

BACHELOR OF SCIENCE IN

DIAGNOSTIC MEDICAL SONOGRAPHY

OVERVIEW

Sonography, or ultrasonography, is the use of sound waves to generate an image for the assessment and diagnosis of various medical conditions. Diagnostic medical sonographers, also known as ultrasonographers, use special equipment to direct nonionizing, high frequency sound waves into areas of the patient's body. Sonographers operate the equipment, which collects reflected echoes and forms an image that may be videotaped, transmitted, or photographed for interpretation and diagnosis by a physician.

The Bachelor of Science program in Diagnostic Medical Sonography offers a course of study that will prepare students for careers as Diagnostic Medical Sonographers (DMS). DMS combines biology, chemistry, physics, mathematics, computer technology, and medicine in ultrasound as a diagnostic tool. Students may elect to enter the program for the B.S. in Diagnostic Medical Sonography in which the first three years of classes would be at Lewis University with the remaining classes at Northwestern Memorial Hospital. Other options are for students to complete the normal four-year B.S. in Biology and then apply for admission to Northwestern Memorial Hospital for a certificate program in Diagnostic Medical Sonography or to double major in Biology and Diagnostic Medical Sonography.

CONTACT

Dr. Valerie Vander Vliet
Lewis University
Unit 250
One University Parkway
Romeoville, Illinois 60446
(815) 836-5215
vanderva@lewisu.edu

UNIQUE FEATURES

With this affiliation with Northwestern Memorial Hospital School of Diagnostic Medical Sonography, students may obtain either a B.S. in DMS or a B.S. in Biology with a certificate in DMS. The B.S. in DMS would require students to complete the prerequisites for the program as well as their general education requirements within their first three years at Lewis. The last three semesters (as well as summer sessions) would be spent at Northwestern Memorial Hospital completing the coursework and clinical rotations required for their program. The B.S. in Biology with a certificate in DMS would require the students to complete the normal B.S. in Biology and then complete the coursework and clinical rotations for the certificate in DMS. Students may also double major in both Biology and DMS.

Northwestern Memorial Hospital is contracting with seven Chicagoland colleges and universities. The beginning classes will eventually enroll 10 students each August. Students need to apply for this program at the beginning of the second semester of their junior year or, if they are opting for the certificate program, the second semester of their senior year. Completion of the prerequisites does not guarantee admission into the program. Decisions concerning admission are solely determined by the admission committee of Northwestern Memorial Hospital.

CAREER OPPORTUNITIES

- Employment of diagnostic medical sonographers is expected to grow faster than the average for all occupations through 2012. As the population grows and ages, the demand for diagnostic imaging and therapeutic technology will increase.
- Sonographers are employed by hospitals, offices of physicians or in medical and diagnostic laboratories, and diagnostic imaging centers.
- Median annual earnings of diagnostic medical sonographers were \$48,660 in 2002.
- Sonographers should experience favorable job opportunities, as Sonography becomes an increasingly attractive alternative to radiologic procedures. The U.S. Department of Labor projects that jobs in the healthcare field will grow to 21-35 percent by 2012.

ADDITIONAL WEB SITES FOR FURTHER INFORMATION:

Society of Diagnostic Medical Sonography
<http://www.sdms.org/>

USA Database of Healthcare Jobs
<http://www.healthjobsusa.com/>

Science and Medical Jobs
<http://www.newscientistjobs.com/>

Science and Health Jobs
<http://www.naturejobs.nature.com/js.php>

Medical Jobs
<http://jobs.caportal.com/>

Specialized Healthcare Service
<http://www.jobscience.com/>

Diagnostic Medical Sonography Glossary
<http://www.sdms.org/glossary/default.asp>

BACHELOR OF SCIENCE/ DIAGNOSTIC MEDICAL SONOGRAPHY

Total Credit Hours: 151

Major Credit Hours: 108

A grade of C or better must be earned in a prerequisite course in order to advance to the next course in the sequence.

Diagnostic Medical Sonography majors may take a Biology class only two times. If a student has not achieved a minimum of a C after the second attempt, the student may not repeat the class.

The Biology Department will award 3 hours of credit for our general education class 02-100 (Introduction to Biology) when students have received a score of 4 or 5 on AP tests. We do not award any credit for major classes based on AP scores.

