Semester/Year: SP2016

Lecture Hours: 0  Lab Hours: 8 lab hrs wk/15 wks  Credit Hours: 2

Class Time: Feb. 6, March 5, April 16  Days: assigned  Room: assigned

Instructor’s Name: Jennifer Harshman

Instructor's Contact Information: Office Phone: 307-268-2619  Email: jharshman@caspercollege.edu

Office Hours: day/time Wed 10am-12noon

Course Description: Clinical education involves a practical learning experience in the patient care environment. Students participate in pre-scheduled time periods and practice their Mammography skills in a hospital or clinic setting. Students will be under the supervision of an experienced Mammography technologist. Emphasis will be placed on Mammography equipment set-up, patient care, anatomy, pathology, mass documentation, understanding image quality, radiation safety practices, positioning, image acquisition and Quality Control. Post processing techniques will also be included. A specified number of clinical exam competencies will be required.

Statement of Prerequisites: ARRT registered & licensed, acceptance into the program

Goal: Clinical education provides the student with a competency based hands on education that is necessary to become proficient as an entry level Mammography technologist. This course will prepare the student for the ARRT National Exam Certification in Mammography by offering clinical settings with state of the art equipment. This experience will provide the student with opportunities to obtain high quality Mammography images in a supervised setting while providing exceptional patient care.

Outcomes:
1. Demonstrate effective oral and written communication
2. Solve problems using critical thinking and creativity

Course Objectives: When performing mammography imaging procedures, the student must demonstrate appropriate:

A. Patient Care
   1. Communication – pre-exam instructions, explanation of procedure, ACS guidelines, BSE, CBE, Informed consent (Outcome 1)
   2. Patient Assessment – epidemiology of breast cancer, signs and symptoms, documentation of medical history and clinical findings, previous mammograms (Outcome 1)
   3. Treatment options- Surgical, non-surgical, reconstruction

B. Breast Imaging Procedures
   1. Mammographic Positioning – standard views, additional views, positioning techniques
2. Special Patient Situations – chest wall deformities, irradiated breast, reduction mammoplasty, post-surgical breast, males, kyphotic patients, protruding abdomens, pacemaker, infusa-port (port-a-cath), implants, lactating breast, large breast (Outcome 2)

3. Imaging Techniques – mammography, ultrasound, MRI, sentinel node mapping, interventional procedures


**Recommended:** Mammography and Breast Imaging Program Review and Exam Prep; Peart, Olive; 2012, ISBN 978-0-074932-9

**Methodology:** Hands on experience in the patient care setting with supervision from an experienced Mammography technologist.

**Evaluation Criteria:** Competency exams, check off of Mammography repetition procedures, evaluations of performance in clinical setting.

1. Competency Exams: Students are required to complete 25 competency exams under direct supervision earning a grade of 85% or higher on each one. Students must then perform mammographic examinations on 75 patients, in addition to the previous 25 exams (for a total of at least 100 mammograms.)

**Patient Preparation/Education**
- Provide for patient comfort and cooperation by familiarizing patient with the equipment and procedure, stressing the need for compression, and by providing general psychological support.
- Solicit and record patient clinical history relevant to the performance and interpretation of the mammographic examination.
- Document location of lumps, scars, moles, etc. by means of radiopaque markers on breast and/or diagram on clinical information sheet.
- Respond to patient questions on BSE, CBE, patient dosage, possible need for additional projections, ACS guidelines for screening mammography, and other breast imaging procedures.

**Mammographic Procedure**
- Select equipment appropriate to the patient and the examination to be performed (e.g., image receptors, grids, compression plates, cassettes).
- Select exposure factors based upon breast tissue density, patient’s age, numerical compression scale and equipment characteristics.
- Select markers to document breast imaged and projection used.
- Position patient and equipment to provide projections specified by department protocol or requisition form.
- Evaluate the images to assure that they contain proper identification and are of diagnostic quality

2. Students are required to obtain a minimum of 120 clinical hours for this Clinical Education class. Students must have 40 hours of direct supervision by a qualified instructor. An additional 60 hours of training must be completed, though they may be performed with indirect supervision. To stay on track, you should have 50 hours by midterm- failure to do so will adversely affect your midterm grade. A minimum of 40 hours and 25 exams must be directly supervised by a qualified instructor. This averages out to one 7-hour shift per week. Students must attend a minimum of 3.5 hours per shift.
Students must choose either the analog or the digital pathway and participate in the performance, evaluation and recording of all the QC tests. Candidates cannot combine requirements and document tests from analog and digital systems. The analog QC tests are described in the Mammography Quality Control Manual (1999) published by the American College of Radiology—you will need this if doing film/screen. Users of digital systems should follow the manufacturer’s QC recommendations.

