2016

B.S. in Medical Sonography Brochure

Nova Southeastern University

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College of Health Care Sciences

Medical Sonography

- Bachelor of Science—Medical Sonography (B.S.)
  General and Vascular
- B.S.—Medical Sonography and Master of Health Science Option
NOVA SOUTHEASTERN UNIVERSITY—synonymous with dynamic innovation and intellectual challenge—is the second largest, private, nonprofit university in the Southeast and 1 of only 37 universities (out of more than 4,000) that have earned designations for both High Research Activity and Community Engagement from the Carnegie Foundation for the Advancement of Teaching. Situated on a beautiful, 314-acre campus in Fort Lauderdale, Florida, the university is experiencing a sustained period of academic growth, fiscal strength, and commitment to the challenges of the 21st century.

In this environment of expansion and stability, the university is capitalizing on its strengths in such areas as academic innovation, comprehensive clinical training, and flexible educational delivery systems. Founded in 1964 as Nova University, the institution merged with Southeastern University of the Health Sciences in 1994, creating Nova Southeastern University. To date, the institution has more than
166,000 alumni and current enrollment of more than 24,000 students. Fully accredited by the Commission on Colleges of the Southern Association of Colleges and Schools, the university awards associate’s, bachelor’s, master’s, educational specialist, and doctoral degrees in a wide range of fields including the health professions, law, business, marine sciences, psychology, social sciences, computer and information sciences, and education.

The university’s degree programs are administered through academic units that offer courses at the main campus and at field-based locations throughout Florida; across the nation; and at selected international sites in Europe, Mexico, the Pacific Rim, Central and South America, and the Caribbean.

With a budget of more than $220 million per year, the university will continue to maintain a solid record of academic and fiscal strength and excellence in teaching and community service, while expanding its mission in research and scholarship.
OVER THE PAST two decades, NSU’s Health Professions Division has evolved into a dynamic and innovative, interprofessional, academic health center that comprises seven colleges (the Colleges of Osteopathic Medicine, Pharmacy, Optometry, Medical Sciences, Dental Medicine, Health Care Sciences, and Nursing) and more than 50 degree and certificate programs.

Our colleges and programs are nationally and internationally recognized due to our esteemed faculty and staff members, who are dedicated to working closely with students, nurturing them along as they progress through the academic experience. When students truly know their professors are there for them on a daily basis, it makes a big difference in their educational experience.

Our educational paradigm is both academically and technologically robust. Because of this, we’re able to provide our students with the knowledge and skills they will need to become compassionate and dedicated health care professionals. Our current students are fully aware and appreciative of this fact. And as a new student, you will be as well.

Fred Lippman, R.Ph., Ed.D.
Health Professions Division Chancellor
AS A STUDENT in the Health Professions Division of Nova Southeastern University, you can anticipate a remarkable experience. You will train, study, interact, and share faculty and resources (either campus-based or online) with students from diverse backgrounds and disciplines. This interprofessional approach distinguishes the Health Professions Division as unique and will better prepare you to master your discipline with a sensitivity and understanding of the entire health care system.

The Health Professions Division occupies a $70-million complex, covering 21 acres of the university campus. The division includes eight buildings totaling more than 900,000 square feet of space for classrooms, laboratories, offices, the Health Professions Division Library, an outpatient health center, and a pharmaceutical care center. The adjacent 1,800-vehicle parking garage overlooks the Miami Dolphins Training Camp.

The Health Professions Division, with a student body of more than 5,800, is home to seven colleges.

**College of Osteopathic Medicine**
- Doctor of Osteopathic Medicine (D.O.)
- Master of Public Health (M.P.H.)
- Master of Science in Biomedical Informatics (M.S.B.I.)
- Master of Science in Disaster and Emergency Preparedness (M.S.)
- Master of Science in Medical Education (M.S.)
- Master of Science in Nutrition (M.S.)
- Graduate Certificate in Health Education
- Graduate Certificate in Medical Informatics
- Graduate Certificate in Public Health
- Graduate Certificate in Public Health Informatics
- Certificate in Social Medicine

**College of Pharmacy**
- Doctor of Pharmacy (Pharm.D.)
- Doctor of Philosophy in Pharmaceutical Sciences (Ph.D.)
  - Concentration in Drug Development (Pharmaceutics)
  - Concentration in Molecular Medicine and Pharmacogenomics
  - Concentration in Social and Administrative Pharmacy

**College of Optometry**
- Doctor of Optometry (O.D.)
- Master of Science in Clinical Vision Research (M.S.)

**College of Health Care Sciences**
- Bachelor of Science in Athletic Training (B.S.)
- Bachelor of Science—Cardiovascular Sonography (B.S.)
- Bachelor of Science in Exercise and Sport Science (B.S.)
- Bachelor of Health Science (B.H.Sc.)
- Bachelor of Science—Medical Sonography (B.S.)
- Bachelor of Science in Respiratory Therapy (B.S.)
- Bachelor of Science in Speech-Language and Communication Disorders (B.S.)
- Master of Science in Anesthesia (M.S.)
- Master of Health Science (M.H.Sc.)
- Master of Medical Science in Physician Assistant (M.M.S.)
- Master of Occupational Therapy (M.O.T.)
- Master of Science in Speech-Language Pathology (M.S.)
- Doctor of Audiology (Au.D.)
- Doctor of Health Science (D.H.Sc.)
- Doctor of Philosophy in Health Science (Ph.D.)
- Entry-Level Doctor of Occupational Therapy (O.T.D.)
- Doctor of Occupational Therapy (Dr.O.T)
- Doctor of Philosophy in Occupational Therapy (Ph.D.)
- Entry-Level Doctor of Physical Therapy (D.P.T.)
- Hybrid Entry-Level Doctor of Physical Therapy (D.P.T.)
- Transition Doctor of Physical Therapy (D.P.T.)
- Doctor of Philosophy in Physical Therapy (Ph.D.)
- Doctor of Speech-Language Pathology (SLP.D.)

