

Diagnostic Medical Ultrasound (DMU)

DMU 1000: Introduction to Diagnostic Medical Ultrasound

Introduction to the profession of diagnostic medical ultrasound. Imaging characteristics, educational requirements, professional trends. Observation opportunities. Graded on S/U basis only.

Credit Hour: 1

Prerequisites: Departmental consent required

DMU 3212: Sectional Anatomy

A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 3309: Normal Ultrasound Clinical

Integration of ultrasound instrumentation and clinical practice in a laboratory setting. Interaction between the sonographer, equipment and patient.

Credit Hours: 5

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 3313: Ultrasound Physics

Principles of diagnostic ultrasound physics. Sound wave characteristics, tissue interaction, power intensity, and Doppler physics.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 3315: Ultrasound Instrumentation

Integration of ultrasound physics and instrumentation components in a laboratory setting. Practice in modes of operation and safety.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 3322: Superficial Organs Ultrasound

Ultrasound evaluation and diagnosis of normal and abnormal superficial organs; thyroid gland, testes, breasts, soft tissues and musculoskeletal.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 4001: Topics in Diagnostic Medical Ultrasound

Organized study of selected topics in medical ultrasound. Topics may vary. May be repeated for credit. Graded on A-F basis only.

Credit Hour: 1-99

Prerequisites: restricted to Diagnostic Medical Ultrasound undergraduate students

DMU 4001W: Topics in Diagnostic Medical Ultrasound - Writing Intensive

Organized study of selected topics in medical ultrasound. Topics may vary. May be repeated for credit. Graded on A-F basis only.

Credit Hour: 1-99

Prerequisites: restricted to Diagnostic Medical Ultrasound undergraduate students

DMU 4085: Problems in Diagnostic Medical Ultrasound

Independent study leading to a special project or paper. May be repeated for credit. Graded on A-F basis only.

Credit Hour: 1-99

Prerequisites: restricted to Diagnostic Medical Ultrasound undergraduate students only

DMU 4085W: Problems in Diagnostic Medical Ultrasound - Writing Intensive

Independent study leading to a special project or paper. May be repeated for credit. Graded on A-F basis only.

Credit Hour: 1-99

Prerequisites: restricted to Diagnostic Medical Ultrasound undergraduate students only

DMU 4200: Principles of Diagnostic Medical Ultrasound

Principles and history of ultrasound, ultrasound equipment, sonographic techniques, aspects of patient care.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students only

DMU 4234: Clinical Pathophysiology

(cross-leveled with DMU 7234). Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

Credit Hours: 3

DMU 4234W: Clinical Pathophysiology - Writing Intensive

Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

Credit Hours: 3

DMU 4311: Pathological Images of Ultrasound

(cross-leveled with DMU 7311). Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 4314: Abdominal Ultrasound

(cross-leveled with DMU 7314). Differentiation between normal and pathological ultrasound studies of the abdomen. Differential diagnosis of pathological states.

Credit Hours: 5

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 4318: Gynecology Ultrasound

(cross-leveled with DMU 7318). Study of normal and abnormal gynecological ultrasound anatomy. Distinction between normal and pathological states and ultrasound differential diagnosis.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 4320: Obstetrics Ultrasound

(cross-leveled with DMU 7320). Study of normal and abnormal obstetrical ultrasound anatomy. Distinction between normal and pathological OB ultrasound studies with emphasis on differential diagnosis.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 4325: Ultrasound Clinical Pharmacology and Contrast Agents

(cross-leveled with DMU 7325). Study of the biophysical, biochemical and complete action of ultrasound contrast agents and other drugs used in Diagnostic Medical Ultrasound and their pharmacodynamics.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound

DMU 4326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics

(cross-leveled with DMU 7326). Study of vascular principles and fundamentals including physics and instrumentation. Emphasis on ultrasound wave characteristics, Doppler principles, tissue interaction and hemodynamics.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 4330: Vascular Ultrasound Lab

(cross-leveled with DMU 7330). Vascular ultrasound scanning techniques, protocols, measurements, film/video critique, and Plethysmography in a clinical lab setting.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 4332: Vascular Ultrasound

(cross-leveled with DMU 7332). Vascular ultrasound for normal and pathological processes: study of disease, correlation of patients' clinical data and ultrasound findings used in differential diagnosis.

