

BACHELOR OF SCIENCE IN DIAGNOSTIC MEDICAL SONOGRAPHY

Program Contact: Marisa Testa
(Marisa.Testa@quinnipiac.edu) 203-582-8264

Diagnostic medical sonographers play a critical role in the healthcare team. The sonographer provides patient services using high-frequency sound waves that produce images of internal structures. Working under the supervision of a physician responsible for the use and interpretation of ultrasound procedures, the sonographer helps gather sonographic data to diagnose a variety of conditions and diseases, as well as monitor fetal development.

To prepare students for careers in sonography and certification examinations in the subspecialty areas, Quinnipiac offers a BS in Diagnostic Medical Sonography. The Diagnostic Medical Sonography program offers didactic, laboratory and clinical training in multiple subspecialties of sonography including abdominal and small parts, breast, vascular technology, OB/GYN and musculoskeletal imaging for the student who is motivated to become a multi-credentialed member of this profession.

The first two years of the bachelor's degree program consists of University Curriculum studies in addition to an introductory course into the field of diagnostic medical sonography. The professional component of the program begins in the third year of study. Each student spends two full years concentrating on didactic sonography classes, laboratory sessions on campus and clinical education at multiple clinical education centers. The curriculum is structured so students can apply the knowledge and skills developed in the classroom and laboratory to the care of patients in the clinical setting. Throughout the professional component of the program, didactic and clinical courses are taken simultaneously to provide the opportunity for immediate application and reinforcement.

Upon completion of their Bachelor of Science in Diagnostic Medical Sonography, students are eligible to apply for the American Registry of Diagnostic Medical Sonography certification. Graduates may take the Sonography Physics and Instrumentation examination in addition to the following ARDMS specialty examinations: abdomen and small parts, breast, vascular technology and obstetrics/gynecology.

Diagnostic Medical Sonography Curriculum

The curriculum for the professional courses in the program is subject to modification as deemed necessary to maintain a high-quality educational experience and keep current with best practices in the profession. The Academic Standing and Progression Committee recommendations regarding student progression, discipline or dismissal will be considered on a case-by-case basis.

Course	Title	Credits
First Year		
Fall Semester		
EN 101	Introduction to Academic Reading and Writing 1	3

FYS 101	First-Year Seminar	3
MA 275	Biostatistics ¹	3
DMS 100	Foundations of Diagnostic Imaging	1
PHY 101 & 101L	Elements of Physics and Elements of Physics Lab (UC Elective) ²	4

Credits 14

Spring Semester		
EN 102	Academic Writing and Research	3
UC Elective		3
HSC 202	Medical Terminology	2
UC Elective		3
BIO 103	Concepts in Human Biology ³	3

Credits 14

Second Year		
Fall Semester		
BIO 211 & 211L	Human Anatomy and Physiology I and Human Anatomy and Physiology Lab I	4
UC Elective		3
UC Elective		3
UC Elective		3
UC Elective		3

Credits 16

Spring Semester		
BIO 212 & 212L	Human Anatomy and Physiology II and Human Anatomy and Physiology II Lab	4
DMS 101 & 101L	Introduction to Diagnostic Medical Sonography and Sonography Laboratory Practicum I (UC Elective)	4
UC Elective		3
UC Elective		3

Credits 14

Third Year		
Fall Semester		
DMS 200	Sonography Physics and Instrumentation I	3
DMS 210 & 210L	Abdominal and Small Parts Sonography and Abdominal and Small Parts Sonography Lab Practicum	4
DMS 250	Sonography Clinical Education I	3
DMS 297 & 297L	Methods of Patient Care and Methods of Patient Care Lab	3
UC Elective		3

Credits 16

Spring Semester		
DMS 201	Sonography Physics and Instrumentation II	3
DMS 220 & 220L	Vascular Sonography and Vascular Sonography Lab Practicum	4
DMS 260	Sonography Clinical Education II	3
UC Elective		3

Credits 13

Summer Semester		
DMS 270	Sonography Clinical Education III	5
Credits 5		

Fourth Year**Fall Semester**

DMS 205	Human Anatomy Lab I	1
DMS 330 & 330L	OB/GYN Sonography and OB/GYN Sonography Lab Practicum	4
DMS 380	Sonography Clinical Education IV	3
DMS 414	Research Analysis and Critique (RS 414)	3
BMS 318	Pathophysiology	3
Credits		14

Spring Semester

DMS 206	Human Anatomy Lab II	1
DMS 340 & 340L	Breast Sonography and Breast Sonography Lab Practicum	4
DMS 350 & 350L	Musculoskeletal Sonography and MSK Sonography Lab Practicum	4
DMS 390	Sonography Clinical Education V	3
DMS 499	Capstone (RS 499)	3
Credits		15
Total Credits		121

¹ Initial placement in the English and mathematics courses is determined by placement examination and an evaluation of high school units presented. The minimum mathematics requirement is MA 275 or its equivalent.

