

**Central Ohio Technical College**  
**Course Description Listing – Diagnostic Medical Sonography Technology Courses**  
**2009-2010 Academic Year**

**DMS-4050 Patient Care in Sonography**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in the following: BIO-1773 and DMS-4514. Course is graded A-E.

During this course the Sonography student is introduced to the basic aspects of patient care in the health care setting. The student is acquainted with the different types of patient care situations they may encounter while working in a health care facility.

Topics of discussion include evaluating and meeting the physical needs of patients, infection control practices, dealing with acute situations and the special care unit patients.

**DMS-4507 Gynecological Sonography**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4511 and concurrent enrollment in DMS-4545. Course is graded A-E.

This course emphasizes the fundamental principles of sonographic imaging of the female pelvis. Anatomy, physiology, pathology, interpretation of clinical data, differential diagnosis and sonographic techniques relative to the gynecological patient are presented.

**DMS-4509 Sonography Seminar**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4546 and concurrent enrollment in DMS-4549, or permission of the Program Director. Course is graded A-E.

This course provides correlation between previously learned sonographic concepts and clinical application. It is designed to aid the transition to entry-level sonographer and ARDMS preparation. The student must successfully complete comprehensive examinations.

**DMS-4511 Cross Sectional Anatomy**

3 credit hours, 4 contact hours (2 hours lecture and 2 hours lab). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology or the Radiologic Technology programs. Grade of C (2.00) or better in the following: BIO-1772, BIO-1773 and BIO-1760 (or equivalent), or permission of the Program Director. Course is graded A-E.

This course is designed to provide the student with specific knowledge of relational and sectional anatomy of the head, thorax, abdomen, pelvis, and extremities. The college laboratory sessions are utilized to study human material and to correlate with radiologic and/or sonographic images.

**DMS-4514 Principles of Diagnostic Sonography**

1 credit hour, 1 contact hour (1 hour lecture and 0 hours lab). Prerequisite: Must be accepted in the Diagnostic Medical Sonography Technology program, or permission of the Program Director. Course is graded A-E.

This is the introductory course to the Diagnostic Medical Sonography sequence. Topics included in the course are the health care delivery system, professional communication and conduct, organizations, history of ultrasound, the sonographer's role and basic scanning protocols.

**DMS-4515 Sonographic Physics and Instrumentation I**

4 credit hours, 5 contact hours (3 hours lecture and 2 hours lab). Prerequisite: Must be enrolled in the Diagnostic Medical Sonography Technology program, grade of C or better in PHY-1721, and concurrent enrollment in (DMS-4529, DMS-4536, DMS-4543) or (DMS-4551, DMS-4571 and DMS-4577); or permission of the Program Director. Course is graded A-E.

This course deals with the fundamental principles of sonographic physics. Topics such as the nature of waves, wave properties, interactions of ultrasound with tissue, ultrasonic beam parameters and basic Doppler principles are covered. Students will have an opportunity to apply these principles in the college laboratory setting.

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**DMS-4517 Sonographic Physics and Instrumentation III**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Diagnostic Medical Sonography Technology program , grade of C (2.00) or better in DMS-4519 and concurrent enrollment in (DMS-4546 or DMS-4563) or permission of the Program Director. Course is graded A-E.

This course concludes the sonographic physics instrumentation sequence. Topics such as artifacts, storage devices, biological effects of ultrasound, and quality assurance testing will be discussed.

**DMS-4519 Sonographic Physics and Instrumentation II**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Diagnostic Medical Sonography program, grade of C (2.00) or better in DMS-4515, and concurrent enrollment in (DMS-4530, DMS-4537 and DMS-4544) or (DMS-4562, DMS-4572, and DMS-4578); or permission of the Program Director. Course is graded A-E.

This course applies the fundamental principles of sonographic physics of specific ultrasound instrumentation. Topics such as transducer design, equipment controls and instrumentation for static, real-time and Doppler systems will be discussed. The student will have the opportunity to apply these principles in the clinical laboratory setting.

**DMS-4529 Obstetrical Sonography I**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Diagnostic Medical Sonography program, grade of C (2.00) or better in DMS-4507 and concurrent enrollment in DMS-4515, DMS-4536 and DMS-4543; or permission of the Program Director. Course is grade A-E.