Credit Hours: 4

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 4342: Adult Cardiac Ultrasound

(cross-leveled with DMU 7342). Provides principles of diagnostic adult cardiac ultrasound in relation to pathology, further presenting the practical aspects of scanning techniques, exam critique, patient care in relation to cardiac US exams. Graded on A-F basis only.

Credit Hours: 5

Prerequisites: DMU 3313, DMU 3315 and DMU 4338; instructor's consent

DMU 4941: Ultrasound Clinical I

(cross-leveled with DMU 7941). Application of medical ultrasound in supervised clinical settings. Decisions regarding diagnosis, patient handling and imaging.

Credit Hours: 7

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 4943: Ultrasound Clinical III

(cross-leveled with DMU 7943). Final clinical application of general medical ultrasound practicum in supervised clinical settings. Further enhancement of practice, decision making, patient handling, image processing and case studies.

Credit Hours: 6

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 4944: Vascular Ultrasound Clinical IV

(cross-leveled with DMU 7944). Application of diagnostic vascular ultrasound in supervised clinical settings: practice, decision making, patient handling and image processing.

Credit Hours: 7

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 4945: Cardiac Ultrasound Clinical V

(cross-leveled with DMU 7945). Application of ultrasonography in real clinical settings for learning, practicing and decision making regarding, patient handling and imaging process with students supervised in a clinical setting. Graded on A-F basis only.

Credit Hours: 6

Prerequisites: DMU 3313, DMU 3315, and DMU 4944. Instructor and Departmental permission required

DMU 4946: Cardiac Ultrasound Clinical VI

(cross-leveled with DMU 7946). Further application of ultrasonography for continuation of learning, practicing and decision making, patient handling and imaging process with students supervised in a clinical setting. Graded on A-F basis only.

Credit Hours: 6

Prerequisites: DMU 3313, DMU 3315, DMU 4338 and DMU 4945. Instructor and Departmental permission required

DMU 4993: Ultrasound Clinical II

(cross-leveled with DMU 7993). Application of medical ultrasound in supervised clinical settings with practice and decision making related to ultrasound diagnosis, patient handling and image processing.

Credit Hours: 8

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7200: Diagnostic Medical Ultrasound Principles and Patient Care

Introduction diagnostic medical ultrasound principles including history, development, ultrasound physics - equipment fundamentals. Provides introduction to concepts of sonographic techniques, positioning, image critique, aspects of patient care and professional organizations. Graded on A-F basis only.

Credit Hours: 3

Prerequisites: Restricted to Graduate Diagnostic Medical Ultrasound students

DMU 7234: Clinical Pathophysiology

(cross-leveled with DMU 4234). Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

Credit Hours: 3

DMU 7309: Normal Ultrasound Clinical

Integration of ultrasound instrumentation and clinical practice in a laboratory setting. Interaction between the sonographer, equipment and patient.

Credit Hours: 5

Prerequisites: admitted to the DMU program

DMU 7311: Pathological Images Ultrasound

(cross-leveled with DMU 4311). Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7312: Sectional Anatomy

(same as RA_SCI 7110; cross-leveled with RA_SCI 4110). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques.

Credit Hours: 3

Prerequisites: Restricted to Graduate Diagnostic Medical Ultrasound students

DMU 7313: Ultrasound Physics

Principles of diagnostic ultrasound physics. Sound wave characteristics, tissue interaction, power intensity, and Doppler physics.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7314: Abdominal Ultrasound

(cross-leveled with DMU 4314). Differentiation between normal and pathological ultrasound studies of the abdomen. Differential diagnosis of pathological states.

Credit Hours: 5

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7315: Ultrasound Instrumentation

Integration of ultrasound physics and instrumentation components in a laboratory setting. Practice in modes of operation and safety.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7318: Gynecology Ultrasound

(cross-leveled with DMU 4318). Study of normal and abnormal gynecological ultrasound anatomy. Distinction between normal and pathological states and ultrasound differential diagnosis.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7320: Obstetrics Ultrasound

(cross-leveled with DMU 4320). Study of normal and abnormal obstetrical ultrasound anatomy. Distinction between normal and pathological OB ultrasound studies with emphasis on differential diagnosis.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7322: Superficial Organs Ultrasound

Ultrasound evaluation and diagnosis of normal and abnormal superficial organs; thyroid gland, testes, breasts, soft tissues and musculoskeletal.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7325: Ultrasound Clinical Pharmacology and Contrast Agents

(cross-leveled with DMU 4325). Study of the biophysical, biochemical and complete action of ultrasound contrast agents and other drugs used in DMU and their pharmacodynamics.

