

**NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY  
DMS 243 - BREAST SONOGRAPHY (1 CR.)**

**Course Description**

Presents the fundamentals of breast sonography, including case study review of normal anatomy, physiology, and pathological conditions of breast tissue and its visualization with real-time 2-D & 3-D imaging, and Doppler. Lecture 1 hour.

**General Course Purpose**

The purpose of this course is to introduce students with basic knowledge, techniques and procedures for evaluating the breast with 2-D & 3-D imaging, and Doppler. Students will develop the basic knowledge base to work from on how normal and abnormal breast anatomy and physiology appears with ultrasound.

**Course Prerequisites/Co-requisites**

The student must satisfactorily complete all previous sonography courses with a grade of "C" or better.

**Course Objectives**

Upon completing the course, the student will be able to:

- Describe the advantages of using a high frequency, linear array transducer for sonographic assessment of the breast including discussion regarding the elevation plane.
- Identify the advantages and disadvantages of utilizing color and power Doppler for specific disease processes of the breast.
- Discuss information required to perform a relevant clinical history and describe procedures for clinical inspection and palpation of the breast for correlation with breast sonograms.
- Describe the typical mammography views and correlate the mammographic findings with breast sonograms to compare the location and specific features of area(s) of concern.
- List the different stand-off techniques available for breast imaging and state the primary advantages for its use.
- Discuss the advantages of performing breast evaluation utilizing the radial and antiradial scan planes in comparison to the sagittal and transverse planes.
- Explain the effects of compression and echo-palpation as a means of improving breast imaging.
- Describe the typical patient positioning techniques for optimal scanning evaluation.
- List the indications and contraindications for performing breast sonography.
- Describe the embryologic development of the breast including the identification of the mammary milk line.
- Describe the anatomic makeup of the lactiferous ductal system as it relates to the breast lobular units and lobes.
- State the various fibrous planes of the breast tissue and discuss the importance of demonstrating the integrity of the planes on sonography.
- Identify the typical location of various lymph node groups surrounding the breast and discuss lymphatic flow and drainage in the breast and its relevance to sonographic assessment.
- Discuss the differences between mammographic and sonographic appearance of normal breast tissues.
- Describe the effects of pregnancy, lactation, and hormone stimulation on the appearance of breast tissues.
- List and describe the various congenital and developmental breast anomalies.
- Describe features related to the sharpness of margins and malignant masses.

- Define neoangiogenesis and the general differences in vascularity of benign and malignant masses.
- Describe the differences in the effects of breast pathologies on the fibrous tissue planes.
- Describe sonographic features of normal, reactive, and malignant lymph nodes.
- List benign and malignant causes of skin thickening.
- List causes of echoes within complex breast cysts and the resultant sonographic features.

**Major Topics to be Included**

- a. Breast instrumentation and technique
- b. Normal anatomy
- c. Relevant clinical history and procedures for clinical inspection and palpation of the breast for correlation with breast sonograms.
- d. Typical mammography views and how they correlate to the mammographic findings and breast sonograms.
- e. Stand-off techniques available for breast imaging.
- f. Breast evaluation utilizing the radial and antiradial scan planes in comparison to the sagittal and transverse planes.
- g. Effects of compression and echo-palpation on breast imaging.
- h. Patient positioning techniques.
- i. Indications and contraindications for performing breast sonography.
- j. Embryologic development of the breast.
- k. Lymph nodes and lymphatic flow and drainage in the breast.
- l. Discuss the differences between mammographic and sonographic appearance of normal breast tissues.
- m. Effects of pregnancy, lactation, and hormone stimulation on the appearance of breast tissues.
- n. Congenital and developmental breast anomalies.
- o. Differences in vascularity of benign and malignant masses.
- p. Differences in the effects of breast pathologies on the fibrous tissue planes.
- q. Sonographic features of normal, reactive, and malignant lymph nodes.
- r. Benign and malignant causes of skin thickening.