**College of Medical Sciences**
- Master of Biomedical Sciences (M.B.S.)

**College of Dental Medicine**
- Doctor of Dental Medicine (D.M.D.)
- Master of Science in Dental Medicine (M.S.)
- Postgraduate Certificate in Advanced Education in General Dentistry
- Postgraduate Certificate in Endodontics
- Postgraduate Certificate in Operative Dentistry
- Postgraduate Certificate in Oral and Maxillofacial Surgery
- Postgraduate Certificate in Orthodontics
- Postgraduate Certificate in Pediatric Dentistry
- Postgraduate Certificate in Periodontics
- Postgraduate Certificate in Prosthodontics

**College of Nursing**
- Bachelor of Science in Nursing (B.S.N.)
  - Entry Nursing
  - R.N. to B.S.N.
- Master of Science in Nursing (M.S.N.)—Major of Advanced Practice Registered Nurse
  - Concentration in Family Nurse Practitioner
  - Concentration in Geri-Adult Acute Care
- Master of Science in Nursing (R.N. to M.S.N. or M.S.N.)
  - Concentration in Health Systems Leadership
  - Concentration in Nursing Education
  - Concentration in Nursing Informatics
- Doctor of Nursing Practice (D.N.P.)
- Doctor of Philosophy in Nursing (Ph.D.)

**Dual Degrees**
- Bachelor of Science—Cardiovascular Sonography (B.S.) and Master of Health Science (M.H.Sc.)
- Bachelor of Science—Medical Sonography (B.S.) and Master of Health Science (M.H.Sc.)
- Master of Health Science (M.H.Sc.)/Doctor of Health Science (D.H.Sc.)
- Doctor of Osteopathic Medicine (D.O)/Doctor of Dental Medicine (D.M.D.)

This brochure is for information purposes only and does not represent a contract. Information contained herein is subject to change at any time by administrative decision on the direction of the board of trustees. Updated information can be found on our website (www.nova.edu/chcs/healthsciences/sonography/index.html).
NOVA SOUTHEASTERN UNIVERSITY’S College of Health Care Sciences provides the highest quality of education to students in a variety of health care disciplines, including occupational, physical, and respiratory therapy; physician assistant; audiology; medical and cardiovascular sonography; anesthesiologist assistant; speech-language pathology; athletic training; exercise and sport science; and health sciences. We offer entry-level programs to advanced health care studies that allow professionals to continue with their lifelong learning. The cutting-edge curricula offered in our programs will help our students gain future success in their fields.

The college is committed to providing health care educational opportunities in formats that meet the needs of prospective students in the community. These formats include both the standard, face-to-face classroom approach and innovative distance electronics. By combining the most contemporary teaching modalities with state-of-the-art technology, our students are assured of obtaining the most comprehensive education possible.

The College of Health Care Sciences believes in excellence and innovation in teaching, research, service, and learning. This is made possible by having an academically skilled and professionally qualified faculty and staff. We have diverse faculty members. They come from different backgrounds, have different degrees, and possess a wide range of educational experiences. Our faculty members are eager to share their knowledge of and expertise in the health care arena with their students. We also have an open door policy that encourages students to seek answers to their questions, allowing them to develop a solid understanding of the materials that they study.

All of these opportunities make the College of Health Care Sciences truly unique. The health care market is undergoing a rapid change. The pace of this change has provided a formidable challenge for institutions that provide the educational programs for future health care professionals. We are proud of the fact that we are training our students to become skilled and compassionate health care providers who are certain to make valuable contributions to the communities they serve. If you wish to become a graduate who is adequately prepared to assume a leadership role in health care, I encourage you to apply to our programs.

Stanley Wilson, Ed.D., PT, CEAS
Dean, College of Health Care Sciences
The Department of Health Science offers the working health professional distance online learning at the bachelor’s, master’s, and doctoral (D.H.Sc. and Ph.D.) levels. The Department of Health Science also includes an on-campus Master of Science in Anesthesia (M.S.) at the main campus and the Tampa Campus. The Bachelor of Science (B.S.) in Medical Sonography is offered at NSU’s main campus, while the Bachelor of Science (B.S.) in Cardiovascular Sonography is offered at NSU’s Tampa campus.

**DIAGNOSTIC MEDICAL SONOGRAPHY**

Diagnostic medical sonography includes four primary areas of specialization: general (RDMS), cardiac (RDCS), vascular (RVT), and musculoskeletal (MSK). **General sonography** includes subspecialties in obstetrics and gynecology, organs of the body, and small parts (soft tissues and superficial glands). Beginning in 2015, the neurosonology specialty examination will no longer be available. ARDMS is no longer accepting applications for the neurosonology examination. **Cardiac sonography** examines the anatomical structure and function of the heart and is subdivided into three different subspecialties: adult echocardiography, fetal echocardiography, and pediatric echocardiography. **Vascular sonography** studies the anatomical and physiological characteristics of blood vessels (veins and arteries) in the human body. The most recently created specialty in sonography is **musculoskeletal sonography**. This specialty studies the different joints and tendons in the body. Diagnostic medical sonography uses mechanical, nonionizing sound waves to obtain images and is considered a noninvasive modality.

**GENERAL SONOGRAPHY**

Professionals in this field are called sonographers or medical sonographers. Sonographers use diagnostic medical ultrasound to obtain images of internal organs such as the liver, gallbladder, bile ducts, pancreas, spleen, appendix, kidneys, and adrenal glands. They also can obtain images from superficial glands and soft tissues. Sonographers specializing in obstetrics and gynecology obtain images of the female pelvic organs and the fetus. Sonographers working in all these specialties determine normal from abnormal situations and contribute to the making of a diagnosis of pathologies affecting those organs.
VASCULAR SONOGRAPHY
Professionals working in this specialty are called vascular sonographers. They use ultrasound and other specialized equipment to assess the anatomic, physiologic, and pathologic conditions of veins and arteries. Among the most common studies are those of the carotid arteries, arteries of the upper and lower extremities, abdominal blood vessels, and intracranial circulation. Exploration of these vessels helps to determine the presence of plaques and thrombus, the direction of blood flow, and the process of revascularization, as well as patency of grafts. Vascular sonographers play a very important role in assessing the blood vessels in special situations such as stroke, peripheral arterial disease, abdominal aortic aneurysm, portal hypertension, and deep vein thrombosis. They even can help to select native vessels for grafts to be used in cardiac surgeries.