² Associated lab is required for Physics 101. PHY 110 with lab is acceptable to fulfill the requirement. Credits will also apply to the UC Natural Science requirement.

³ This course is a prerequisite for the required BIO 211 and BIO 211L in the next semester.

All diagnostic medical sonography course requirements must be completed in the appropriate semester as indicated above. All diagnostic medical sonography courses, beginning with DMS 101 and DMS 101L, are reserved for DMS majors only.

Student Learning Outcomes

Upon completion of the Diagnostic Medical Sonography program, students will demonstrate the following competencies:

Goal: The students will be clinically competent.

1. **Clinically Knowledgeable:** Apply foundational skills and knowledge from didactic and laboratory courses to clinical practice.
2. **Procedurally Knowledgeable:** Demonstrate procedural knowledge from all DMS coursework.

Goal: The students will demonstrate effective communication skills.

1. **Effective Communication:** Execute effective communication with patients.
2. **Oral Proficiency:** Demonstrate the ability to present clear and creative ideas related to a case study.

Goal: The students will demonstrate critical thinking.

1. **Critical Decision-Making:** Demonstrate the ability to obtain, review and integrate patient history, physical examination and sonographic

findings to provide a physician with an oral or written interpretation of technical findings.

2. **Image Analysis:** Evaluate images for quality and diagnostic value.

Goal: The students will grow as professionals.

1. **Professional Ethics:** Understand and apply ethical decision-making.
2. **Professional Behaviors:** Conduct themselves professionally.
3. **Professional Research:** Create a culminating capstone research project.

Mission Statement

The mission of the Diagnostic Medical Sonography program at Quinnipiac University is to provide a quality and comprehensive education, through didactic, laboratory and clinical experiences, that will prepare students to become multi-credentialed sonographers. The program offers multiple clinical assignments to provide maximum exposure to diversified sonographic procedures.

The program prepares students to be competent in the art and science of diagnostic medical sonography, both for career entry and advanced study. Graduates of the program are prepared to meet the needs of the community for highly qualified professionals.

Admission to the Program

Candidates applying for admission to the Diagnostic Medical Sonography program are required to have at least three years of high school college preparatory mathematics and one year of biology. One year of anatomy and physiology and one year of general physics is highly recommended. In addition, the scores of the SAT or the ACT are an important consideration. Related healthcare experience is highly desirable. Prospective candidates also must satisfy general Quinnipiac University Admission Requirements (<http://catalog.qu.edu/general-information/admissions/>).

Program Policies

In addition to the general policies of Quinnipiac University, such as due process and academic honesty, the following apply to students enrolled in the Diagnostic Medical Sonography program:

Progression in the Program

The Diagnostic Medical Sonography program has both GPA and final course grade requirements.

A cumulative university GPA of 2.85 and programmatic GPA of 3.00 must be maintained each semester. Final course grades of D or F in any DMS course are unacceptable. Programmatic GPA calculation and final course grade requirements begin with DMS 100 and include all DMS coursework thereafter.

Any student who does not maintain GPA requirements or earns a grade of D or F in any DMS course will be referred to the Diagnostic Imaging Department's Academic Progression and Retention Committee (APRC) for review. Students who fail to meet the minimum cumulative university GPA requirement of 2.85 and/or the minimum programmatic GPA requirement of 3.00 will be subject to sanctions up to and including program dismissal. Students who earn a final course grade of D or F for any DMS course will be subject to program dismissal.

Technical Standards

The Diagnostic Medical Sonography program is a rigorous and intense program that places specific requirements and demands on the students enrolled in the program. An objective of this program is to prepare graduates to enter a variety of employment settings and to render care to a wide spectrum of individuals. The technical standards set forth by the Diagnostic Medical Sonography program establish the essential qualities considered necessary for admitted students to this program to achieve the knowledge, skills and competencies of an entry-level sonographer.