This course provides an extensive study of the anatomy, physiology, pathology, and sonographic appearance of the developing fetus with emphasis placed on the first trimester. Specific sonographic protocols for obstetrical ultrasound are included. Clinical presentation and maternal complications associated with pregnancy are also emphasized.

**DMS-4530 Obstetrical Sonography II**

4 credit hours, 5 contact hours (3 hours lecture and 2 hours lab). Prerequisite: Must be enrolled in the Diagnostic Medical Sonography program, grade of C (2.00) or better in DMS-4529, and concurrent enrollment in DMS-4519, DMS-4537 and DMS-4544; or permission of the Program Director. Course is grade A-E.

This course provides an extensive study of the anatomy, physiology, pathology, and sonographic appearance of the developing fetus. Clinical presentations of maternal complications, second and third trimester development as well as various anomalies associated with pregnancy are emphasized.

**DMS-4536 Abdominal Sonography I**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the DMS program and concurrent enrollment in DMS-4529, DMS-4515 and DMS-4543; or permission of the Program Director. Course is graded A-E.

This course covers sonographic and related imaging techniques of the liver, gallbladder, biliary tree, pancreas, abdominal vascular system. Emphasis is on anatomy, physiology, pathology, interpretation of clinical data, differential diagnosis, and ultrasound techniques relative to the abdomen.

**DMS-4537 Abdominal Sonography II**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the DMS program and grade of C (2.00) or better in DMS-4536 and concurrent enrollment in DMS-4519, DMS-4530, and DMS-4544; or permission of the Program Director. Course is graded A-E.

This course covers sonographic and related imaging techniques of the kidneys, adrenal glands, spleen, lymph nodes, peritoneal cavity and GI tract. Emphasis is on anatomy, physiology, pathology, interpretation of clinical data, differential diagnosis, and ultrasound techniques relative to the abdomen.

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**DMS-4538 Superficial Structures**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Grade of C (2.00) or better in DMS-4537 and concurrent enrollment in DMS-4517, DMS-4546 and DMS-4581, or permission of the Program Director. Course is graded A-E.

This course discusses sonographic imaging of the thyroid, scrotum, popliteal fossa, prostate, eye, peripheral vascular system, neonatal head and musculoskeletal system. Emphasis is on anatomy, physiology, pathology, interpretation of clinical data, differential diagnosis and ultrasound techniques relative to superficial small parts.

**DMS-4541 Principles of Clinical Sonography**

2 credit hours, 9 contact hours (1 hour lecture and 0 hours lab, 8 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4050, and a valid CPR card. Course is graded A-E.

An introductory experience to the clinical setting in which students have an opportunity to observe concepts and techniques related to sonographic imaging and patient care. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities.

**DMS-4543 Clinical Sonography I**

4 credit hours, 25 contact hours (1 hour lecture, 0 hours lab, and 24 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program, and grade of C (2.00) or better in DMS-4545, and concurrent enrollment in DMS-4515, DMS-4529 and DMS-4536, and a valid CPR card. Course is graded A-E.

The initial scanning experience in the clinical setting provides the student with the opportunity to apply learned concepts and techniques related to sonographic imaging. The student will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

**DMS-4544 Clinical Sonography II**

4 credit hours, 25 contact hours (1 hour lecture and 0 hours lab, 24 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4543, concurrent enrollment in DMS-4519, DMS-4530 and DMS-4537 and a valid CPR card. Course is graded A-E.

During this clinical course, students will gain practical experience and develop individual scanning techniques related to sonographic imaging. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

**DMS-4545 Sonography Scan Lab**

2 credit hours, 6 contact hours (0 hours lecture and 6 hours lab). Prerequisite: Must be enrolled in the General Diagnostic Medical Sonography Program. Course is graded A-E.

This course will introduce basic sonography scanning techniques. The student will learn basic protocols for liver, gallbladder, pancreas, kidney, aorta, thyroid and transabdominal pelvic sonograms. The student will have the opportunity to practice these techniques in a college laboratory setting.