BACHELOR OF SCIENCE IN MEDICAL SONOGRAPHY PROGRAM
PROGRAM OBJECTIVES
Minimum expectations: Prepare competent entry-level general sonographers and vascular technologists in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.

The NSU Bachelor of Science in Medical Sonography program in Fort Lauderdale offers didactic and clinical training in the general and vascular sonography subspecialties as one integrated curriculum. At the end of the program, the student will be able to perform general (abdomen, small parts, and neurosonology), obstetrical and gynecological, and vascular studies. The growing use of ultrasound and the need for sonographers with multiple credentials to accommodate new regulations in the health care field have set the ground for a comprehensive program that combines these two main specialties: RDMS (abdomen, ob-gyn) and RVT.

BACHELOR OF SCIENCE IN MEDICAL SONOGRAPHY (B.S.)
GENERAL AND VASCULAR SONOGRAPHY
The Bachelor of Science in Medical Sonography (General and Vascular) was designed to prepare entry-level professionals in the fields of general and vascular sonography. During the first year, students take online courses at the undergraduate level, as well as on-campus classes that include many hours each week in the training ultrasound lab. This is followed by a 12-month externship in a clinical site and online courses. Graduates from this program will be able to apply for national examinations with the American Registry of Diagnostic Medical Sonography (ARDMS) and obtain RDMS and RVT credentials. Upon graduation from the B.S. program, students will be eligible to apply for admission to the online Master of Health Science (M.H.Sc.) program.

MASTER OF HEALTH SCIENCE OPTION
Students who already hold a bachelor’s degree from an accredited institution with a minimum GPA of 3.0 are eligible to apply for the concurrent Master of Health Science (M.H.Sc.) option.
The Bachelor of Science in Medical Sonography (General and Vascular) includes on-campus lectures; extensive, hands-on training in the ultrasound laboratory; online courses; and a 12-month externship in an accredited clinical facility. The curriculum for this program follows the standards recommended by the American Registry of Diagnostic Sonography (ARDMS) and the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Graduating students will earn Bachelor of Science in Medical Sonography degrees. Students pursuing a concurrent Master of Health Science degree will graduate with a Bachelor of Science in Medical Sonography and a Master of Health Science. Upon graduation, students will be able to sit for the professional registry exam with the ARDMS and earn RDMS and RVT credentials.

The curriculum follows a lock-step model and the courses must be taken and passed in a predetermined sequence.

Examples of the courses in health sciences include: Health Care Ethics, Academic and Professional Writing, Research Methods, and Principles of Management. Some of the core courses for the concentration in general and vascular sonography include: Ultrasound Physics, Abdominal Sonography, Obstetrics and Gynecology, Cerebrovascular Testing, and Peripheral Arterial Testing.

In the second year, students have a 12-month externship, allowing them to gain experience through observation and hands-on practice, while being supervised by clinical mentors. During this period, students will accrue more than 1,700 hours of clinical training while continuing to take online courses. Students enrolled in the master’s degree program will also participate in a research project mentored by a faculty member to satisfy the practicum course requirements. In the same manner, master’s degree students will develop an extensive research project suitable for presentation or publication.

**Start Date:** May 2016

**Length:** 27 months*

**Degree:**
- Bachelor of Science in Medical Sonography (B.S.)

**Master of Health Science Option:**
- Bachelor of Science in Medical Sonography and Master of Health Science (M.H.Sc.)

**Total Credit Hours:**
- 125 for B.S.
  - Degree Map
    - General education requirements . . . . . 30 credits
    - Bachelor’s degree online coursework . . 27 credits
    - Medical sonography requirements . . . . 68 credits
  - 162 for B.S. with concurrent M.H.Sc. option
  - Degree Map
    - General education requirements . . . . . 30 credits
    - Transferred open electives . . . . . . . . 27 credits
    - Medical sonography . . . . . . . . . . . . . 68 credits
    - MHS credits (required) . . . . . . . . . . . 37 credits

**Clinical Externship:** 48 weeks/1,776 total clinical hours

**Didactic Hours (lectures and lab sessions):**
On-campus from May 2016 to August 2017

*Online courses are taken during the entire 27 months.

**PROGRAM OUTCOMES**

(one year after graduation, as reported to the Commission on Accreditation of Allied Health Education Programs [CAAHEP] in the last report [Dec. 2014] for the Vascular Class of 2013)

Attrition Rate ............................. 10 percent
Credential Success Rate............. 100 percent
Job Placement Rate............... 77.8 percent
## Bachelor of Science in Medical Sonography

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Required Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHS 3110 Health Care Ethics</td>
<td>3</td>
</tr>
<tr>
<td>BHS 3120 Introduction to Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>BHS 3130 Research and Design for Health Care</td>
<td>3</td>
</tr>
<tr>
<td>BHS 3150 Principles in Leadership</td>
<td>3</td>
</tr>
<tr>
<td>BHS 3155 Conflict Resolution in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>BHS 3160 Health Care Policy</td>
<td>3</td>
</tr>
<tr>
<td>BHS 4000 Cultural Competency in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>BHS 4100 Academic and Professional Writing</td>
<td>3</td>
</tr>
<tr>
<td>BHS 4110 Health Care and Aging</td>
<td>3</td>
</tr>
<tr>
<td>BHS 3102 Ultrasound Physics I/Lab</td>
<td>3</td>
</tr>
<tr>
<td>BHS 3112 Ultrasound Cross-Sectional Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>BHS 3200 Ultrasound Physics II/SPI Exam</td>
<td>1</td>
</tr>
<tr>
<td>BHS 3220 Introduction to Diagnostic Medical Sonography</td>
<td>3</td>
</tr>
<tr>
<td>BHS 3300 Cerebrovascular Testing/Lab</td>
<td>4</td>
</tr>
<tr>
<td>BHS 3400 Venous Testing/Lab</td>
<td>4</td>
</tr>
<tr>
<td>BHS 3500 Peripheral Arterial Testing/Lab</td>
<td>4</td>
</tr>
<tr>
<td>BHS 3800 Abdominal Sonography/Lab</td>
<td>4</td>
</tr>
<tr>
<td>BHS 3801 Abdominal Sonography/Lab II</td>
<td>4</td>
</tr>
<tr>
<td>BHS 3700 Clinical Preparation and Review</td>
<td>4</td>
</tr>
<tr>
<td>BHS 3830 Small Parts Sonography</td>
<td>4</td>
</tr>
<tr>
<td>BHS 3900 Obstetrics and Gynecology</td>
<td>4</td>
</tr>
<tr>
<td>BHS 3900 Ultrasound I</td>
<td>4</td>
</tr>
<tr>
<td>BHS 3910 Obstetrics and Gynecology</td>
<td>4</td>
</tr>
<tr>
<td>BHS 4500 Clinical Externship I</td>
<td>6</td>
</tr>
<tr>
<td>BHS 4600 Clinical Externship II</td>
<td>7</td>
</tr>
<tr>
<td>BHS 4700 Clinical Externship III</td>
<td>8</td>
</tr>
</tbody>
</table>

