-5886