

# CARDIOVASCULAR SONOGRAPHY, BS

## About Allied Health Majors

Allied Health professionals are highly skilled and sought after members of the health care team. Distinct from nursing, medicine and pharmacy, the allied health professions provide a range of diagnostic, technical, therapeutic, direct patient care and support services that are critical to other health professionals they work with and the patients they serve. Roosevelt University offers programs with clinical training at Northwestern Memorial Hospital, Chicago (Diagnostic Medical Sonography, Cardiovascular Sonography, Histotechnology, Nuclear Medicine Technology, Radiation Therapy Technology, and Radiography (<https://clinicalschools.nm.org/>)) and one program with clinical training at NorthShore Health Systems, Evanston (Medical Technology (<https://www.northshore.org/academics/academic-programs/other-programs/medical-technology/>)).

These Bachelor of Science degrees involve completing required course work at Roosevelt University, followed by clinical training at the appropriate affiliate site (either Northwestern Hospital or NorthShore Health Systems).

**Admission to the clinical portion of the program is at the discretion of the affiliate site and it is not guaranteed. A separate application to the clinical portion of the program is required.**

- Each of the areas of study has its own required courses and GPA requirements. Students are responsible for being fully aware of each affiliate's specific acceptance requirements for clinical study. These may change within the catalog year. Programs require that all required courses are completed before applying to the clinical affiliate.
- Students in clinical training are registered through Roosevelt University and pay Roosevelt University tuition.
- Students interested in these allied health careers should seek early guidance from an academic advisor and program director.

## About Cardiovascular Sonography

Cardiovascular sonography (CVS) uses high-frequency sound waves (ultrasound) to produce dynamic visual images of the heart, blood vessels, and surrounding tissue. Cardiac sonographers work closely with physicians by providing diagnostic images and a summary of technical findings to aid in reaching a medical diagnosis. This imaging modality may be used on patients from prenatal to geriatric age.

Graduates may work in hospitals, clinics, physician offices, education, medical sales, or as applications specialists. Students interested in allied health careers are encouraged to seek early advising from the Department of Biological, Chemical, and Physical Sciences.

This is a **3 + 1.5 year program** in which the first three years of course work is completed at Roosevelt University with the final year and a half completed at the clinical affiliate site, Northwestern Memorial (NM) Hospital Chicago. The clinical portion is 16-months (68 weeks) and provides students with a comprehensive body of knowledge and a clinical education that includes didactic instruction, laboratory applications, and clinical experience in a variety of abdominal, obstetrical, gynecological, breast, pediatric, and vascular exams and procedures.

Upon successful completion of the clinical program, students are awarded a certificate of program completion for Cardiovascular Sonography from the NM hospital and will be eligible to be certified through examination by the national certifying agency, the American Registry for Diagnostic Medical Sonography. Students will also earn a BS in Cardiovascular Sonography from Roosevelt University.

## Clinical Program Prerequisites and Academic Standards

Admission to the Cardiovascular Sonography (DMS) clinical program is competitive and based on a holistic review of a student's academic performance. In addition to meeting all Roosevelt University degree requirements, students must satisfy both institutional and clinical affiliate academic standards.

At Roosevelt University, a grade of C- is the minimum acceptable grade for a course to apply toward the major or to be used as a prerequisite for subsequent coursework. The clinical affiliate applies additional academic criteria when reviewing applicants. Specifically, a minimum grade of C (C- not accepted) and a minimum GPA of 2.5\* are required in the key clinical prerequisite courses listed below. These courses represent the primary prerequisites reviewed by the clinical affiliate as part of the clinical placement selection process. They are in addition to other required coursework, and the clinical affiliate conducts its own GPA and academic review when making final clinical placement decisions.

### Key clinical prerequisite courses reviewed by the clinical affiliate:

- Human Anatomy & Physiology I with Lab
- Human Anatomy & Physiology II with Lab
- College Algebra or higher
- General Physics I
- Written Communication
- Medical Terminology

### Meeting the minimum academic requirements does not guarantee placement in the clinical program.

Roosevelt University requires a minimum cumulative GPA of 2.0 or higher for graduation at the undergraduate level. Note that some majors have additional GPA requirements.

All applicants whose native language is not English must submit official TOEFL test scores ([https://clinicalschools.nm.org/uploads/1/1/2/0/112045435/nm\\_clinical\\_schools\\_toefl\\_policy\\_rev\\_9.21.21.pdf](https://clinicalschools.nm.org/uploads/1/1/2/0/112045435/nm_clinical_schools_toefl_policy_rev_9.21.21.pdf)) by the application deadline to Northwestern Memorial Hospital. Clinical course enrollment is subject to the satisfactory completion of pre-clinical course work and admission to the clinical program. Please consult the Northwestern Medicine Clinical Schools website (<https://clinicalschools.nm.org/>) for specific information in regards to application and admission.

\* The minimum GPA requirement is subject to change. Check Northwestern Medicine Clinical Schools website (<https://clinicalschools.nm.org/>) for most accurate information.