Subtotal Courses .................................................. 95
Transfer ............................................................... 30
Total B.S. Degree Semester Hours Required .......... 125

## Master of Health Science Option

Students who already hold a bachelor’s degree from an accredited institution with a minimum GPA of 3.0 are eligible to apply for the concurrent Master of Health Science (M.H.Sc.) option. Students who enroll in this concurrent M.H.Sc. will graduate with a Bachelor of Science in Medical Sonography and an M.H.Sc. Both programs will be completed in 27 months.

Upon application, a review of the bachelor’s degree transcript will be conducted and all general education requirements will need to be satisfied. In addition, up to 27 credits of open electives will be transferred. Upon transfer credit evaluation, completion of any additional credit to meet or fulfill the 57 credits for general education and open electives requirements will be required.

### Curriculum for the M.H.Sc.

<table>
<thead>
<tr>
<th>Required Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHS 5003 Current Trends and Cultural Issues in Health Care</td>
</tr>
<tr>
<td>MHS 5521 Ethical Issues in Health Care</td>
</tr>
<tr>
<td>MHS 5205 Writing for Medical Publication</td>
</tr>
<tr>
<td>MHS 5510 Research Methods</td>
</tr>
<tr>
<td>MHS 5403 Directed Studies in Medical Sonography</td>
</tr>
<tr>
<td>MHS 5501 Epidemiology and Biostatistics</td>
</tr>
<tr>
<td>MHS 5530 Principles of Management in Health Care</td>
</tr>
<tr>
<td>MHS 5309 U.S. Health Care Policy</td>
</tr>
<tr>
<td>MHS 5207 Practicum</td>
</tr>
</tbody>
</table>

Total M.H.Sc. Degree Semester Hours Required .......37

### Degree Map

- General education requirements .......... 30 credits
- Open electives .................................... 27 credits
- Medical sonography requirements .......... 68 credits
- Total for B.S. in Medical Sonography.....125 credits
- M.H.Sc. requirements ............................ 37 credits

Total semester hours required to complete the B.S. and the M.H.Sc. .............................................. 162
SELECTION

Prospective Bachelor of Science in Medical Sonography students are selected by the Committee on Admissions (COA) through consideration of the overall qualities of the candidate.

Upon receipt of a completed application, either for the bachelor’s or master’s degree track; fees; credentials; and transcripts, the admissions officer for the Bachelor of Science in Medical Sonography program in the College of Health Care Sciences will review all material for evidence of the proper prerequisites, education, training, and background to enter the general and vascular specialization. The university reserves the right to modify any requirement on an individual basis as deemed necessary by the dean of the College of Health Care Sciences.

Areas of consideration include application content, academic record, letters of evaluation, and personal motivation. Upon receipt of the completed application, the COA will select applicants for interview. It is highly recommended that applicants have or obtain meaningful and significant scientific, health care, and elder care work or volunteer experience in a health care facility. Applicants must be present for the interview. Expenses for the interview are the responsibility of the applicant.

The applicant who is applying to the B.S. with the M.H.Sc. option who has graduated from a college or university in a country where English is not the primary language, regardless of United States residency status, must obtain a minimum score of 600 on the written or 213 on the computerized Test of English as a Foreign language (TOEFL). An official set of scores must be sent directly from the Educational Testing Services in Princeton, New Jersey, to NSU’s EPS.

BACHELOR OF SCIENCE IN MEDICAL SONOGRAPHY

PREREQUISITES

In order to be eligible for admission to the Bachelor of Science in Medical Sonography (General and Vascular), a student must have completed 30 semester hours of prerequisite education coursework with a minimum cumulative GPA of 2.75 on a 4.0 grading scale. The college requires students to earn a 2.0 or better in each prerequisite course.

REQUIRED B.S. PREREQUISITE GENERAL EDUCATION COURSES

<table>
<thead>
<tr>
<th>REQUIRED SEMESTER HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition (above COMP 1000)</td>
</tr>
<tr>
<td>Social and Behavioral Sciences</td>
</tr>
<tr>
<td>Humanities’</td>
</tr>
<tr>
<td>Anatomy and Physiology I</td>
</tr>
<tr>
<td>Physics</td>
</tr>
<tr>
<td>Mathematics** (above MATH 1040—College Algebra and above)</td>
</tr>
<tr>
<td>Subtotal General Education Courses</td>
</tr>
</tbody>
</table>

Note: Required general education courses cannot be survey courses.

* recommend 3 semester hours in foreign language
** strongly recommend 3 semester hours in college algebra

PREFERRED BUT NOT REQUIRED COURSE

Anatomy and Physiology II
Application Procedures

THE APPLICATION DEADLINE IS APRIL 6.

 Applicants for admission must submit or be responsible for submission of

1. a completed application form along with a $50, nonrefundable application fee

2. two letters of evaluation from individuals (other than relatives) such as academic advisers, professors, clinical or non-clinical supervisors, or community associates

3. official college-, certificate-, and/or diploma-based transcripts from all undergraduate and graduate institutions attended, sent directly from the institution to the Enrollment Processing Services (EPS)

4. copies of national and/or state professional certification, licensure, or registration, if applicable

5. evaluation of coursework taken at a foreign institution for U.S. institutional equivalence (if applicable)

Coursework taken at foreign institutions must be evaluated for U.S. institution equivalence by an approved National Association of Credential Evaluation Services (NACES) organization, such as one of the services listed below.

