

## SONOGRAPHY PROGRAM DESCRIPTION

### **A. OCCUPATIONAL DESCRIPTION:**

The sonographer plays an important role on the medical team as technical assistant to the sonologist (or radiologist), a physician who has specialized in the use of sound waves for diagnosis and treatment. Sonographers may work under direct or indirect supervision of these physicians. A certified sonographer is part of a team that is qualified to work in hospitals, doctors' offices, public health projects, industrial medical clinics, veterans' and military hospitals.

Sonography or ultrasonography is the use of sound waves to generate an image for the assessment and diagnosis of various medical conditions. Sonography commonly is associated with obstetrics and the use of ultrasound imaging during pregnancy, but this technology has many other applications in the diagnosis and treatment of medical conditions throughout the body. Sonographers must operate with a high degree of technical ability and in-depth knowledge of anatomy and physiology, as well as the basic aspects of clinical medicine. Essential qualities of a sonographer would include the ability to make accurate, independent judgments and the ability to plan and organize time and resources.

Diagnostic medical sonographers use specialized equipment to direct non-ionizing, high frequency sound waves into areas of the patient's body, which then reflect off internal body structures. A computer receives these reflected waves and uses them to create a picture that may be videotaped, digitally transmitted or imaged for interpretation and diagnosis by a physician. To perform the exam, sonographers use a hand-held probe called a transducer, which acts as both a transmitter and a receiver of sound waves. A clear, water-based conducting gel is applied to the skin over the area being examined to help with the transmission of the sound waves.

Sonographers must be extremely detail-oriented. Viewing the screen during the scan, sonographers look for subtle visual cues that contrast healthy areas with unhealthy ones. They decide whether the images are satisfactory for diagnostic purposes and select which ones to store and show to the physician. Sonographers take measurements, calculate values, and analyze the results in preliminary findings for the physicians. In addition, you would be responsible for the mental and physical comfort of patients while they are in your care.

As a skilled sonographer, you may specialize in obstetric and gynecologic sonography (the female reproductive system), abdominal sonography (the liver, kidneys, gallbladder, spleen and pancreas), neurosonography (the brain), breast sonography, vascular sonography or cardiac sonography (either adult or fetal). In addition, opportunities for advancement exist in research, hospital administration, education, communication, commercial or corporate markets (sales) or law.

### **B. OPPORTUNITIES:**

Employment opportunities are excellent for registered sonographers both locally and nationwide. Some sonographers work as contract employees and may travel to several health care facilities in an area. Similarly,

some sonographers work with mobile imaging service providers and travel to patients and use mobile diagnostic imaging equipment to provide service in areas that otherwise do not have the access to such services.

Most full-time sonographers work about 40 hours a week. Hospital-based sonographers may have evening and weekend hours and times when they are on call and must be ready to report to work on short notice. Employment is expected to grow more rapidly in offices of physicians and in medical and diagnostic laboratories, including diagnostic imaging centers. Healthcare facility services such as these are expected to expand sharply due to the strong shift towards outpatient care.

### C. SALARY AND EMPLOYMENT OUTLOOK:

The projected outlook for employment for the 10-year timeframe between 2010 and 2020 is excellent. The average growth rate for all occupations is presently at 14 percent. Employment of diagnostic medical sonographers is expected to increase to approximately 44 percent through 2020—faster than the average for all occupations—as the population ages, increasing the demand for diagnostic imaging and therapeutic technology. The newly registered sonographer with no experience should have little difficulty finding immediate employment, locally or nationwide. Annual wages nationally for technologists with experience ranged from approximately \$64,844 to \$89,892. Employment estimate and mean wage estimates for this occupation in 2017 was approximately \$65,620. The Bureau of Labor Statistics (<http://www.bls.gov/ooh/healthcare/diagnostic-medical-sonographers.htm>) has listed the employment outlook through the year 2020.

### D. APPLICATION REQUIREMENTS

Refer to the DMS online information session for the most up-to-date application requirements.  
<http://www.nvcc.edu/medical/divisions/allied/sonography.html>

### E. CLINICAL AND CERTIFICATION REQUIREMENTS

The following is required prior to entrance into clinical rotations:

1. Evidence of good mental and physical health as substantiated on the **NOVA Health History and Physical Form** signed by a physician. The DMS program **Technical Standards** form must also accompany the Health form.
3. **Current CPR certification** is required and must be maintained for the duration of the program.
4. **Criminal background check and drug screen** as verified by CastleBranch, the only approved agency used for these services by NOVA.
5. **The American Registry of Diagnostic Medical Sonographers (ARDMS)** is the national certifying organization for all sonographers. The ARDMS is an independent, nonprofit organization that administers examinations and awards credentials in the areas of diagnostic medical sonography, diagnostic cardiac sonography, vascular interpretation and vascular technology. The ARDMS has certified more than 60,000 individuals and is the globally recognized standard of excellence in sonography. The following are criminal background standards for submission of an application for the examination:

ARDMS rules indicate that ARDMS may take action against an applicant, candidate or registrant in the case of conviction, plea of guilty or plea of nolo contendere to any crime. If you are presently charged with, or been convicted or found guilty of or plead nolo contendere to any crime (felony and/or misdemeanor), other than a speeding or parking violation, you may have questions concerning this rule and may wish to obtain clarification as to how it pertains to your circumstances.

