

# BIOMEDICAL SCIENCES, BS: DIAGNOSTIC MEDICAL SONOGRAPHY

Students in the Biomedical Sciences major are awarded a Bachelor of Science degree upon completion of all requirements. Students choose from one of the following seven areas or submajors:

- Medical Laboratory Science
- Biomedical Science
- Cytotechnology
- Radiologic Technology
- Diagnostic Medical Sonography
- Diagnostic Imaging (degree completion program)
- Health Science (degree completion program)
- Public Health Microbiology

All students will be required to comply with a background check, drug screen, and maintain health insurance during the professional training experience.

## Diagnostic Medical Sonography

By using high-frequency sound waves or ultrasound, sonographers produce images of soft tissue and blood flow to assist with the diagnostic process or administration of therapeutic application. Sonography is used to examine the abdomen, breast tissue, female reproductive system, urinary system, heart, and blood vessels. In addition, sound waves are used to guide fine-needle biopsy. Diagnostic Medical Sonography students complete the first two years of prerequisite courses on campus before applying for placement into the professional education portion of the curriculum. Once accepted into the professional education component of the program, students will take didactic and clinical education courses concurrently. Upon successful completion of the Bachelor of Science degree, students are eligible to write the national board exams offered through the American Registry for Diagnostic Medical Sonography ([www.ardms.org](http://www.ardms.org) (<http://www.ardms.org/>)). The Diagnostic Medical Sonography professional education program is accredited by the Commission on Accreditation of Allied Health Education Programs ([www.caahep.org](http://www.caahep.org) (<http://www.caahep.org/>)) upon recommendation of the Joint Review Committee on Education in Diagnostic Medical Sonography.

Commission on Accreditation of Allied Health Education Programs  
(CAAHEP)  
25400 U.S. Highway 19 North, Suite 158  
Clearwater, FL 33763  
(727) 210-2354

## Requirements

Students pursuing Diagnostic Medical Sonography complete their freshman and sophomore years on campus. Upon advancement to the major, students complete the professional training curriculum (junior and senior years) at one of three external clinical affiliate sites: Froedtert Hospital (Milwaukee), Advocate Aurora St. Luke's (Milwaukee), or UW Hospital and Clinics (Madison, WI). Two educational options are available: General/Vascular Sonography or Echocardiography/Vascular Sonography. Students are responsible for any relocation and all living expenses during clinical training. Requirements for entry into

the professional programs may vary by site; students should contact the Academic Advisor for this program, Bill Mueller, for the most current site/program requirements. Mr. Mueller may be reached via e-mail at [muellew@uwm.edu](mailto:muellew@uwm.edu).

The minimum degree requirement is 120 credits, including the following. Entry into the professional major is competitive, with the minimum requirements listed below. Completion of the minimum requirements does not guarantee admission.

1. Completion of UWM's General Education Requirements (GER) (<https://catalog.uwm.edu/policies/undergraduate-policies/#bachelorsdegreegeneraleducation>).
2. A cumulative UWM minimum grade point average of 2.5.
3. Completion of all required courses and electives (56 credits) in the preclinical semesters with a cumulative GPA of 3.0; a maximum of 4 courses may be repeated once.
4. Successful completion of the professional education application process to include an on-site interview with the external sonography programs.
5. Successful completion of a background check, health physical, drug screen, and maintenance of health insurance and CPR certification for the duration of the professional curriculum.
6. Students are required to earn a grade of C or better in the following:

Code	Title	Credits
DMI 300	Diagnostic Medical Imaging Fundamentals	2
BIO SCI 202	Anatomy and Physiology I	4
CHEM 100	Chemical Science	4
BIO SCI 203	Anatomy and Physiology II	4
BMS 301	Human Pathophysiology: Fundamentals	1
BMS 302	Human Pathophysiology: Organ Systems I	1
BMS 303	Human Pathophysiology: Organ Systems II	1
BMS 304	Human Pathophysiology: Organ Systems III	1
BMS 305	Human Pathophysiology: Organ Systems IV	1

7. Complete a minimum of eight hours shadowing a sonographer: four hours of cardiac sonography and four hours in general sonography with a Registered Diagnostic Medical Sonography professional prior to applying for placement into the professional education component.
8. Completion of a CNA (Certified Nursing Assistant) course is required for the clinical application and placement. View a list of WI nurse aide training programs at [www.dhs.wisconsin.gov/caregiver/](http://www.dhs.wisconsin.gov/caregiver/) (<http://www.dhs.wisconsin.gov/caregiver/>).

Admission into the professional training curriculum is highly competitive and final admission decisions rest with the program directors. Admission is not guaranteed. To remain eligible to continue in the professional training curriculum, students must adhere to all program policies and procedures.