All students admitted to the program must meet the established abilities and expectations. In the event a student is unable to fulfill these technical standards, with or without reasonable accommodation, the student will not be admitted or may be dismissed from the program.

Students are required to verify they understand and meet the technical standards or that they believe that, with certain reasonable accommodations, the technical standards can be met. Verification of understanding includes the student reading, signing and returning a copy of the Technical Standards Agreement to the program director. A listing of the technical standards can be found on the program's web page (<https://www.qu.edu/schools/health-sciences/programs/bs-diagnostic-medical-sonography.html>), and an agreement form is located in the Diagnostic Medical Sonography student handbook.

Transportation

Multiple clinical education centers are used throughout the professional component of the program. Students are responsible for their own transportation to and from these sites.

Summer Study

All students are required to perform one clinical assignment during the summer semester, third year (DMS 270). This clinical practicum is performed during summer sessions I and II and may be performed only in a clinical education site currently affiliated with Quinnipiac's Diagnostic Medical Sonography program.

Transfer Students from within Quinnipiac

The admission of internal transfer students to the Diagnostic Medical Sonography major is on a space-available, competitive basis only and will be reviewed on a yearly basis every fall. These students must meet the course requirements, performance standards and technical standards of the program.

Internal transfers who wish to transfer to the Diagnostic Medical Sonography program must meet the following criteria:

1. A programmatic GPA of 3.00, starting with RS 100/DMS 100
2. A cumulative GPA of 2.85
3. Successful completion of RS 100/DMS 100
4. Successful completion of PHY 101 and PHY 101L
5. Successful completion of MA 275

Internal transfer students will be selected competitively, based on the highest programmatic GPA, cumulative GPA and BIO grades respectively. Completion of the course RS 100/DMS 100 does not guarantee any internal transfer student a spot in the Diagnostic Medical Sonography program. All applicants must submit a change of major request form during the fall advisement period. Change of major forms will be held for approval by the Diagnostic Imaging department chair until the final grades are posted.

All diagnostic medical sonography courses must be taken and completed at Quinnipiac University. Diagnostic medical sonography courses from the student's previous institution will not be considered for replacement for any of the diagnostic medical sonography courses offered at Quinnipiac.

Additional Program Costs

As a clinical education program, the Diagnostic Medical Sonography major requires some expenses that go beyond standard university tuition and fees:

1. **Clinical/Fieldwork Education Travel** (gas, parking, public transportation) – **Costs: variable**
2. **Immunizations** – Consistent with the School of Health Sciences policy, all students must have a full battery of immunizations and in some cases titer affirmation of immunity for common diseases including but not limited to: MMR, HepB, varicella, polio, TDAP, TB and influenza. These must be documented prior to the start of clinical experiences during the sophomore year and must be maintained through the undergraduate education. **Costs: variable (please check with your insurance carrier)**
3. **Background Check** – All students must undergo an initial background check prior to the start of any clinical/fieldwork experience.
 - a. Initial background check cost is \$63 for all domestic addresses for the past 7 years or \$158 for students who have resided in New York state in the last 7 years due to NY state surcharge.
 - b. Some students may be required to do an annual recheck one year after the initial background recheck. **Cost: \$32 per annual recheck**
4. **Drug Screening** – **Cost: \$42.25**
5. **Liability Insurance** – All students have liability insurance coverage through the university, free of charge, while performing required clinical activity. Students may choose to purchase additional coverage at their own expense.
6. **EXXAT and APPROVE** – Students enrolled in professional programs must enroll in EXXAT and APPROVE.
 - a. EXXAT is the clinical tracking and assessment program used by the School of Health Sciences. **Cost: one-time payment of \$150 per student for the current major (students are responsible for this cost).**
 - b. APPROVE is the program within EXXAT that tracks all student health and safety records, provides documentation to prospective clinical sites, and provides notification of impending expiration dates. **Cost: \$35 for first year, \$10 per year thereafter**
7. **Certification examination costs:** Please visit the American Registry of Diagnostic Medical Sonography website (<https://www.ardms.org/>) for current cost of exams.

DMS 100. Foundations of Diagnostic Imaging. 1 Credit.

This course provides the student with a basic knowledge of the fundamentals of diagnostic imaging practice. Topics include defining diagnostic imaging as it relates to all imaging modalities, historical development of the profession, introduction to current and emerging practice arenas, and application of professional terminology. Students complete a self-study in medical terminology.

