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| **Course Credit:** | 1 Credit |
| **Time and Location:** | Thursday: Class 2:00-2:50,  NURS Rm 120 |
| **Instructor:** | Chelsie Wheatley, BSRS, BSDMS, RT(R), RDMS, RVT |
| **Phone:** | 282-3311 or 282-4042 (Secretary, Alyssa) |

**Overview:** This course covers the anatomy and scanning procedures of the breast. Pathology identified through screening or diagnostic mammography, breast quadrants, and the clock positions used to identify and isolate breast abnormalities will be reviewed. Emphasis is placed on pathology, various disease processes, and their sonographic appearance. Emphasis is also placed on professional and technical qualities required of becoming a competent sonographer as well as learning the basics of performing sonographic breast examinations. Activities structured follow the guidelines of the ARDMS Breast (BR) examination.

**Textbooks:** Carr-Hoefer, CatherineT. Breast Ultrasound: A Comprehensive Sonographer’s Guide. Forney, TX: Pegasus; 2007. ISBN 0-9726298-8-2

**Method of Presentation:**  Lecture, PowerPoint, Handouts, Moodle Supplement

**Code of Ethics:** DMS 4418 adheres to the ISU Code of Conduct.  In particular, academic dishonesty, however small, creates a breach in academic integrity.  A student's participation in this course comes with the expectation that his or her work will be completed in full observance of the ISU Code of Student Conduct.

**Course Learning Objectives/Goals:** This course has been designed to prepare student sonographers for the responsibilities of breast imaging. The student will learn breast imaging instrumentation, breast anatomy, physiology, and development, mammographic and sonographic correlation, benign vs. malignant features, role of sonography in breast imaging as well as the examination technique, benign breast changes and pathology, benign solid masses, malignant breast pathology, anatomy and pathology of the male breast, related diagnostic examinations, breast implants, and ultrasound-guided interventional procedures. At the conclusion of the course students will demonstrate understanding of breast sonographic anatomy, examination techniques, and be able to determine different types of pathology. They will also be well equipped to assist with multiple breast related ultrasound-guided procedures and correlate mammographic images to sonographic imaging. Ultimately, the student will gain a better understanding of the process involved in obtaining a technically adequate breast sonogram. This classroom understanding prepares the student for the corresponding clinical experience.

**Course Learning Outcomes: Upon completion of this course, the students will be able to:**

* Choose the proper transducer for each examination
* Understand and explain image optimization for breast sonography
* Compare and contrast different artifacts seen in breast imaging
* Discuss the clinical role of breast sonography as well as list the advantages and disadvantages of breast sonography
* Compare and contrast targeted vs. whole breast examination
* Explain patient preparation and position, ergonomics, set-up and examination technique of breast sonography
* List the different scan planes of the breast and their annotation methods
* Discuss breast development and associated anomalies
* Explain in detail the breast anatomy as well as the anatomy of surrounding muscles, vasculature, and lymphatics
* Correlate mammograms with sonographic scanning
* Compare and contrast mammographic and sonographic tissue densities
* Define the different mammographic and sonographic features suspicious for malignancy
* List the BIRADS classification system
* Explain benign breast changes and discuss the different benign pathologies
* Define fibroadenomas and know their clinical, mammographic, and sonographic features
* List general breast cancer facts and risk factors
* Compare and contrast the major histologic types of breast cancer
* Understand and explain cancer staging of the breast
* Discuss normal male anatomy of the breast, as well as gynecomastia and cancer of the male breast
* Compare and contrast the other diagnostic examinations related to breast imaging, and list the advantages and disadvantages of each
* Explain the different types of breast implants and the sonographic appearance of each
* Identify implant rupture sonographically
* List and explain the different ultrasound-guided interventional procedures and the clinical indication of each

**Academic Dishonesty Policy:**

Academic dishonesty (cheating, plagiarism, etc.) will not be tolerated in this class and may result in suspension or dismissal from this course and from the program. Cases will also be referred to the Dean of Students for possible dismissal from the university.

Cheating includes, but is not limited to, (1) use of any unauthorized assistance in taking quizzes, tests, or examinations; (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or completing other assignments; or (3) the acquisition of tests or other academic materials belonging to the university faculty or staff without permission.