The ARDMS will conduct a “pre-application review,” for a \$125 non-refundable fee, for individuals who wish to determine the impact of a previous criminal matter on their eligibility to apply for ARDMS certification. The pre-application review procedure is available only to those who are more than six (6) months away from graduation/program completion. Individuals who have already completed a program and are ready to apply to the ARDMS for examination should simply respond to the questions on the ARDMS examination application relating to criminal matters and provide the requested documentation regarding such matter(s).

**For more information please reference website: [www.ardms.org](http://www.ardms.org) and go to the section under “Application Process and Resources” then “Pre-Application: Criminal” or phone ARDMS (301) 738-8401 or (800) 541-9754.**

**It is the students’ responsibility to contact the ARDMS. NOVA cannot intervene in these matters for any reason. Students are advised to contact the ARDMS directly for guidance on an individual basis.**

#### **F. SONOGRAPHY PROGRAM TECHNICAL STANDARDS**

To successfully complete the clinical component of the program, the student must be able to perform all of the technical standards of a sonographer.

- Must successfully complete and maintain CPR certification
- Lift, transfer and/or assist patients from wheelchair/stretchers to examination table
- Lift, move, reach, push or pull heavy equipment on wheels (up to approximately 500 lbs)
- Manual dexterity and coordination to manipulate equipment to respond to patient safety
- Have full use of both hands, wrists and shoulders
- Ability to maintain prolonged arm positions necessary for scanning
- Work standing on their feet 80% of the time
- Adequately view sonograms, including color distinctions and shades of gray
- Auditory ability to hear and respond to soft voices, equipment timers and alarms, as well as BP cuffs and breath sounds
- Use auditory, tactile and visual senses to assess the physiological status of the patient
- Demonstrate the ability to integrate diagnostic sonograms, laboratory results, patient history and medical records and adapt sonographic examinations as necessary
- Demonstrate the ability to organize and accurately perform the individual steps in a sonographic procedure in the proper sequence
- Demonstrate the ability to comprehend and follow instructions; perform sometimes complex and repetitive tasks; maintain a work pace appropriate to a given work load within the ultrasound department
- Demonstrate the ability to effectively employ interpersonal relation skills, including patient instruction in English
- Demonstrate the ability to interact compassionately and effectively with the sick or injured

- Demonstrate the ability to read and extract information from the medical chart or patient requisitions in English
- Demonstrate the ability to explain in English the clinical study verbally and/or in writing
- Ability to withstand a physically and emotionally taxing workload

Despite the foregoing, no otherwise qualified person with a disability who can perform these technical standards with reasonable accommodation will be denied admission to the DMS program.

### NON-DISCRIMINATORY TECHNICAL STANDARD REQUIREMENTS FOR ALL NOVA MEDICAL PROGRAMS

The Attorney General's office has provided the following guidance for health sciences and nursing essential program functions to avoid any future incidents concerning student participation in classrooms and clinical situations:

**Essential Function: students must be able to demonstrate a willingness and ability to provide equal non-discriminatory treatment of all patients regardless of gender, color, race, national origin, sexual orientation, disability and/or religion. In the classroom, students must also provide equal non-discriminatory practice of patient assessment skills upon the request of the instructor.**

It is the policy of both Northern Virginia Community College (NOVA) and the Virginia Community College System (VCCS) to maintain and promote equal employment and educational opportunities without regard to race, color, sex or age (except where sex or age is a bona fide occupational qualification), religion, disability, national origin, marital status, veteran status, political affiliation, sexual orientation, or other non-merit factors.

Northern Virginia Community College is an equal opportunity/affirmative action institution. NOVA complies with all federal and Virginia state laws, regulations, and executive orders regarding affirmative action requirements in all programs. Consistent with the College's duty to provide a work and academic environment free from unlawful harassment or discrimination, the College reserves the right to investigate any allegation of harassment or discrimination upon receipt of sufficient evidence to sustain such claims.