## Requirements

Cardiovascular Sonography students complete a minimum of 73 credit hours of academic work, including the College of Science, Health and Pharmacy general education requirements, in addition to the Cardiovascular Sonography core courses outlined below. They complete

their last 47 credit hours in an 16-month, full-time, daytime clinical training program at Northwestern Memorial Hospital\*.

## Standards

- AP biology credit with a score of 3.0 or higher may apply toward the major in biology or the general education requirements after consultation with an advisor.
- AP chemistry with a score of 4 or higher satisfies the requirements for CHEM 201 GENERAL CHEMISTRY I with lab.
- AP Physics I or Physics C: Mechanics with a score of 3.0 satisfies the requirement for PHYS 201 PHYSICS I with lab.
- AP Physics II or Physics C: Electricity and Magnetism with a score of 3.0 satisfies the requirement for PHYS 202 PHYSICS II with lab.

In addition, students must:

- Students must take a minimum of their last 30 credit hours at Roosevelt University or complete a minimum of 60 hours in-residence at Roosevelt University excluding the number hours in the exception request; off-site clinical courses count toward this requirement.
- Take at least 20 credit hours in acceptable Biology, Chemistry, or Physics courses at Roosevelt University; minimum 15 credit hours of Biology courses must be completed at Roosevelt University.
- Transfer students need to meet with an academic advisors to ensure eligibility for the program.
- Transfer students need to complete a minimum of 2 semesters of full-time studies at Roosevelt University to be eligible for affiliate benefits.
- Once enrolled in the program, complete all remaining Biology, Chemistry, Physics, and Mathematics course requirements for this BS degree at Roosevelt University. Under special circumstances, written permission to take required courses elsewhere may be granted by the program director.
- Apply only courses in biology taken within the past eight years toward graduation.
- Limit to 4 credit hours the total of independent study hours (BIOL 395 INDEPENDENT STUDY/BCHM 395 INDEPENDENT STUDY/CHEM 395 INDEPENDENT STUDY) and independent research (BIOL 392 RESEARCH IN BIOLOGY/BCHM 392 RESEARCH IN BIOCHEMISTRY/CHEM 392 RESEARCH IN CHEMISTRY) used to fulfill the requirements of the major.

\* Acceptance into the clinical training is not guaranteed and is at the discretion of the clinical site.

Code	Title	Credit Hours
<b>MAJOR</b>		
ALH 118	CAREERS IN HEALTH SCIENCES	1
ALH 119	INTRODUCTION TO MEDICAL TERMINOLOGY	3
BIOL 123	ANATOMY & PHYSIOLOGY I	1,3
BIOL 124	ANATOMY & PHYSIOLOGY II	1,3
BIOL 202	ECOLOGY, EVOLUTION, AND GENETICS	2,3
BIOL 301	CELLULAR & MOLECULAR BIOLOGY	2,3
CHEM 201	GENERAL CHEMISTRY I	2,3
CHEM 202	GENERAL CHEMISTRY II	2,3
CHEM 211	ORGANIC CHEMISTRY I	2,3
MATH 121	COLLEGE ALGEBRA	3

MATH 122	TRIGONOMETRY AND PRECALCULUS	3
MATH 217	ELEMENTARY STATISTICS	3
PHYS 201	PHYSICS I	2,3

### Clinical Courses for Cardiovascular Sonography

ALH 300A	INTRODUCTION TO SONOGRAPHY & PATIENT CARE	2
ALH 310A	SONOGRAPHY PRINCIPLES & INSTRUMENTATION I	2
ALH 311A	SONOGRAPHY PRINCIPLES AND INSTRUMENTATION II	2
ALH 312A	SONOGRAPHY PRINCIPLES & INSTRUMENTATION III	1
ALH 340A	ECHOCARDIOGRAPHY I	4
ALH 341A	ECHOCARDIOGRAPHY I LAB	1
ALH 342A	ECHOCARDIOGRAPHY II	3
ALH 343A	ECHOCARDIOGRAPHY II LABORATORY	1
ALH 344A	CARDIAC & VASCULAR HEMODYNAMIC	2
ALH 345A	ECG IN RADIOLOGIC & IMAGING SCIENCES	2
ALH 350A	VASCULAR SONOGRAPHY I	2
ALH 351A	VASCULAR SONOGRAPHY I LAB	1
ALH 352A	VASCULAR SONOGRAPHY II	2
ALH 353A	VASCULAR SONOGRAPHY II LAB	2
ALH 381A	CARDIOVASCULAR SONOGRAPHY SEMINAR	2
ALH 382A	PROFESSIONAL RESEARCH	2
ALH 394A	CLINICAL EDUCATION I	3
ALH 395A	CLINICAL EDUCATION II	3
ALH 396A	CLINICAL EDUCATION III	3
ALH 397A	CLINICAL EDUCATION IV	4
<b>General Education, University Writing Requirement, and Electives</b>		<b>26-34</b>
<b>Major requirements</b>		<b>51</b>
<b>Clinical requirements</b>		<b>46</b>
<b>Total Credits for Degree</b>		<b>126-132</b>