Plagiarism includes, but is not limited to, the use of, by paraphrase or direct quotation without correct recognition, the published or unpublished works of another person. The use of materials generated by agencies engaged in "selling" term papers is also plagiarism.

Many components DMS 4418 are designed to be highly interactive.  Students are encouraged to take full advantage of the many resources available including Internet sites, handouts and workbooks, other textbooks and journals, faculty, and peers. This interactive collegial learning environment is conducive for life-long learning.

***What does this mean:***  I have allowed ‘printed material’ from the Web site to be available to the student.  This can present problems if not used properly.  Material from quizzes and tests should be used for your OWN study endeavors.

***When students submit their efforts for grading, they are attesting that they have abided by these rules.***

**Classroom Procedure:**

1.  **Attendance:**  You are expected to attend class regularly.  It is your responsibility to maintain a level of attendance which will allow you to derive maximum benefit from the instruction.  Excessive absences (>10%) will result in a lower course grade if you are borderline between two grades.  Conversely, if you have good attendance and are border line between two grades, I will award the higher grade.

2.  **Grading Procedure:**

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| **Assessment Method** | **Percentage Value** |
| Test #1 = Chapters 1-5 | 20% |
| Test #2 = Chapters 6-8 | 20% |
| Test #3 = Chapters 9-12 | 20% |
| Cumulative Final | 30% |
| Assignments | 10% |
| Total | 100% |

**This grading Scale will be used:**

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| +/- System |  |
| 93-100% A | 73-76% C |
| 90-92% A- | 70-72% C- |
| 87-89% B+ | 67-69% D+ |
| 83-86% B | 63-66% D |
| 80-82% B- | 60-62% D- |
| 77-79% C+ | 59% Below F |

*Note: A grade of C or better is required in this course in order to receive a certificate from the Department of Radiographic Science.*

The minimum requirements to earn a passing grade are successful completion of all tests (70% minimum).  Tests and Quizzes will be a combination of either written or computer based.  Tests will either be written or will be scheduled to be taken in a computer lab on campus.  The lab in the nursing building on the ground floor is the lab I try to schedule for tests; however, the Turner Lab is close to our classroom, and is the one I will try to schedule if the nursing building lab is not available. It is the student’s responsibility to know when and where tests are scheduled.  Dates are posted in the Web Course Calendar and reminders will be given in class.  Students may use their own wireless laptops if they have one if tests are given in class; otherwise, students are required to use a lab computer when testing.

3. **Computer Account:** All students are required to have an ISU student computer account.  There is no fee required for this account. Obtain the account at the Computer Center, which is located in the basement of the College of Business Building or in the Rendezvous Lab.

4.  **Make-up:** If you are unable to sit for an examination, you may request a make-up exam.  You must inform me that you will not be present for the examination **prior** to the scheduled time.  An additional 10% drop in the test grade will result if prior notification is not given and is not accepted by me prior to taking the test.  The highest grade you can receive for a make-up exam is 89% unless you provide me with an acceptable excuse. An acceptable excuse is defined **as very** sick; a death in the immediate family; some unforeseen circumstance that would prohibit you from taking the exam. The key is to communicate with me directly via email, phone, or in person. Do not speak to another faculty member or the department secretary. I’m very easy to catch with email or text, but make sure your email is received by me prior to the test deadline.

*In addition, it is a requirement to take all tests offered during the semester.  An incomplete will be issued for the class if a test is not taken.*

**Cell phone policy:** Cell phones should not be used in class. They should be place in silent or vibrating mode or turned off. Additionally receiving and retrieving text messages should not occur during class or in labs. Failure to follow this policy will result in a deduction of grade up to 10% at the discretion of the instructor. If you need to communicate to someone outside of the class in an emergency situation please inform the instructor so accommodations to this policy may be made.

**Disability Services:** Students with disabilities who wish to have accommodations provided by the University must self-identify with Disability Services (236-3599) in order to have accommodations provided. Information and applications are available in the Center and may be picked up in person or requested by telephone. The URL is <http://www.isu.edu/ada4isu/>