**DMS-4546 Clinical Sonography III**

4 credit hours, 25 contact hours (1 hour lecture and 0 hours lab, 24 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4544, concurrent enrollment in DMS-4517, DMS-4538 and DMS-4581, and a valid CPR card. Course is graded A-E.

This course provides more advanced experience in the clinical setting in which the student will improve upon previously learned skills and techniques related to sonographic imaging. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

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6 credit hours, 33 contact hours (1 hour lecture and 0 hours lab, 32 hours clinical). Prerequisite: Enrollment in the Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4546, concurrent enrollment in DMS-4509 and a valid CPR card. Course is graded A-E.

This final clinical experience emphasizes mastery of skills in all areas of medical sonography. The course is designed to challenge the student to function independently within the supervised clinical setting, tailoring each examination according to the specific guidelines of each case. A weekly one hour seminar focusing on specific case studies will be conducted.

**DMS-4551 Cardiovascular Clinical I**

4 credit hours, 25 contact hours (1 hour lecture, 0 hours lab, and 24 hours clinical). Prerequisite: Must be enrolled in the Cardiovascular Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4552, concurrent enrollment in DMS-4515, DMS-4571 and DMS-4577, and a valid CPR card. Course is graded A-E.

The initial scanning experience in the clinical setting provides the student with the opportunity to apply learned concepts and techniques related to cardiovascular imaging. The student will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

**DMS-4552 Cardiovascular Sonography Scan Lab**

2 credit hours, 6 contact hours (0 hours lecture and 6 hours lab). Prerequisite: Must be enrolled in the Cardiovascular Diagnostic Medical Sonography Program. Course is graded A-E.

This course will introduce basic cardiovascular sonography scanning techniques. The student will learn basic protocols for echocardiography, cerebrovascular and lower extremity venous sonograms. The student will have the opportunity to practice these techniques in a college laboratory setting.

**DMS-4560 Principles of Cardiovascular Clinical**

2 credit hours, 9 contact hours (1 hour lecture and 0 hours lab, and 8 hours clinical). Prerequisite: Enrollment in the Cardiovascular Diagnostic Medical Sonography Technology program. A grade of C (2.00) or better in DMS-4050 and a valid CPR card. Course is graded A-E.

An introductory experience to the cardiovascular clinical setting in which students have an opportunity to observe concepts and techniques related to cardiovascular imaging and patient care. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities.

**DMS-4562 Cardiovascular Clinical II**

4 credit hours, 25 contact hours (1 hour lecture and 0 hours lab, 24 hours clinical). Prerequisite: Enrollment in the Cardiovascular Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4551, concurrent enrollment in DMS-4519, DMS-4572 and DMS-4578 and a valid CPR card. Course is graded A-E.

During this clinical course, students will gain practical experience and develop individual scanning techniques related to cardiovascular imaging. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

**DMS-4563 Cardiovascular Clinical III**

4 credit hours, 25 contact hours (1 hour lecture and 0 hours lab, 24 hours clinical). Prerequisite: Enrollment in the Cardiovascular Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4562, concurrent enrollment in DMS-4517, DMS-4570, DMS-4573, and DMS-4579, and a valid CPR card. Course is graded A-E.

This course provides more advanced experience in the clinical setting in which the student will improve upon previously learned skills and techniques related to cardiovascular imaging. Students will function under the close supervision of qualified sonographers or physicians in hospitals and other health related facilities. A weekly one hour seminar focusing on specific case studies will be conducted.

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**DMS-4564 Cardiovascular Clinical IV**

6 credit hours, 33 contact hours (1 hour lecture and 0 hours lab, 32 hours clinical). Prerequisite: Enrollment in the Cardiovascular Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4563, concurrent enrollment in DMS-4569 and a valid CPR card. Course is graded A-E.

This final clinical experience emphasizes mastery of skills in cardiovascular sonographic imaging. The course is designed to challenge the student to function independently within the supervised clinical setting, tailoring each examination according to the specific guidelines of each case. A weekly one hour seminar focusing on specific case studies will be conducted.

**DMS-4569 Cardiovascular Seminar**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Enrollment in the Cardiovascular Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4563 and concurrent enrollment in DMS-4564. Course is graded A-E.

