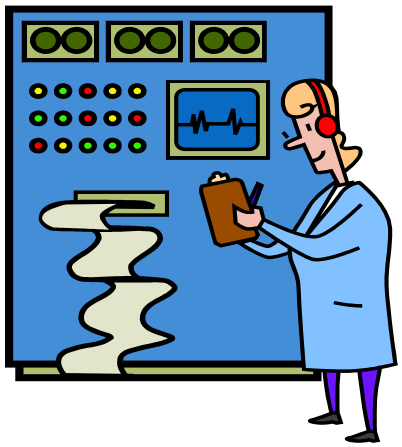
SALT LAKE COMMUNITY COLLEGE
Radiologic Technology Program



Course Syllabus

Course and Credit Hours: RADS 2030- 2 credits

Name of Course: Radiographic Imaging III **Semester**

and Term:

Time and Class Location: Days:

Instructor and Phone:

Office Location:

Mailbox Location:

Email Address:

Consultation Hours:

Textbook: Principles of Radiographic Imaging, 6th Edition, Carlton/Alder

Link or Instructions for Accessing Online Course Materials: Materials can be located on canvas.

Library Link: For a list of resources that support the program go to: http://libguides.slcc.edu/content.php?pid=16754

Prerequisite: Completion of prior semester courses per established curriculum plan.

Course Description: The course includes lecture and discussion of imaging principles relevant to fluoroscopy. Explores the theory and practice of quality assurance to include the development of a quality assurance program and exploration of the imaging in CT, MRI, Ultrasound, Mammography, CIT, Nuc Med, PET and Radiation Therapy.

SLCC Student Learning Outcomes:
SLCC is committed to fostering and assessing the following student learning outcomes in it programs and courses.

1. Acquiring substantive knowledge in their intended major
2. Communicate effectively.
3. Develop quantitative literacies necessary for their chosen field of study.
4. Think critically and creatively.
5. Develop the knowledge and skills to be civically engaged.
6. Develop the knowledge and skills to work with others in a professional and constructive manner.
7. Develop computer and information literacy.

Course Student Learning Outcomes:

Outcomes will be assessed with discussions, quizzes, projects, and presentations.

1. Student will describe how fluoroscopic radiography works. (SLO 1,3,4)

2. Student will develop a quality assurance project based on their study of quality assurance programs.(SLO 1,2,4,6)

3. Student will give a presentation on an advanced modality in the field of radiography. (SLO 1,2,4,6)

Course Content:

A. Quality Assurance

Assignment: The student will formulate a standardized exposure system and develop a quality assurance program for a radiology department**.**

Reading Assignment:
Digital Exposure Technique Systems – Chapter 23 (pg's 315-317) Appendix C Table C-1 thru C-6
Quality Management – Chapter 31

Upon completion of this course the student will be able to:

- Compare various exposure systems.
- Describe the advantages and disadvantages of fixed and variable Kilovoltage Peak (kVp) systems.
- Explain why measurement of part thickness is critical to the accurate use of techniques systems.
- Describe the function of the radiographer when using automatic exposure control systems.
- Describe how programmed exposure control systems operate.
- State the steps necessary to establish a technique system.
- Explain a basic phantom testing procedure.
- Describe the process of selecting an optimal image range.
- Extrapolate a technique system from a limited number of phantom images.
- Describe the clinical trial and fine-tuning process.
- Describe the principles of fixed kVp technique theory.
- Define optimal kVp.
- Explain how to establish fixed kVp for various subject parts.
- Describe the steps in establishing a fixed kVp technique system.
- Synthesize a fixed kVp technique system from control radiographs.
- Define quality assurance and quality control and discuss their relationship to excellence in radiography.
- Describe the process of identifying imaging requirements, developing equipment specifications, selecting equipment, installing equipment, testing equipment, and training the technical staff.
- Describe the objectives and responsibilities of monitoring equipment performance.
- Discuss primary quality control tests for external radiation beam monitoring of diagnostic radiographic systems, fluoroscopic, and automatic exposure controls.
- Discuss appropriate monitoring factors for digital radiography detectors.
- List primary quality control tests.

- Explain the rationale behind the data collection process and the basic analysis of a radiograph repeat-rate study.
- Describe a basic trouble shooting procedure.