<table>
<thead>
<tr>
<th>Analog QC Documentation</th>
<th>Digital QC Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Processor QC</td>
<td>• Laser Imager QC</td>
</tr>
<tr>
<td>• Film-Screen Contact</td>
<td>• Diagnostic Review Workstation</td>
</tr>
<tr>
<td>• Darkroom Cleanliness</td>
<td>• Monitoring Cleaning</td>
</tr>
<tr>
<td>• Phantom Images</td>
<td>• Phantom Images</td>
</tr>
<tr>
<td>• Screen Cleanliness</td>
<td>• Flat Field (FFDM-DR only)</td>
</tr>
<tr>
<td>• Viewboxes and Viewing Conditions</td>
<td>• Viewing Conditions</td>
</tr>
<tr>
<td>• Darkroom Fog</td>
<td>• SNR/CNR/MTF as required by the manufacturer</td>
</tr>
<tr>
<td>• Compression Force</td>
<td>• Compression Force</td>
</tr>
<tr>
<td>• Repeat Analysis</td>
<td>• Repeat Analysis</td>
</tr>
<tr>
<td>• Analysis of Fixer Retention in Film</td>
<td>• Visual Checklist</td>
</tr>
<tr>
<td>• Visual Checklist</td>
<td>• Review of Medical Physicist</td>
</tr>
<tr>
<td>• Review of Medical Physicist’s Annual Survey Report</td>
<td></td>
</tr>
</tbody>
</table>

3. In addition to these clinical hours, the student must review at least 10 mammographic examinations with a MQSA qualified interpreting physician to evaluate radiographic technique, positioning, breast anatomy and pathology. (Time spent with the radiologist counts toward your 100 hours.)

4. Elective Procedures and/or Interventional/Special Examinations. The student must observe, assist with or participate1 in at least four of the procedures listed below.
   • Needle Localization
   • Breast MRI
   • Breast Ultrasound: imaging, biopsy or FNA
   • Stereotactic Procedure
   • Breast Implant Imaging
   • Ductography
   • Diagnostic Work-Up

**“Participate” means being actively involved in the performance of the procedure even though the candidate may not have primary responsibility for performing the procedure.**

5. Two clinical evaluations are to be submitted by a clinical site technologist. One is due at midterm and must be submitted by Feb 26. The second will be at the end of the semester and must be submitted by Apr 29.

6. All competency exams must be entered through the Casper College Moodle class site, and must be filled out by a licensed and registered technologist. Students must clock-in and clock-out through Moodle, from their clinical site.

7. It is the student’s responsibility to record all procedures online through the ARRT as well as have them confirmed by a qualified technologist. This is a requirement to take the ARRT exam and
is not the responsibility of Casper College or its faculty to maintain, it is solely the students responsibility. This is not a requirement of the course but must be completed if you plan to take the ARRT exam. See the ARRT Mammography Handbook for more details.

Grade Scale: Grade percentage scale:  
A = 92-100  
B = 83-91  
C = 75-82  
F = 0-74

80% of your grade is calculated from the grades you earned on your competency exams. 20% is earned from your evaluations/timeclock. Evaluations are to be submitted on time – late evaluations will receive a minimum 5% deduction per day late. You need 50 clinical hours by midterm (Oct. 13), or your grade will be reduced by one letter. You must have 100 hours at the end of the Fall semester (100 hours total). Lack of clinical hours will result in failing the class. Missing a Saturday class will result in a minimum 5% deduction per class missed.

Casper College may collect samples of student work demonstrating achievement of the above outcomes. Any personally identifying information will be removed from student work.


Class Policies: Last Date to Change to Audit Status or to Withdraw with a W Grade: Nov 1

Student Rights and Responsibilities: Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student.

Chain of Command: If you have any problems with this class, you should first contact the instructor to attempt to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take the matter through the appropriate chain of command starting with the Department Head/Program Director, the Dean, and lastly the Interim Vice President for Academic Affairs.

Academic Dishonesty/On Line Education Integrity: Casper College demands intellectual honesty in all courses. Only admitted and registered Casper College students who have been assigned logins and passwords are allowed access to online courses. These secure logins verify the identity of the student. Proven plagiarism or any form of academic dishonesty associated with the academic process may result in course failure, dismissal from a program, or expulsion from Casper College, or other consequences. See the Casper College Student Code of Conduct for more information on this topic. All competency exams must be entered through the Casper College Moodle class site, and must be filled out by a licensed and registered technologist. Students must clock-in and clock-out through Moodle, from their clinical site.

Official Means of Communication: Casper College faculty and staff will employ the student's assigned Casper College email account as a primary method of communication. Students are responsible to check their account regularly. This is also, where you will find course evaluation links during course evaluation periods.

ADA Accommodations Policy: If you need academic accommodations because of a disability, please inform me as soon as possible. See me privately after class, or during my office hours. To
request academic accommodations, students must first consult with the college’s Disability Services Counselor located in the Gateway Building, Room 344, (307) 268-2557, bheuer@caspercollege.edu. The Disability Services Counselor is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.

**Calendar or schedule indicating course content:** Saturday classes meet 3 times per semester. Clinical days/times TBA with clinical site. Students are expected to attend one 7-hour shift per week, and must attend a minimum of 3.5 hours per shift. A total of 100 exams and 100 clinical hours are required. 3 evaluations due at midterms and 3 due at finals week.