World Education Services, Inc.
Bowling Green Station
P.O. Box 5087
New York, New York 10274-5087
(212) 966-6311 • www.wes.org

Josef Silny & Associates, Inc.
7101 SW 102nd Avenue
Miami, Florida 33173
Phone: (305) 273-1616 • Fax: (305) 273-1338
www.jsilny.com

Educational Credential Evaluators, Inc.
P.O. Box 514070
Milwaukee, Wisconsin 53203-3470
(414) 289-3400 • www.ece.org

It is the applicant’s responsibility to have this coursework evaluated. An official course-by-course evaluation with a cumulative grade point average must be sent directly from the evaluation service to NSU’s Enrollment Processing Services.

6. a current curriculum vitae

7. a student-prepared learning portfolio requesting assessment of prior experiences for academic credit (only for graduates from programs other than those from regionally accredited colleges or universities)

All admissions information should be sent to

Nova Southeastern University
Enrollment Processing Services
College of Health Care Sciences
Medical Sonography Admissions
3301 College Avenue, P.O. Box 299000
Fort Lauderdale, Florida 33329-9905
Phone: (954) 262-1101 • Fax: (954) 262-2282

The Office of Admissions works on a rolling admissions basis. Applications are accepted year round. To ensure that your application receives prompt consideration, you should apply early.

The Committee on Admissions will not consider an application until all required fees, credentials, transcripts, and test scores have been received by the EPS.

The university reserves the right to modify any requirements on an individual basis as deemed necessary by the dean of the College of Health Care Sciences.

The college reserves the right, and the student (by his or her act of matriculation) concedes to the college the right, to require his or her withdrawal any time the college deems it necessary to safeguard its standards of scholarship, conduct, and compliance with regulations, or for such other reasons as are deemed appropriate.

The dean and medical sonography program director reserve the right to require the student's withdrawal at any time for the above-mentioned reasons.
Transfer of Credits

**BACHELOR OF SCIENCE IN MEDICAL SONOGRAPHY**

An evaluation of transfer credit will be completed prior to the first semester of enrollment, and applicable credit will be transferred based on all final official transcripts received. Students will be advised to take courses based on the official evaluation in their file.

Transfer students must provide final official transcripts from all their previous colleges. Their previous academic work will then be evaluated. The B.S. in Medical Sonography program will transfer a maximum of 30 prerequisite semester hours (grades of C or better).

**BACHELOR OF SCIENCE IN MEDICAL SONOGRAPHY WITH MASTER OF HEALTH SCIENCE OPTION**

Students matriculated into the Master of Health Science option may petition for transfer of credits to the program. Up to, but not exceeding, 6 semester hours of graduate work may be considered for transfer from a regionally accredited institution. The courses considered for transfer must meet the goals and objectives of the M.H.Sc. course in question and cannot be previously applied toward another awarded degree in or outside of NSU. The 27 open elective semester hours of transfer credit from the previously received bachelor's degree will be applied to the B.S.—Medical Sonography degree leading to the completion of the courses required for the M.H.Sc. degree.
CORE COURSES

BHS 3102 Ultrasound Physics I/Lab ......................... 3
This course is designed to help the student acquire knowledge of all the fundamental principles and concepts necessary to understand the properties of sound and ultrasound as used in diagnostic imaging. These principles and concepts will span from basic properties of sound in soft tissue to advanced techniques such as Doppler, spectral analysis, M-mode, etc. as they pertain to evaluation for abdominal, ob-gyn, small parts, vascular, and cardiac ultrasound imaging. The students will also learn about artifacts, safety, and the concepts of bioeffects, as well as quality assurance and image storage.

BHS 3112 Ultrasound Cross-Sectional Anatomy ...... 4
This course is designed to expand upon a student’s present knowledge and understanding of normal anatomy through developing spatial relationships of organs, vessels, bones, muscles, and connective tissues.

BHS 3200 Ultrasound Physics II/SPI Exam .............. 1
This course is designed to review the principles and concepts learned in Ultrasound Physics I through quizzes and exams. It will help to prepare students for the Sonography Principles and Instrumentation (SPI) exam administered by the ARDMS. Students will take the exam after completion of the course.

BHS 3220 Introduction to Diagnostic Medical Sonography ......................... 3
This course is designed to introduce students to the equipment used in diagnostic ultrasound. The course will be primarily taught in the ultrasound training laboratory in small groups. The focus of the course will be to lead students toward proficiency and competency in using the tools available on the ultrasound equipment for the production of quality images, as well as proper ergonomics and scanning techniques. This course is the foundation for all the following core courses.

BHS 3300 Cerebrovascular Testing/Lab ................. 4
This course will focus on hemodynamic principles and the use of ultrasound for the evaluation of the extracranial and intracranial cerebrovascular circulation. This course will have a strong hands-on component with students spending several hours per week in the ultrasound training laboratory. Lectures will focus on anatomy, pathologies, treatment options, and analysis of data obtained by ultrasound, as well as some other imaging techniques.

BHS 3400 Venous Testing/Lab ............................ 4
This course will focus on the use of ultrasound for the evaluation of the venous circulation of the upper and lower extremities. This course will have a strong hands-on component with students spending several hours per week in the ultrasound training laboratory. Lectures will focus on anatomy, pathologies, treatment options, and analysis of data obtained by ultrasound, as well as some other imaging techniques.

BHS 3500 Peripheral Arterial Testing/Lab .............. 4
This course will focus on the use of ultrasound for the evaluation of the arterial circulation of the upper and lower extremities. This course will have a strong hands-on component with students spending several hours per week in the ultrasound training laboratory. Lectures will focus on anatomy, pathologies, treatment options, and analysis of data obtained by ultrasound and other technologies specific to vascular laboratories, as well as some other imaging techniques.