#### **G. CLINICAL ENVIRONMENT:**

All clinical rotations are held at area hospital affiliates and/or private medical offices. Each of these facilities offers a different perspective on the degree of difficulty, volume and pace in a sonography department. **Students will be assigned to 2 - 3 major clinical affiliates in the greater metropolitan area during the four semesters in the diagnostic medical sonography program.** Students must be prepared to travel in order to get to the assigned medical facility. Clinical assignments are determined by the program faculty and cannot be changed without the permission of the program director for Diagnostic Medical Sonography.

The student should realize that student sonographers are by nature of the profession, exposed regularly to: infectious disease, terminally ill and combative or difficult patients. Students will be required to be up to date on and show proof of all immunizations, including a flu shot, before the appointment of the clinical rotation assignment. Students are required to work with all patients coming into the department regardless of disease or condition, as assigned by the clinical instructors or department managers.

#### **H. RESPONSIBILITIES OF NOVA SONOGRAPHY STUDENTS:**

1. Students accepted into the DMS program are adult learners who will become medical professionals in the field of sonography. Students are expected to maintain a professional and team-spirited attitude at all times while in the program.
2. For the duration of the program, all students must be capable of accepting guidance through constructive criticism and making those adjustments. Students must also assume responsibility for planning, facilitating and managing their own learning.
3. To prepare for the high ethical standards of the health sciences professions, the College expects **absolute academic honesty** both in the classroom and in clinical practice.
4. A strict program dress and behavior code is required in the clinical setting.
5. Students in the DMS program will incur a variety of additional expenses. These include clinical tracking fees, healthcare insurance, textbooks, the cost of uniforms, ARDMS SPI and subspecialty registry fees, accessories, society membership fees, travel to and from clinical assignments and parking expenses.
6. Students must provide their own transportation to and from clinical assignments. Students may be required to attend both day and/or evening assignments. Students will be required to rotate through multiple clinical sites to obtain clinical competencies.

#### **I. PROGRAM CONTINUATION REQUIREMENTS:**

1. All courses taken while in the program major must be completed with a minimum grade of "**C**" or better before taking the next course in the sequence. Students who are unable to maintain minimum grade requirements will be **NOT** be able to continue on in the program and/or graduate.

2. All courses in the major must be taken in the sequence as prescribed in the catalog.
3. **Program faculty and clinical affiliates reserve the right to recommend, through appropriate channels, withdrawal of any student who neither exhibits safe performance nor adheres to prescribed clinical affiliate policies and procedures.** Students removed from their clinical sites will be subject to appropriate disciplinary action as outlined in the NOVA student handbook.
4. Physical and mental health must be maintained for continuance in the program. Applicants must be free of any physical and or mental conditions which might adversely affect their acceptance or performances in the program. The college reserves the right to require medical examinations to verify continuing competence.
5. Students who become pregnant while attending the Sonography program should notify the program director. It is the policy of the program to be supportive to pregnant students. However, the student must complete all program requirements in order to graduate and receive an AAS degree in sonography.

**J. HOSPITAL AFFILIATES:**

Northern Virginia Community College has made affiliation agreements with many clinical education centers where student sonographers may receive instruction and practical experience. This list includes but is not limited to:

**Inova Alexandria Hospital**

**Inova Fair Oaks Hospital**

**Inova Fairfax Hospital**

**Inova Loudoun Hospital Center**

**Inova Mount Vernon Hospital**

**Fauquier Hospital**

**HCA Reston Hospital Center**

**Prince William Hospital**

**Sentara Northern Virginia Medical Center**

**Sibley Memorial Hospital**

**Suburban Hospital**

**Virginia Hospital Center**

**Walter Reed National Military**

**Medical Center**

\*Other hospitals may be added throughout the school year.

**K. ADDITIONAL INFORMATION:**

For information concerning professional certification contact:

**The American Registry of Diagnostic Medical Sonographers, [www.ardms.org](http://www.ardms.org)**

51 Monroe Street, Plaza East One

Rockville, Maryland 20850-2400

**Society Diagnostic Medical Sonography Technologists, [www.sdms.org](http://www.sdms.org)**

2745 Dallas Pkwy Ste. 350  
Plano, Texas 75093-8730

For information concerning Accredited Educational Programs for Sonographers contact:

**Commission on Accreditation of Allied Health Education Programs (CAAHEP)**

25400 U.S. Highway 19 North, Suite 158, Clearwater, FL 33763

<http://www.caahep.org/Default.aspx>

Phone: 727-210-2350 Fax: 727-210-2354

**The Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS)**

6021 University Boulevard, Suite 500

Ellicott City, MD 21043

Email address: [jrcdms@intersocietal.org](mailto:jrcdms@intersocietal.org)

Phone number: 443-973-3251