Credit Hours: 3

Prerequisites: Restricted to Graduate Diagnostic Medical Ultrasound majors

DMU 7326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics

(cross-leveled with DMU 4326). Study of vascular principles and fundamentals including physics and instrumentation. Emphasis on ultrasound wave characteristics, Doppler principles, tissue interaction and hemodynamics.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7330: Vascular Ultrasound Lab

(cross-leveled with DMU 4330). Vascular ultrasound scanning techniques, protocols, measurements, film/video critique, and Plethysmography in a clinical lab setting.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7332: Vascular Ultrasound

(cross-leveled with DMU 4332). Vascular ultrasound for normal and pathological processes: study of disease, correlation of patients' clinical data and ultrasound findings used in differential diagnosis.

Credit Hours: 4

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7338: Cardiac Ultrasound, Principles and Hemodynamics

(cross-leveled with DMU 4338). Study of cardiac ultrasound fundamentals including: wave characteristics, principles of 2-D/3-D/4-D imaging, M-mode, and Doppler, cardiac anatomy and physiology, embryology, evaluation methods and hemodynamics. Graded on A-F basis only.

Credit Hours: 3

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7342: Adult Cardiac Ultrasound

(cross-leveled with DMU 4342). Study of adult cardiac ultrasound for normal and pathological processes. Differential diagnosis of cardiac disease through correlation of patients' clinical data and ultrasound findings.

Credit Hours: 5

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7941: Ultrasound Clinical I

(cross-leveled with DMU 4941). Application of medical ultrasound in supervised clinical settings. Decisions regarding diagnosis, patient handling and imaging.

Credit Hours: 7

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7943: Ultrasound Clinical III

(cross-leveled with DMU 4943). Final clinical application of general medical ultrasound practicum in supervised clinical settings. Further enhancement of practice, decision making, patient handling, image processing and case studies.

Credit Hours: 6

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7944: Vascular Ultrasound Clinical IV

(cross-leveled with DMU 4944). Application of diagnostic vascular ultrasound in supervised clinical settings: practice, decision making, patient handling and image processing.

Credit Hours: 7

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7945: Cardiac Ultrasound Clinical V

(cross-leveled with DMU 4945). Application of diagnostic cardiac ultrasound in supervised clinical settings: practice and decision making regarding echocardiography, patient handling and image processing.

Credit Hours: 6

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7946: Cardiac Ultrasound Clinical VI

(cross-leveled with DMU 4946). Further enhancement of diagnostic cardiac ultrasound in supervised clinical settings: practice and decision making regarding echocardiography, patient handling and image processing.

Credit Hours: 6

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 7993: Ultrasound Clinical II

(cross-leveled with DMU 4993). Application of medical ultrasound in supervised clinical settings with practice and decision making related to ultrasound diagnosis, patient handling and image processing.

Credit Hours: 8

Prerequisites: Restricted to Graduate Diagnostic Medical Ultrasound students

DMU 8001: Topics in Diagnostic Medical Ultrasound

Organized study of selected topics. Topic may vary.

Credit Hour: 1-3

Prerequisites: restricted to students enrolled in the Diagnostic Medical Ultrasound program only

DMU 8050: Research in Diagnostic Medical Ultrasound

Research not leading to a thesis or dissertation. Graded on an A-F basis only.

Credit Hour: 1-99

Prerequisites: restricted to students enrolled in the Diagnostic Medical Ultrasound program only

DMU 8085: Problems in Diagnostic Medical Ultrasound

Independent study of a special project involving clinical applications or research. Topic may vary.

Credit Hour: 1-99

Prerequisites: restricted to students enrolled in the Diagnostic Medical Ultrasound program only

DMU 8346: Pediatric Cardiac Ultrasound

Study of pediatric cardiac ultrasound for normal and pathological processes. Differential diagnosis of cardiac disease through correlation of patients' clinical data and ultrasound findings.

Credit Hours: 4

Prerequisites: Restricted to Diagnostic Medical Ultrasound students

DMU 8947: Applied Clinical Research & Practicum

Clinical research application of cardiovascular & general ultrasound in clinical environment: clinical research, practicum, decision making, patient handling, and image processing. Graded on A-F basis only.

Credit Hour: 5-8

Prerequisites: Restricted to Diagnostic Medical Ultrasound students