BHS 3800 Abdominal Sonography ....................... 4
This course will review the abdominal anatomy and physiology with a focus on cross-sectional anatomy. It will have a strong hands-on component with students spending several hours per week in the ultrasound training laboratory learning to recognize normal sono- graphic anatomy. Lectures will focus on the above mentioned aspects, as well as on how to collect patient information relevant to the different ultrasound studies and other imaging techniques. This course provides a foundation that will help students understand the clinical exam and the elements contributing to their role and the scope of practice as general sonographers.
**BHS 3801 Abdominal Sonography II** ......................... 4  
This course will review abnormal abdominal anatomy and physiology with a focus on clinical correlations. It will have a strong hands-on component with students spending several hours per week in the ultrasound training laboratory strengthening the skills learned from Abdominal Sonography I. Lab assignments will incorporate case studies, clinical correlations, and other imaging modalities (e.g., MRIs, nuclear medicine, CTs, etc.). Lectures will focus on the above mentioned aspects, as well as on how to collect patient information relevant to the different ultrasound studies and pathologies. This course provides a foundation that will help students understand the clinical exam and the elements contributing to their role and the scope of practice as general sonographers.

**BHS 3900 Obstetrics and Gynecology Ultrasound I** ..................... 4  
This course will focus on the use of ultrasound for the evaluation of the organs in the human female pelvic cavity in both normal and abnormal, gravid and non-gravid anatomy and physiology. It will have a strong hands-on component with students spending several hours per week in the ultrasound training laboratory. The lectures will focus on the aspects previously mentioned, as well as on fetal abnormalities and abnormal conditions of the fenums. The course will explore infertility and assisted reproductive technologies.

**BHS 3910 Obstetrics and Gynecology Ultrasound II** ...................... 4  
This course is a continuation of Obstetrics and Gynecology Ultrasound I. It is a further comprehensive approach to in-depth studies of the organs contained within the human female pelvic cavity in both normal and abnormal, gravid and non-gravid anatomy and physiology. The course will focus on fetal abnormalities and abnormal conditions of the fetus.

**BHS 3830 Small Parts Sonography** ................................. 4  
This course will focus on the use of ultrasound for the evaluation of superficial structures such as the thyroid and parathyroid glands, breasts, male reproductive system, superficial soft tissue structures, shoulders, hands, and wrists, as well as the neonatal brain, pediatric spine, pediatric hip/pelvis, and pediatric abdomen. It will have a strong hands-on component with students spending several hours in the laboratory. Lectures will focus on relevant normal and abnormal anatomical and physiological aspects as well as on clinical findings, signs, and symptoms of diseases related to these areas.

**BHS 3700 Clinical Preparation and Review** ....................... 4  
This course will provide and reinforce the nontechnical aspects of the profession of diagnostic medical sonography. This will include, but is not limited to, patient care, professionalism, and clinical rationale. This course will also prepare students for the clinical experience that follows in the second year.

**BHS 4500 Clinical Externship I** ................................. 6  
This course will mainly be provided through immersion in a clinical setting assigned by the end of the first year. Students will be a daily integral part of the operations of the diagnostic ultrasound department they have been assigned to for the length of the term. Students will report to the clinical coordinator or an assigned professor of the program at NSU.

**BHS 4600 Clinical Externship II** ................................. 7  
This course is a continuation of Clinical Externship I.

**BHS 4700 Clinical Externship III** ................................. 8  
This course is a continuation of Clinical Externship II.
### Online Courses

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
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<td>BHS 3110</td>
<td>Health Care Ethics</td>
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<tr>
<td>BHS 3120</td>
<td>Introduction to Epidemiology</td>
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<td>BHS 3130</td>
<td>Research and Design for Health Care</td>
<td>3</td>
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<tr>
<td>BHS 3150</td>
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<td>BHS 3155</td>
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<td>Academic and Professional Writing</td>
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<tr>
<td>BHS 4110</td>
<td>Health Care and Aging</td>
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**BHS 3110 Health Care Ethics**

This course is designed to introduce ethical thinking and concepts regarding health care to prepare the student with the essential vocabulary and thought processes to understand, evaluate, and participate in ethical decision making.

**BHS 3120 Introduction to Epidemiology**

This course is designed to introduce students to the history and development of epidemiology in relation to public health and disease. Communicable, epidemic, endemic, and social diseases will also be discussed.

**BHS 3130 Research and Design for Health Care**

This course is designed as an introduction to critical analysis of research and medical literature as well as basic research methods. The course includes an introduction to descriptive and inferential analysis and research design. Statistical and research concepts and procedures are combined with an emphasis on practical health care applications.

**BHS 3150 Principles of Leadership**

This course will provide an overview of numerous leadership theories to prepare the student for a leadership role in health care. The course will critically analyze the differences between leadership and management.

**BHS 3155 Conflict Resolution in Health Care**

The purpose of this course is to develop an understanding of, and effective methods and strategies for reducing, the incidences of workplace conflict, including employee-employee, supervisor-subordinate, patient-patient, and patient/client-provider conflict.

**BHS 4000 Cultural Competency in Health Care**

The purpose of this course is to develop competency and better understanding when confronted with the practitioner’s delivery of health care and issues related to diversity; ethnically based customs, rituals, and alternative health care choices; folk medicine; and cultural structure and viewpoints.

**BHS 4100 Academic and Professional Writing**

The purpose of this course is to introduce students to the format, content, and thought processes needed for successful academic and professional writing. This is accomplished through the use of the NSU B.H.Sc. Form and Style Manual as well as an introduction to APA and AMA manuals. An overview of proper sentence and paragraph structure, grammar, punctuation usage, formatting, and bibliographic referencing will be discussed.

**BHS 4110 Health Care and Aging**

This course examines the psychosocial and cultural variations associated with maturing and aging. Topics covered will be an overview of life choices, living wills, and treatment, as well as cultural implications of senior care.
CREDIT HOURS

MHS 5003 Current Trends and Cultural Issues in Health Care .................. 3
This course serves to familiarize the student with current and cultural issues in health care that may impact the patient, the health care system, or the ability to deliver high-quality health care. Discussion and analysis of current and cultural topics facing those who work in health care will be explored.