Prerequisites: None

Offered: Every year, Fall

DMS 101. Introduction to Diagnostic Medical Sonography. 3 Credits.

This is an introductory course to the field of diagnostic medical sonography. This course is taken in conjunction with DMS 101L. Throughout the course, the career of sonography is defined. Students are introduced to terminology pertaining to ultrasound as well as the physics responsible for its production. Cross-sectional anatomy pertaining to the abdomen, thyroid gland, scrotum and prostate is presented. Normal sonographic anatomy of the abdomen and small parts also is presented.

Prerequisites: Take DMS 100.

Corequisites: Take DMS 101L.

Offered: Every year, Spring

DMS 101L. Sonography Laboratory Practicum I. 1 Credit.

This is an introductory lab course to the field of diagnostic medical sonography. This course is taken in conjunction with DMS 101. To produce high-quality diagnostic images, it is necessary for the students to have a thorough understanding of image orientation, acoustic properties, scanning techniques and image documentation. The students have the opportunity to utilize ultrasound equipment to learn to identify normal sonographic anatomy of the abdomen and small parts and begin to develop scanning techniques.

Prerequisites: Take DMS 100.

Corequisites: Take DMS 101.

Offered: Every year, Spring

DMS 200. Sonography Physics and Instrumentation I. 3 Credits.

This core course is designed to prepare the student toward eligibility for the Sonography Physics and Instrumentation portion of the American Registry of Diagnostic Medical Sonographers (ARDMS) registry exam. The course encompasses the theoretical concepts and practical applications related to ultrasound physics and instrumentation. Concepts include: sound, sound waves, pulse waves, intensities, interaction of sound and media, transducers, sound beams and display modes. These concepts are tied in with terms used in Introduction to Sonography course and how they apply to practical, daily scanning skills.

Prerequisites: Take DMS 101, DMS 101L, PHY 101, MA 275.

Offered: Every year, Fall

DMS 201. Sonography Physics and Instrumentation II. 3 Credits.

This core course is designed to prepare the student toward eligibility for the Sonography Physics and Instrumentation portion of the American Registry of Diagnostic Medical Sonographers (ARDMS) registry exam. The course encompasses the theoretical concepts and practical applications related to ultrasound physics and instrumentation. Concepts include: two dimensional imaging, real-time imaging, displays, harmonics, contrast agents, hemodynamics, Doppler, artifacts, quality assurance and bioeffects. These concepts are tied in with terms used in the Physics and Instrumentation I course and how they apply to practical, daily scanning skills.

Prerequisites: Take DMS 200.

Offered: Every year, Spring

DMS 205. Human Anatomy Lab I. 1 Credit.

This course presents in-depth consideration of human anatomy within systems located in the neck, abdomen and pelvis. Students discuss the structure and function of each anatomic component within each region. Conventional anatomic illustrations are correlated with their sonographic counterpart. The sonographic appearance of specific structures is correlated to images obtained using other advanced imaging modalities such as computed tomography and magnetic resonance imaging.

Prerequisites: Take BIO 212, BIO 212L.

Offered: Every year, Fall

DMS 206. Human Anatomy Lab II. 1 Credit.

This course presents in-depth consideration of human anatomy within systems located in the upper and lower extremity. For each region, students discuss the structure and function of each anatomic component. Conventional anatomic illustrations are correlated with their sonographic counterpart. The sonographic appearance of specific structures is correlated to images obtained using other advanced imaging modalities such as computed tomography and magnetic resonance imaging?.

Prerequisites: Take DMS 205.

Offered: Every year, Spring

DMS 210. Abdominal and Small Parts Sonography. 3 Credits.

This course is designed to prepare the student toward eligibility for the abdomen (AB) portion of the ARDMS Registry. This course is taken in conjunction with DMS 210L. The course encompasses all aspects of abdominal and small parts scanning including: anatomy and vasculature, normal variants and congenital abnormalities, pathology, organ function and laboratory tests. The course continues to emphasize cumulative learning to include materials covered in prior ultrasound directed courses.

Prerequisites: Take DMS 101, DMS 101L.

Corequisites: Take DMS 210L.

Offered: Every year, Fall

DMS 210L. Abdominal and Small Parts Sonography Lab Practicum. 1 Credit.