Code	Title	Credits
<b>Preclinical Requirements</b>		
<i>General Education Requirements</i>		

Oral and Written Communication (OWC) Competency Part A & B		
Quantitative Literacy (QL) Competency Part A and B		
Foreign Language Competency		
Arts		3
Humanities		
Natural Sciences	<sup>1</sup>	
Social Sciences	<sup>1</sup>	
Cultural Diversity	<sup>1</sup>	
<i>Major Requirements</i>		
HS 222	Language of Medicine	3
HS 224	Computational Tools for Healthcare Professionals	3
CHEM 100	Chemical Science	4
BIO SCI 202	Anatomy and Physiology I	4
BIO SCI 203	Anatomy and Physiology II	4
BIO SCI 150	Foundations of Biological Sciences I	4
DMI 300	Diagnostic Medical Imaging Fundamentals	2
BMS 205	Introduction to Diagnostic Medicine	3
CHPS 245	Client Diversity in Health Sciences: An Interdisciplinary Perspective (SS/CD)	3
BMS 301	Human Pathophysiology: Fundamentals	1
BMS 302	Human Pathophysiology: Organ Systems I	1
BMS 303	Human Pathophysiology: Organ Systems II	1
BMS 304	Human Pathophysiology: Organ Systems III	1
BMS 305	Human Pathophysiology: Organ Systems IV	1
COMMUN 103	Public Speaking (HU)	3
COMSDIS 250	Interprofessional Communication in the Health Sciences (SS)	3
DMI 101	Introduction to Medical Imaging	1
KIN 270	Statistics in the Health Professions: Theory and Practice	3
ENGLISH 207	Health Science Writing	3
PHILOS 244	Ethical Issues in Health Care: (HU)	3
<b>Professional &amp; Clinical Training</b> <sup>2</sup>		
DMI 311	Abdominal Sonography-I	3
DMI 312	Abdominal Sonography-II	3
DMI 313	Sonography Clinical Education I	3
DMI 319	Abdominal Sonography III	3
DMI 320	Obstetrics/Gynecology Sonography I	3
DMI 321	Obstetrics/Gynecology Sonography II	3
DMI 322	Obstetrics/Gynecology Sonography III	3
DMI 323	Sonographic Principles and Instrumentation	3
DMI 324	Sonography Clinical Education II	3
DMI 325	Specialized Sonography	3
DMI 326	Sonography Clinical Education III	3
DMI 327	Foundations of Sonography I	2
DMI 328	Foundations of Sonography II	1
DMI 402	Introduction to MSK Sonography	3

DMI 450	Vascular Sonography I	3
DMI 451	Vascular Sonography II	3
DMI 452	Sonography Clinical Education IV	3
DMI 453	Seminar in OB/GYN Sonography	3
DMI 454	Embryology of the Heart	3
DMI 455	Vascular Sonography III	3
DMI 457	Sonography Clinical Education V	4
DMI 458	Seminar in Advanced Medical Imaging	3
DMI 460	Professional Development in Sonography - Seminar	3
DMI 461	Sonography Clinical Education VI	3
DMI 463	Seminar in Education and Management in Medical Imaging	3
DMI 464	Introduction to Pediatric Sonography/ Neurosonography	3
<b>Total Credits</b>		<b>130</b>

<sup>1</sup> Credit may be utilized in required curriculum areas.

<sup>2</sup> Example of the general/vascular curriculum provided. Curriculum course list and sequence given to student upon advancement to major.

## Pre-Professional Training Requirements

Year 1		
Spring		Credits
BIO SCI 203	Anatomy and Physiology II *	4
HS 222	Language of Medicine	3
KIN 270	Statistics in the Health Professions: Theory and Practice (QLB)	3
PHILOS 244	Ethical Issues in Health Care: (HU)	3
<b>Credits</b>		<b>13</b>
Fall		
BIO SCI 202	Anatomy and Physiology I *	4
BMS 205	Introduction to Diagnostic Medicine	3
COMMUN 103	Public Speaking (HU)	3
CHEM 100	Chemical Science *	4
DMI 101	Introduction to Medical Imaging	1
<b>Credits</b>		<b>15</b>
Year 2		
Spring		Credits
CHPS 245	Client Diversity in Health Sciences: An Interdisciplinary Perspective (SS/CD)	3
BMS 304	Human Pathophysiology: Organ Systems III *	1
BMS 305	Human Pathophysiology: Organ Systems IV *	1
HS 224	Computational Tools for Healthcare Professionals	3
ENGLISH 207	Health Science Writing (OWCB)	3
GER Elective (Arts)		3
<b>Credits</b>		<b>14</b>
Fall		
BIO SCI 150	Foundations of Biological Sciences I	4
BMS 301	Human Pathophysiology: Fundamentals *	1
BMS 302	Human Pathophysiology: Organ Systems I *	1
BMS 303	Human Pathophysiology: Organ Systems II *	1
COMSDIS 250	Interprofessional Communication in the Health Sciences (SS)	3
DMI 300	Diagnostic Medical Imaging Fundamentals *	2
<b>Credits</b>		<b>12</b>
<b>Total Credits</b>		<b>54</b>

\* Requires grade of C or better.