MHS 5205 Writing for Medical Publication ........ 3
This course is a study and review of quality medical writing techniques, issues, and procedures with an emphasis on cultivating personal style and content. Focus will be on writing for peer and evidence-based publications.

MHS 5501 Epidemiology and Biostatistics ............ 3
The ability to understand the conceptual and practical aspects of biostatistics and epidemiology in health care is critical to understanding research and analyzing population data about disease. This survey course will improve the ability of students to understand and apply these concepts.

MHS 5510 Research Methods ....................... 3
This course is designed to enable participants to develop skills in reading and critically evaluating published research using the scientific model. The advantages and disadvantages of quantitative and qualitative research methods will be compared and contrasted. Research articles will be collaboratively analyzed to develop an appreciation of potential methodological problems and their implications for evidence-based professional practice.

MHS 5521 Ethical Issues in Health Care ............... 3
The student will examine the ethical issues that confront health care providers and patients. The medical, scientific, moral, and socioeconomic bases of these issues and the decision-making process that providers and patients engage in are analyzed. Topics will include informed consent and the allocation of scarce resources.

MHS 5530 Principles of Management in Health Care .................. 3
This course will discuss the various principles of management and its associated issues as they relate to the modern health care professional. It will explore topics such as concepts of organizational management; decision making; strategic planning; resource management; and allocation, conflict, and the concept of power.

MHS 5309 U.S. Health Care Policy ................. 5
This course will explore how U.S. health policy is made and the interests and roles of various stakeholders and state, local, and federal governments. Students will analyze health policies and discern what impact proposed and executed health policies will have on health care entities, groups, individuals, and health care practice. Students will gain the skills necessary to conduct a policy analysis that examines a health care or public health issue or concern.

MHS 5207 Practicum ......................... 5
The practicum is a cumulating experience for M.H.Sc. students. Under supervision of an M.H.Sc. faculty adviser, students will develop community-based health promotion and disease prevention interventions with underserved and/or nontraditional populations.

MHS 5403 Directed Studies in Medical Sonography 1 ............... 9
This course will culminate in a paper or poster presentation based on extensive research on a particular topic in diagnostic medical ultrasound/technology. In the first part of the course, the student will select a topic related to the field of diagnostic medical sonography/technology, obtain approval from the program director, and explore the foundation of that topic, including issues and questions.
The online Bachelor of Science in Medical Sonography and Master of Health Science courses are offered via NSU College of Health Care Sciences' state-of-the-art, web-based, distance-learning technologies.

Students in the program are provided with NSU computer accounts including email. Students, however, must obtain their own Internet service providers (ISP) and use their own computer systems (IBM-compatible PC or Apple Macintosh and a modem). New students receive an orientation and extensive online technical support dealing with online access, online tools and methods, and library resources.

Online interactive learning methods involve web pages to access course materials, announcements, the electronic library, and other information, plus a range of online activities that facilitate frequent student-professor interaction. Faculty members and students interact via online forums using threaded bulletin boards, chatrooms, and email. Students are able to submit assignments as email attachments, through the use of online forms sent directly to program instructors, fax-to-fax, fax-to-email, and through Blackboard. Some online courses may include electronic classroom sessions.

Online students have online access to books, journal articles, microfiche, dissertations, index searches, catalog searches, and reference librarians. The online medical database collection at NSU is extensive and includes access to quality subscription services free of charge to the student.

The curricula for the medical sonography program follow a lock-step model. This means that all courses (both online and on-campus) have to be taken and passed in sequence for students to progress in the program. Each term will have a blend of both online and on-campus courses for a full-time curriculum of study. The specific sequence of courses will be announced during orientation for each new entering class and is subject to change, if necessary.

**COMPUTER REQUIREMENTS**

All students are required to have access to a computer (PC or Apple equivalent) with the following minimum specifications:

- AMD or Intel dual-core processor
- Windows XP Pro running Service Pack 2 or better
- 4 GB RAM
- 250 GB Hard-drive
- CD-ROM drive (read-write)
- USB port
- high-speed Internet connection (cable, DSL, etc. 100 Mb/second or better)
- graphics printing capability
- video webcam with microphone capability
ACCREDITATIONS
The Master of Health Science is an established program within Nova Southeastern University’s College of Allied Health and Nursing. This program was officially approved by the NSU board of trustees in 2009.

The General and Vascular courses of studies are both fully accredited through the Commission on Accreditation of Allied Health Education Programs—Joint Review Committee on Education in Diagnostic Medical Sonography (CAAHEP-JRCDMS). Graduates are eligible to apply for the national registry examinations in both General and Vascular technology. 6021 University Boulevard, Suite 500, Ellicott City, MD 21043; Email address: jrcdms@intersocietal.org Primary contacts: Cindy Weiland or Molly Markey; Phone number: 443-973-3251.

Nova Southeastern University is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award associate’s, baccalaureate, master’s, educational specialist, doctorate, and professional degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of Nova Southeastern University.

NONDISCRIMINATION
Consistent with all federal and state laws, rules, regulations, and/or local ordinances (e.g., Title VII, Title VI, Title III, Title II, Rehab Act, ADA, and Title IX), it is the policy of Nova Southeastern University not to engage in any discrimination or harassment against any individuals because of race, color, religion or creed, sex, pregnancy status, national or ethnic origin, non-disqualifying disability, age, ancestry, marital status, sexual orientation, unfavorable discharge from the military, veteran status, or political beliefs or affiliations, and to comply with all federal and state nondiscrimination, equal opportunity, and affirmative action laws, orders, and regulations.