This lab course is designed to prepare the student toward eligibility for the abdomen (AB) portion of the ARDMS Registry. This course is taken in conjunction with DMS 210. The course encompasses all aspects of abdominal and small parts scanning including: anatomy and vasculature, normal variants and congenital abnormalities, pathology, organ function and laboratory tests. The students utilize ultrasound equipment to learn to identify sonographic anatomy of the abdomen and small parts and develop scanning techniques. The students learn to review and critique sonographic images.

Prerequisites: Take DMS 101, DMS 101L.

Corequisites: Take DMS 210.

Offered: Every year, Fall

DMS 220. Vascular Sonography. 3 Credits.

This course is dedicated to the instruction of vascular sonography. It is designed to prepare students for the (VT) portion of the ARDMS registry exams. This course is taken in conjunction with DMS 220L. Anatomy pertaining to the vascular system is reviewed. Sonographic anatomy and pathologic conditions of the upper and lower extremity veins, the aorta, abdominal vasculature, the upper and lower extremity arteries, the carotid arteries and intracranial arteries are presented. Venous and arterial physiologic testing, interventional vascular procedures, surgery and other treatment options are introduced.

Prerequisites: Take DMS 101 DMS 101L DMS 210 DMS 210L.

Corequisites: Take DMS 220L.

Offered: Every year, Spring

- DMS 220L. Vascular Sonography Lab Practicum. 1 Credit.**
This lab course is dedicated to the instruction of vascular sonography. It is designed to prepare students for the (VT) portion of the ARDMS registry exams. This course is taken in conjunction with DMS 220. Sonographic anatomy and pathologic conditions of extremity veins, the aorta, abdominal vasculature, extremity arteries, the carotid arteries and intracranial arteries are presented. The students utilize ultrasound equipment to learn to identify sonographic anatomy of the vascular system and develop scanning techniques. The students learn to review and critique sonographic images.
Prerequisites: Take DMS 101 DMS 101L DMS 210 DMS 210L.
Corequisites: Take DMS 220.
Offered: Every year, Spring
- DMS 250. Sonography Clinical Education I. 3 Credits.**
This course is designed to develop the student's sonographic scanning skills and interpersonal communication skills through experiences in the clinical setting.
Prerequisites: Take DMS 101 MA 275.
Corequisites: Take DMS 210 DMS 210L.
Offered: Every year, Fall
- DMS 260. Sonography Clinical Education II. 3 Credits.**
This course, a continuation of DMS 250, is a clinical experience under the supervision of certified clinical instructors and clinical staff. Clinical competency and proficiency related to the performance of the sonographic procedures are developed and assessed.
Prerequisites: Take DMS 250.
Corequisites: Take DMS 220 DMS 220L.
Offered: Every year, Spring
- DMS 270. Sonography Clinical Education III. 5 Credits.**
This course, a continuation of DMS 260, is a clinical experience under the supervision of certified clinical instructors and clinical staff. Clinical competency and proficiency related to the performance of the sonographic procedures are developed and assessed.
Prerequisites: Take DMS 260.
Offered: Every year, Summer
- DMS 297. Methods of Patient Care. 2 Credits.**
This course focuses on a study of skills in providing humanistic care for the well, acute or chronically ill individual, including preparing patients for invasive as well as non-invasive imaging studies; basic clinical skills in infection control, including aseptic technique, venipuncture, vital signs and O2 administration; effective communication with emphasis on problem-solving skills. (2 lab hrs.)
Prerequisites: Take DMS 101, DMS 101L.
Corequisites: Take DMS 297L.
Offered: Every year, Fall
- DMS 297L. Methods of Patient Care Lab. 1 Credit.**
This lab develops preclinical competency for the procedures described and demonstrated in DMS 297.
Prerequisites: Take DMS 101, DMS 101L.
Corequisites: Take DMS 297.
Offered: Every year, Fall
- DMS 330. OB/GYN Sonography. 3 Credits.**
This course is designed to prepare the student toward eligibility for the OB/GYN ARDMS Registry exam. This course is taken in conjunction with DMS 330L. The course encompasses all aspects of gynecology, and obstetrical scanning including: anatomy and vasculature, normal variants and congenital anomalies, pathology, organ function and laboratory tests. The course continues to emphasize cumulative learning to include materials covered in prior ultrasound directed courses.
Prerequisites: Take DMS 101 DMS 101L DMS 210 DMS 210L DMS 220 DMS 220L.
Corequisites: Take DMS 330L.
Offered: Every year, Fall
- DMS 330L. OB/GYN Sonography Lab Practicum. 1 Credit.**
This lab course is designed to prepare the student toward eligibility for the OB/GYN ARDMS Registry. This course is taken in conjunction with DMS 330. The course encompasses all aspects of gynecology, and obstetrical scanning including: anatomy and vasculature, normal variants and congenital anomalies, pathology, organ function and laboratory tests. The students utilize ultrasound equipment to learn to identify sonographic anatomy of the female pelvis and develop scanning techniques. The students learn to review and critique sonographic images.
Prerequisites: Take DMS 101 DMS 101L DMS 210 DMS 210L DMS 220 DMS 220L.
Corequisites: Take DMS 330.
Offered: Every year, Fall
- DMS 340. Breast Sonography. 3 Credits.**
This course is dedicated to the instruction of the growing field of breast sonography. It is designed to prepare the student toward eligibility for the breast portion of the ARDMS Registry. This course is taken in conjunction with DMS 340L. To produce high-quality diagnostic images, it is necessary for students to have a thorough understanding of the anatomy and physiology of the breast as well as the normal and abnormal sonographic appearance of breast tissue.
Prerequisites: Take DMS 101 DMS 101L DMS 210 DMS 220 DMS 220L DMS 330 DMS 330L.
Corequisites: Take DMS 340L.
Offered: Every year, Spring
- DMS 340L. Breast Sonography Lab Practicum. 1 Credit.**
This course is dedicated to the instruction of the growing field of breast sonography. This lab course, taken in conjunction with DMS 340, prepares the student toward eligibility for the breast portion of the ARDMS Registry. The students utilize ultrasound equipment to identify sonographic anatomy of the breast and develop scanning techniques. The students learn to review and compare sonographic and mammographic images.
Prerequisites: Take DMS 101 DMS 101L DMS 210 DMS 210L DMS 330 DMS 330L.
Corequisites: Take DMS 340.
Offered: Every year, Spring
- DMS 350. Musculoskeletal Sonography. 3 Credits.**
This course, taken in conjunction with DMS 350L, is designed to prepare the student toward eligibility for the MSK ARDMS Registry. The course encompasses all aspects of MSK scanning including: anatomy and vasculature, normal variants, physiology, pathology, interventional procedures. The course continues to emphasize cumulative learning to include materials covered in prior ultrasound directed courses.
Corequisites: Take DMS 350L.
Offered: Every year, Spring