## CORE Requirements (General Education)

Code	Title	Credit Hours
<b>First Year Success Course or Transfer Success Course</b>		
FYS 101 or TRS 101	FIRST YEAR SUCCESS COURSE TRANSFER SUCCESS 101	1
<b>Communication Requirement</b>		
ENG 101	COMPOSITION I: CRITICAL READING & WRITING	3
ENG 102	COMPOSITION II: INTRODUCTION TO ACADEMIC RESEARCH	3
COMM 101	PUBLIC SPEAKING (or program specific CORE communications course)	3
<b>Ideas of Social Justice</b>		
3 credits in coursework categorized as Ideas.		3
<b>Humanities and Fine and Performing Arts</b> <sup>2,3</sup>		

9 credits from the following subject areas: African-American Studies, Art History, English (excluding ENG 101 and ENG 102), History, Languages, Music, Philosophy, Theatre, Communication and Women's and Gender Studies 9

#### Mathematics

MATH 110 QUANTITATIVE LITERACY (or above)<sup>1</sup> 3

#### Science

One biological science and one physical science required (one must include a one credit lab). 7-8

#### Social Sciences<sup>2,3,4</sup>

9 credits from the following subject areas: African-American Studies, Criminal Justice, Economics, History, Journalism, Philosophy, Political Science, Psychology, Sociology and Women's and Gender Studies 9

#### Experiential Learning

6 credits from coursework categorized as Experiential Learning. 6

**Total Credit Hours 47-48**

<sup>1</sup> Higher level of Math may be required by major

<sup>2</sup> Coursework must come from outside of students' major discipline

<sup>3</sup> A maximum of 9 credits can be applied from a single discipline towards humanities and social science requirements

<sup>4</sup> Digital Advertising and Public Relations Majors must complete COMM 110 with a grade of C or higher. This course can fulfill one Social Science requirement.

These quantitative requirements also apply to degrees.

- Students must earn a minimum of 120 semester hours.
- Students may apply no more than 60 credit hours of 100-level courses toward the degree.
- Students must apply no fewer than 60 credit hours of 200- and 300-level courses toward the degree.
- Students must have at least 18 credit hours (of the 60 credit hours above) at the 300 level.
- Students may transfer in no more than 70 credit hours from community colleges.
- Students earning less than 60 total hours in residence must take their final 30 hours at Roosevelt University. Note that some majors have additional requirements for RU hours.
- Students must have a grade point average of 2.0 or higher to graduate. Note that some majors have additional GPA requirements.
- Students may apply no more than 51 hours in the major (BA) or 57 hours in the major (BS)

Your degree map is a general guide suggesting courses to complete each term on the academic pathway to your degree. It is based on the most current scheduling information from your academic program. Your program's degree map is reviewed annually and updated as schedules change (although you retain the same course requirements as long as you are continuously enrolled in your degree program).

Always work closely with your academic advisor to understand curriculum requirements and scheduling, as each student's academic plan can look slightly different.

Clinical courses (year 4+) are for students that get accepted to the Northwestern Memorial Hospital clinical school.

#### Year 1

Fall	Credit Hours	Spring	Credit Hours
FYS 101	1	ENG 102	3
ENG 101	3	ALH 119	3
MATH 121	3	MATH 122	3
BIOL 123	4	BIOL 124	4
ALH 118**	1		
<b>12</b>		<b>13</b>	

#### Year 2

Fall	Credit Hours	Spring	Credit Hours
CHEM 201	5	CHEM 202	5
COMM 101	3	MATH 217	3
Humanities #1	3	Humanities #2	3
Social Science #1	3	Humanities #3	3
<b>14</b>		<b>14</b>	

#### Year 3

Fall	Credit Hours	Spring	Credit Hours
BIOL 202	5	BIOL 301 (Experiential Learning #1) <sup>1</sup>	5
CHEM 211	5	Social Science #2	3
PHYS 201	5	Social Science #3	3
		Ideas for Social Justice	3
<b>15</b>		<b>14</b>	

#### Year 4

Fall	Credit Hours	Spring	Credit Hours
ALH 300A	2	ALH 311A	2
ALH 310A	2	ALH 312A	1
ALH 340A	4	ALH 342A	3
ALH 341A	1	ALH 343A	1
ALH 394A	3	ALH 344A	2
		ALH 345A	2
		ALH 350A	2
		ALH 395A	3
<b>12</b>		<b>16</b>	

#### Professional Year 1 Courses

Fall	Credit Hours
ALH 351A	1
ALH 396A	3
ALH 352A	2
ALH 353A	2
ALH 381A	2
ALH 382A	2
ALH 397A	4
<b>16</b>	

#### Total Credit Hours 126

<sup>1</sup> Experiential Learning class must be 200/300 level and satisfies CORE requirement.

\* Must be accepted to clinical school for clinical training courses. Not guaranteed.

\*\* Complete within the 1st semester of joining the program.