This nondiscrimination policy applies to admissions; enrollment; scholarships; loan programs; athletics; employment; and access to, participation in, and treatment in all university centers, programs, and activities. NSU admits students of any race, color, religion or creed, sex, pregnancy status, national or ethnic origin, nondisqualifying disability, age, ancestry, marital status, sexual orientation, unfavorable discharge from the military, veteran status, or political beliefs or affiliations, to all the rights, privileges, programs, and activities generally accorded or made available to students at NSU, and does not discriminate in the administration of its educational policies, admission policies, scholarship and loan programs, and athletic and other school-administered programs.
Program Contact Information and Student Housing

**PROGRAM CONTACT INFORMATION**

**ONLINE**
- website: www.nova.edu/chcs/healthsciences/sonography/index.html
- Online application: www.nova.edu/sonography/
  Click on “To Apply Online” at the bottom of the page

**PHONE**
- Medical Sonography admissions office:
  (954) 262-1111 or 877-640-0218
- Medical Sonography specialization office:
  (954) 262-1964 or 800-356-0026, ext. 21964

**MAIL**
- Nova Southeastern University
  College of Health Care Sciences
  Bachelor of Science—Medical Sonography
  3200 South University Drive
  Fort Lauderdale, Florida 33328-2018

**STUDENT HOUSING**

Numerous apartments, condominiums, and other rental facilities are located near campus. Limited on-campus housing is also available. Information concerning on- and off-campus housing may be obtained by contacting

Nova Southeastern University
Office of Residential Life and Housing
3301 College Avenue
Fort Lauderdale, Florida 33314-7796

(954) 262-7052
TUITION AND FEES

Tuition for 2015–2016 is $20,500 for the Bachelor of Science—Medical Sonography and $23,375 for the Bachelor of Science in Medical Sonography with the Master of Health Science option. Tuition for 2016–2017 will subsequently be posted on our website (www.nova.edu/chcs/healthsciences/sonography/index.html). In addition, there will be a $200 fee for the Sonography Physics and Instrumentation (SPI) Examination. A Health Professions Division general access fee of $145 is required each year. An NSU student services fee of $1,050 is also required annually. All tuition and fees are subject to change by the board of trustees without notice.

Acceptance Fee—$500. This fee is required to reserve the accepted applicant's place in the entering first-year class, but is not refundable in the event of a withdrawal. It is payable within two weeks of an applicant's acceptance.

Deposit—$250. This is due February 15, under the same terms as the Acceptance Fee.

Preregistration Fee—$250. This is due April 15 under the same terms as the Acceptance Fee.

University Technology Fee. This fee is not to exceed $100 when implemented.

The first semester’s tuition and fees, less the $1,000 previously paid, are due on or before registration day. Tuition for each subsequent semester is due on or before the appropriate registration day. Students will not be admitted until their financial obligations have been met.

Each student is required to carry adequate personal medical and hospital insurance. Students may avail themselves of the hospitalization insurance plan obtainable through the university.

FINANCIAL AID

The primary financial responsibility for a student's education rests with the student and his or her family, but economic circumstances for some may make it necessary for the student to obtain assistance from other sources.

The Office of Student Financial Assistance at Nova Southeastern University is there to help as many qualified students as possible to complete their health professions education. Various loans, scholarships, and grants are available to qualified students to help ease the high cost of a health professions education. These financial assistance programs are described on our website (www.nova.edu/financialaid).

For information on financial assistance, contact

Nova Southeastern University
Office of Student Financial Assistance
3301 College Avenue
Fort Lauderdale, Florida 33314-7796
(954) 262-3380 • 800-806-3680
The city of Fort Lauderdale is situated on the southeast coast of Florida. It is located in the east-central portion of Broward County, Florida, approximately 23 miles north of Miami and 42 miles south of Palm Beach, and is a short drive to the world-famous Florida Keys.

Encompassing more than 33 square miles with a population of nearly 167,000, Fort Lauderdale is the largest of Broward County’s 30 municipalities and the seventh largest city in Florida. Embraced by the Atlantic Ocean, New River, and myriad scenic inland waterways, Fort Lauderdale truly lives up to its designation as the “Venice of America.”

An advantageous economic climate is helping the city of Fort Lauderdale establish itself as a world-class international business center and one of the most desirable locations for new, expanding, or relocating businesses. Once known strictly as a tourism-based economy, Fort Lauderdale now supports a diverse range of industries, including marine, manufacturing, finance, insurance, real estate, high technology, avionics/aerospace, and film and television production.

Fort Lauderdale also offers an outstanding quality of life, highlighted by a semitropical climate; rich, natural beauty; and an array of cultural, entertainment, and educational amenities. Blessed with more than 3,000 hours of sunshine each year and pleasant, year-round ocean breezes, world-famous Fort Lauderdale Beach offers premier opportunities for recreation, relaxation, and enjoyment. The picturesque Riverwalk serves as the cornerstone of the city’s arts, science, cultural, and historic district. This district features the Broward Center for the Performing Arts, Museum of Discovery and Science, NSU Museum of Art Fort Lauderdale, and Old Fort Lauderdale Village and Museum. Las Olas Boulevard has gained international acclaim as Fort Lauderdale’s centerpiece of fashion, fine dining, and entertainment.

A mecca for the avid sportsperson, the area features endless holes of golf; miles of wilderness trails for hiking and biking; unsurpassed snorkeling, diving, and deep-sea fishing; premier thoroughbred horse racing at Gulfstream Park; and Florida Panthers ice hockey at the state-of-the-art BB&T Center. Select your sort of sport year-round. With our more than 300 sports venues from aquatic complexes to sheets of ice, soccer fields, and tennis courts, Greater Fort Lauderdale is ideal for amateur and leisure sports. Year-round tennis venues include the Jimmy Evert Tennis Center in Fort Lauderdale, the Red Clay Court Facility in Coral Springs, and the Palm-Aire Tennis Facility in Pompano Beach. Three world-class Olympic aquatic complexes—the International Swimming Hall of Fame, Plantation Aquatic Complex, and Coral Springs Aquatic Complex—meet the needs for every aquatic sport. Along the Atlantic coastline, Greater Fort Lauderdale hosts numerous fishing tournaments and is home to the International Game Fish Association (IGFA) Fishing Hall of Fame and Museum with its interactive exhibits. Underwater treasures are discovered in award-winning wreck and reef diving.

Through the cooperative efforts of residents, businesses, and local government, Fort Lauderdale has evolved into a city that offers the best of both worlds—an attractive business environment and an outstanding quality of life. Fort Lauderdale is a great place to live, work, and raise a family, and the city looks forward to continuing to build upon its success to meet the challenges of the 21st century and beyond.