This course provides correlation between previously learned sonographic concepts and clinical application. It is designed to aid the transition to entry-level sonographer and ARDMS preparation. The student must successfully complete a comprehensive examination.

**DMS-4570 Introduction to Pediatric Echocardiography**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Cardiovascular Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4572, and concurrent enrollment in DMS-4517, DMS-4563 and DMS-4573 or permission of the Program Director. Course is graded A-E.

This course covers the sonographic imaging of the pediatric heart with emphasis on embryology, anatomy, pathology, physiology, interpretation of clinical data, differential diagnosis and sonographic techniques relative to the pediatric cardiac patient in an adult cardiac facility. Topics such as congenital pathology, acquired pathology, surgical repair of congenital heart disease and fetal echocardiography will be discussed.

**DMS-4571 Echocardiography I**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Cardiovascular Diagnostic Medical Sonography Technology program, and concurrent enrollment in DMS-4515, DMS-4551 and DMS-4577; or permission of the Program Director. Course is graded A-E.

This course will review cardiac anatomy and physiology. B-mode, M-mode, and Doppler testing in the detection of Mitral Valve disease will be discussed. EKG and Holter monitoring will also be studied.

**DMS-4572 Echocardiography II**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Cardiovascular Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4571 and concurrent enrollment in DMS-4519, DMS-4562 and DMS-4578; or permission of the Program Director. Course is graded A-E.

This course will continue the sonographic evaluation of aortic valve, tricuspid valve, and pulmonic valve disease. Ischemic and pericardial heart disease, and cardiomyopathies will also be discussed.

**DMS-4573 Echocardiography III**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Cardiovascular Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4572 and concurrent enrollment in DMS-4517, DMS-4563, DMS-4570 and DMS-4579; or permission of the Program Director. Course is graded A-E.

This course will continue the sonographic evaluation of cardiac pathophysiology including the specialty examinations of transesophageal, stress, and contrast studies

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**DMS-4577 Vascular Sonography I**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Cardiovascular Diagnostic Medical Sonography Technology program, and concurrent enrollment in DMS-4515, DMS-4551 and DMS-4571; or permission of the Program Director. Course is graded A-E.

This course emphasizes the sonographic evaluation of the peripheral vascular system. Non-invasive testing of the upper and lower extremity vessels and disease processes will be studied. Plethysmography, duplex, pulsed and continuous wave Doppler testing will be introduced.

**DMS-4578 Vascular Sonography II**

3 credit hours, 3 contact hours (3 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Cardiovascular Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4577, and concurrent enrollment in DMS-4519, DMS-4562 and DMS-4572; or permission of the Program Director. Course is graded A-E.

This course emphasizes the principles and procedures involved in transcranial and extracranial sonography as well as abdominal vascular sonography. Spectral analysis, color Doppler, pulsed and continuous wave Doppler will be discussed. The disease mechanisms of the cerebrovascular and abdominal areas will be discussed and contrasted with normal anatomy.

**DMS-4579 Vascular Sonography III**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Cardiovascular Diagnostic Medical Sonography Technology program. Grade of C (2.00) or better in DMS-4578, and concurrent enrollment in DMS-4517, DMS-4563, DMS-4570 and DMS-4573; or permission of the Program Director. Course is graded A-E.

This course discusses miscellaneous vascular pathologies and advanced imaging techniques. Test validation and statistical comparisons will be introduced with an effort to establish a quality assurance program. A brief summary of vascular laboratory accreditation will also be discussed.

**DMS-4581 Breast Sonography**

2 credit hours, 2 contact hours (2 hours lecture and 0 hours lab). Prerequisite: Must be enrolled in the Cardiovascular Diagnostic Medical Sonography Technology program. C grade or better in DMS-4537 and concurrent enrollment in DMS-4517, DMS-4538 and DMS-4546; or permission of the Program Director. Course is graded A-E.

This course will cover the normal anatomy, physiology and pathology of the breast. Sonographic appearance of the normal breast, benign breast disease and malignancies will be introduced. Various invasive and related imaging techniques will also be discussed. Emphasis is on correlation of clinical data, related imaging techniques and sonographic appearance to determine differential diagnosis.