I. Core Courses

- 02-110 General Biology I (4)
- 02-111 General Biology I Lab (1)
- 02-115 General Biology II (4)
- 02-116 General Biology II Lab (1)
- 02-220 Genetics (4)
- 02-221 Genetics Lab (1)
- 02-224 Microbiology (4)
- 02-226 Microbiology Lab (1)
- 02-381 Physiology Journal Club
- 02-335 Advanced Anatomy and Physiology (3)
- 02-336 Case Studies Lab (1)
- 02-494 Research Methods in Allied Health (2)
- 03-110 General Chemistry I (4)
- 03-111 General Chemistry I Lab (1)
- 03-115 General Chemistry II (4)
- 03-116 General Chemistry II Lab (1)
- 03-220 Organic Chemistry I (4)
- 03-221 Organic Chemistry I Lab (1)
- 03-225 Organic Chemistry II (4)
- 03-226 Organic Chemistry II Lab (1)
- 13-200 Calculus I (4)
- 17-200 College Physics (4)
- 17-201 College Physics Lab (1)

II. Courses at Northwestern Memorial Hospital

- 02-330 Management and Methods of Patient Care for Sonography (1)
- 02-332 Fundamentals of Sonography (3)
- 02-338 Medical Terminology (2)
- 02-341 Sectional Imaging Anatomy for Sonographers (2)
- 02-343 Principles in Ultrasound Physics I (3)
- 02-345 Abdominal Sonography and Lab (4)
- 02-347 OB-GYN Sonography w/ Embryology (3)
- 02-349 Clinical Education I (2)
- 02-351 Clinical Education II (3)
- 02-359 Cellular Pathophysiology (2)
- 02-438 Ultrasound Image Critique (1)
- 02-439 OB-GYN Pathology (4)
- 02-441 Abdominal Pathology (3)
- 02-443 Principles in Ultrasound Physics II (2)
- 02-444 Clinical Education III (3)
- 02-445 Introduction to Pediatrics and Vascular Imaging (1)
- 02-451 Specialty Sonography (2)
- 02-453 Clinical Education IV (4)
- 02-455 Registry Review (2)

III. The advanced writing requirement of the General Education curriculum is satisfied by successful completion of the following courses: General Biology Labs I and II, Microbiology Lab, and Research Methods.

SAMPLE PROGRAM

FRESHMAN YEAR

First Semester (18 hours)

General Biology I (4) and Lab (1)
General Chemistry I (4) and Lab (1)
Calculus I (4)
Gen Ed (3)
Introduction to College Experience (1)

Second Semester (16 hours)

General Chemistry II (4) and Lab (1)
General Biology II (4) and Lab (1)
Gen Ed (3)
Gen Ed (3)

Summer Session (6 hours)

Gen Ed (3)
Gen Ed (3)

SOPHOMORE YEAR

First Semester (16 hours)

Genetics (4) and Lab (1)
Organic Chemistry I (4) and Lab (1)
Gen Ed (3)
Gen Ed (3)

Second Semester (16 hours)

Microbiology (4) and Lab (1)
Organic Chemistry II (4) and Lab (1)
Gen Ed (3)
Gen Ed (3)

JUNIOR YEAR

First Semester (16 hours)

Biochemistry I (3) and Lab (1)
Journal Club (1)
Physics (4) and Lab (1)
Gen Ed (3)
Gen Ed (3)

Second Semester (18 hours)

Advanced Human Anatomy and Physiology (3)
Case Studies (1)
Gen Ed (3)
Gen Ed (3)
Gen Ed (3)
Gen Ed (3)
Research Methods in Allied Health (2)

Summer Session (At Northwestern Memorial Hospital)

Fundamentals of Sonography (3)

SENIOR YEAR

(At Northwestern Memorial Hospital)

First Semester (14 hours)

Management and Methods Patient Care for Sonography (1)
Cellular Pathophysiology (2)
Abdominal Sonography and Lab (4)
Sectional Imaging Anatomy (2)
OB-GYN Sonography with Embryology (3)
Clinical Education I (2)
Clinical Education II (3)
Second Semester (15)
Medical Terminology (2)
Principles in Ultrasound Physics I (3)
OB-GYN Pathology (4)
Abdominal Pathology (3)
Clinical Education II (3)

5TH YEAR

First Semester (15 hours)

Principles in Ultrasound Physics II (2)
Ultrasound Image Critique (1)
Clinical Education III (3)
Introduction to Pediatrics and Vascular Imaging (1)
Specialty Sonography (2)
Clinical Education IV (4)
Registry Review (2)