DMS 350L. MSK Sonography Lab Practicum. 1 Credit.

This lab course, taken in conjunction with DMS 350, is designed to prepare the student toward eligibility for the MSK ARDMS Registry. The course encompasses all aspects of MSK scanning including: anatomy and vasculature, normal variants, physiology, pathology and interventional procedures. The students utilize ultrasound equipment to identify MSK sonographic anatomy of the upper and lower extremities and develop scanning techniques. The students learn to review and critique sonographic images.

Corequisites: Take DMS 350

Offered: Every year, Spring

DMS 380. Sonography Clinical Education IV. 3 Credits.

This course, a continuation of DMS 270, is a clinical experience under the supervision of certified clinical instructors and clinical staff. Clinical competency and proficiency related to the performance of the sonographic procedures are developed and assessed.

Prerequisites: Take DMS 270.

Corequisites: Take DMS 330 DMS 330L.

Offered: Every year, Fall

DMS 390. Sonography Clinical Education V. 3 Credits.

This course, a continuation of DMS 380 is a clinical experience under the supervision of certified clinical instructors and clinical staff. Clinical competency and proficiency related to the performance of the sonographic procedures are developed and assessed.

Prerequisites: Take DMS 380.

Offered: Every year, Spring

DMS 414. Research Analysis and Critique (RS 414). 3 Credits.

This course explores the basic elements of health care research including different types of research models and research strategies. Students explore the difference between a variety of publication types, including editorial, case studies and peer-reviewed research articles. Students also learn techniques for database queries.

Prerequisites: Take DMS 101.

Offered: Every year, Fall

DMS 499. Capstone (RS 499). 3 Credits.

This capstone course is intended for radiologic sciences majors and diagnostic medical sonography majors in their final semester. Students are required to develop a research project as it relates to the field of diagnostic imaging. The project may relate to the student's chosen focus and must include either a formal thesis paper or poster presentation.

Prerequisites: Take DMS 414.

Offered: Every year, Spring