## Professional Training Curriculum Course List: General/Vascular

(Curriculum course list and sequence provided to student upon advancement to major.)

Code	Title	Credits
DMI 311	Abdominal Sonography-I	3
DMI 312	Abdominal Sonography-II	3
DMI 313	Sonography Clinical Education I	3
DMI 319	Abdominal Sonography III	3
DMI 320	Obstetrics/Gynecology Sonography I	3
DMI 321	Obstetrics/Gynecology Sonography II	3
DMI 322	Obstetrics/Gynecology Sonography III	3
DMI 323	Sonographic Principles and Instrumentation	3
DMI 324	Sonography Clinical Education II	3
DMI 325	Specialized Sonography	3
DMI 326	Sonography Clinical Education III	3
DMI 327	Foundations of Sonography I	2
DMI 328	Foundations of Sonography II	1
DMI 402	Introduction to MSK Sonography	3
DMI 450	Vascular Sonography I	3
DMI 451	Vascular Sonography II	3
DMI 452	Sonography Clinical Education IV	3
DMI 453	Seminar in OB/GYN Sonography	3
DMI 454	Embryology of the Heart	3
DMI 455	Vascular Sonography III	3
DMI 457	Sonography Clinical Education V	4
DMI 458	Seminar in Advanced Medical Imaging	3
DMI 460	Professional Development in Sonography - Seminar	3
DMI 461	Sonography Clinical Education VI	3
DMI 463	Seminar in Education and Management in Medical Imaging	3
DMI 464	Introduction to Pediatric Sonography/ Neurosonography	3
<b>Total Credits</b>		<b>76</b>

## Professional Training Curriculum Course List: Echocardiography/Vascular

(Curriculum course list and sequence provided to student upon advancement to major.)

Code	Title	Credits
DMI 310	Introduction to Sonography	3
DMI 323	Sonographic Principles and Instrumentation	3
DMI 336	Cardiovascular Principles I	3
DMI 337	Clinical Education I - Echocardiography	3

DMI 340	Embryology of the Cardiovascular System	2
DMI 341	Adult Echocardiography - Valvular Pathology	3
DMI 342	Clinical Education II - Echocardiography	3
DMI 345	Pediatric Echocardiography I	3
DMI 346	Adult Echocardiography II - Cardiomyopathies	3
DMI 347	Clinical Education III - Echocardiography	3
DMI 435	Adult Echocardiography - Advanced Pathology	3
DMI 436	Pediatric Echocardiography II	3
DMI 437	Stress Echocardiography	3
DMI 438	Clinical Education IV - Echocardiography	3
DMI 439	Clinical Education V - Echocardiography	3
DMI 440	Clinical Education VI - Echocardiography	3
DMI 441	Special Procedures in Echocardiography	3
DMI 450	Vascular Sonography I	3
DMI 451	Vascular Sonography II	3
DMI 454	Embryology of the Heart	3
DMI 455	Vascular Sonography III	3
DMI 458	Seminar in Advanced Medical Imaging	3
DMI 460	Professional Development in Sonography - Seminar	3
DMI 463	Seminar in Education and Management in Medical Imaging	3

**Total Credits** 71

## Biomedical Sciences BS: Diagnostic Medical Sonography Learning Outcomes

Students graduating from the BS program in Diagnostic Medical Sonography will be able to perform the following:

- Obtains, reviews, and integrates pertinent patient history and supporting clinical data to facilitate optimum diagnostic results.
- Performs appropriate procedures and records anatomic, pathologic, and/or physiologic data for interpretation by a physician.
- Records, analyzes, and processes diagnostic data and other pertinent observations made during the procedure for presentation to the interpreting physician.
- Exercises discretion and judgment in the performance of sonographic and/or related diagnostic services.
- Demonstrates appropriate communication skills with patients and colleagues.
- Acts in a professional and ethical manner.
- Facilitates communication and education to elicit patient cooperation and understanding of expectations and responds to questions regarding the sonographic examination.

## Honors in the Major

Honors in the major are granted to students who earn a GPA of 3.500 or above on a minimum of 30 completed credits at UWM.

## College of Health Professions and Sciences Dean's Honor List

GPA of 3.500 or above, earned on a full-time student's GPA on 12 or more graded credits in a given semester.

## Honors College Degree and Honors College Degree with Distinction

Granted to graduating seniors who complete Honors College requirements, as listed in the Honors College (<https://catalog.uwm.edu/honors-college/>) section of this site.

## Commencement Honors

Students with a cumulative GPA of 3.500 or above, based on a minimum of 40 graded UWM credits earned prior to the final semester, will receive all-university commencement honors and be awarded the traditional gold cord at the December or May Honors Convocation. Please note that for honors calculation, the GPA is **not** rounded and is truncated at the third decimal (e.g., 3.499).

## Final Honors

Earned on a minimum of 60 graded UWM credits: Cum Laude - 3.500 or above; Magna Cum Laude - 3.650 or above; Summa Cum Laude - 3.800 or above.