B. Fluoroscopy

Reading Assignment:
Fluoroscopy – Chapter 33

Upon completion of this course the student will be able to:

- Differentiate fluoroscopic examinations from static diagnostic radiographic examinations.
- Describe a typical basic fluoroscopic image chain.
- Explain the difference between the operation of a fluoroscopic and a diagnostic x-ray tube.
- Explain the functions and operation of the image intensification tube input screen, photocathode, electrostatic focusing lenses, anode and the output screen.
- Explain the basic function of a fluoroscopic automatic brightness control.
- Discuss the factors that affect fluoroscopic image contrast, resolution, distortion, and quantum mottle.
- Explain the uses of dynamic and static fluoroscopic recording systems.
- Explain digital fluoroscopic image acquisition.

C. Advanced Areas of Radiology

Assignment: Clinical rotation through advanced area in radiology. Outside research of an advanced area and a power-point class presentation.

Upon completion of this course the student will be able to:

- Communicate a knowledge of the advanced areas of radiology to aid furthering skills and education.
- Explore baccalaureate school requirements for advanced areas in radiology.
- Research and present information of on an advanced are of radiology to include Computed Tomography, Magnet Resonance Imaging, Ultrasound, Mammography, Cardiovascular Interventional Technology, Nuclear Medicine Positron Emission Tomography and Radiation Therapy.

Course Requirements:

Tests and Quizzes. As per the Student Handbook, **tests and quizzes must be taken on the day assigned at the designated time. In the event the student will miss a test or quiz, they must call or e-mail the instructor** PRIOR **to the designated test start time. Phone messages are acceptable.** IF THE STUDENT DOES NOT CALL OR E-MAIL PRIOR TO THE TEST OR QUIZ START TIME, the student must take the test or quiz with an automatic 50% deduction.

All tests and quizzes are to be made up by or on the 1st class day the student returns. It is the student's responsibility to initiate making up tests and quizzes. If they fail to do so, they forfeit the opportunity to take the test or quiz.

Attendance. As per the Student Handbook, **attendance in class is** extremely **important. You are <u>forming work habits</u> and a <u>reputation</u> that will follow you into the professional environment. You are expected to be present for all courses and participate in planned activities. It is the**

responsibility of the student to obtain notes, handouts or assignments given on any missed day. *Students who have absences in excess of 20% of total attendance time in each course will be terminated from the program*

Student Responsibilities. Students are expected to complete reading assignments prior to scheduled class/lab times. Students should have completed worksheets, etc. and be prepared to discuss the material knowledgeably. If the student is having difficult in the course, it is the student's responsibility to make arrangements to take with the instructor. Students are expected to be self-directed and motivated in identifying their learning needs associated with the course content.

Assignments (descriptions can be found on canvas) *Advanced Modality Presentation*- Students will research and prepare a 50 min. presentation about an advanced modality. Students will work in groups of 2 or 3 and will be graded on Historical perspective, Examinations performed, Equipment special to modality, Special patient considerations, Employment opportunities, and Special education requirements. They must also include a 2 page paper about their research; thoughts from professionals in the field and their own feelings. Specific grading criteria will be given in canvas.

Worksheets- There will be 5 worksheets. Some of which will require work in the lab.

Quality Assurance Project- Student can work as a group or individually to complete a project at their clinical site that will evolve some aspect of quality assurance (students can consult CP or imaging leaders for ideas) Specific grading criteria will be given in canvas.

Incomplete. Students must complete all requirements and receive a C grade or higher in each course to remain in the program.

Class Procedure or Format:
This course will utilize lecture and discussion, Power Point presentations, Group presentations and demonstrations, and radiographic and phantoms studies

No late work will be accepted:

Course Evaluation:

Worksheets:		
Worksheet (4 @ 1%)		4%
Lab:		
Fixed/Variable Kilovoltage		3%
Quizzes:		
Ch 31 & 32 Quiz		4%
Ch 36 Quiz		4%
Assignment:		
Quality Management Assignment		15%
Examinations:		
Examination I		25%
Examination II		25%
Project/Presentation:		
Instructor Review	(75 pt)	
Class Review	(10 pt)	
Participation	(5 pt)	
Paper	(10 pt)	
Total		20%

Grading:

95-100	**A**	75-77	**C**
90-94	**A-**	71-74	**C-**
87-89	**B+**	67-70	**D+**
83-86	**B**	64-66	**D**
80-82	**B-**	Below 64	**E**
78-79	C+		

Wireless Devices in the Classroom:

The advent of technology use in the classroom as an instructional tool has caused both opportunities and distractions. The expectations for this course are that you are engaged and present during class time, which means that you will be free from technological distractions. Research has shown that these distractions cause individual inattentiveness and can make it difficult for other to stay focused on immediate discussions. The following policies are in effect during our time together:

1. Cell phones, iPods/Pads, pages, High-Resolution DVR Spy pens with webcam, microphones, recorders or any other wireless devices (excluding ADA authorized devices) that may distract from the class are to be silenced before entering the classroom and may not be on the desk or person during class.
2. Wireless devices can be checked during class breaks outside the classroom.
3. If you are discovered reading/texting messages during class, you will be asked to leave the class and will be counted as absent for that class session.
4. You are expected to engage in discussion for the class. If you are discovered engaging in reading emails, surfing the web and engaging in other computer activities not directly related to class, you will be asked to leave the class and will be counted as absent for that class session.
5. You may not record or publish information from the class without written authorization from the instructor. If used without written authorization, you will have violated "Privacy/Intellectual Property Rights".

Student Handbook:
Students must adhere to all policies and procedures of the Radiologic Technology Program as documented in the Student Handbook. It is the student's responsibility to be aware of, and follow, all requirements as listed in the Handbook.

Emergency Evacuation Procedures:
In case of an emergency situation, elevators should not be used as emergency exits. All class members should exit through the nearest doors on the west side of the building, then proceed toward the round-about on the northeast side of the building. We will then verify that all students are accounted for and unharmed. Please inform your instructor if you require assistance or accommodation during an evacuation. The instructor will identify several students in the class that are willing to provide assistance. If you have a disability, please notify your instructor and fill out an Evacuation Information Form.

The SLCC Department of Public Safety is using an app called the Crisis Manager to inform students and staff about Emergency Procedures. The app allows SLCC to instantly update these procedures. To download this app go to the App Store or Google Play Store, type **SchoolDude CrisisManager** in the search box and click "Get" or "Install. For questions regarding the Emergency Procedures or downloading the app to your device, please contact [redacted]

Academic Grievance Policy:
In accordance with the Salt Lake Community College Student Code of Conduct,
http://www.slcc.edu/policies/docs/Student_Code_of_Conduct.pdf
, the grievance policy for students with reference to academics can be found in Section III. Students are encouraged to seek resolution with the instructor(s) whenever possible.

It is the goal of the School of Health Sciences to be forthright and consistent with specific academic policies throughout divisions and programs. This policy singularly addresses academic issues and the general principles for disciplinary actions as noted in the Student Code of Conduct Section III. It should be noted it is up to the faculty's discretion to provide warning (verbal or written), suspension, or dismissal based upon program policy and severity of the issue at hand. It is realized in some health sciences programs a failing grade, as stated in the syllabus and/or policy manual, may result in program dismissal.

STEP ONE: A student has the right, as per college policy, to grieve a grade, warning (verbal or written), suspension, or dismissal received within a program of study. A student, as per policy, must make an appointment to meet with the instructor of the class. A meeting, for anything other than a final grade, should be made within ten (10) days of the incident. Final grade disputes require a meeting within 30 days of the student receiving the grade. Every effort should be made to find resolution and provide evidence from both parties with respect to the grade issued.

STEP TWO: If a resolution cannot be made, the student must request in writing five (5) business days from the date of meeting with the faculty, a committee review of the grievance to the Associate Dean of the specific division. The grievance will be reviewed by a committee consisting of three (3) to five (5) faculty outside the program in which the student is enrolled. This will include the following members, the Associate Dean and two to four faculty members outside the discipline. The Associate Dean will serve as committee chair. One faculty and the program coordinator of the program involved in the grievance can attend the procedure, as can the student with one representative. Each of these parties will only be allowed to present evidence to the committee and not vote on the issue in question. Legal representation is allowed by either party. The proceedings will be recorded for accuracy. Upon completion of the proceedings, the committee ONLY will vote on the issue(s) noted in the student's grievance. A formal letter will be provided by the committee chair within ten (10) business days of the end of the proceeding with the committee's decision regarding the issue.

STEP THREE: If the student is not satisfied with the outcome, they may appeal to the Academic Dean of the School of Health Sciences. This must be done in writing within five days of receiving the formal letter from the grievance committee chair. The Dean will review the appeal, all evidence, and render a decision to the student within ten (10) days of receiving the formal letter from the student. The decision of the Dean of the School of Health Sciences is final and cannot be appealed.

SLCC Institutional Resources:
For information on SLCC Institutional Resources, please refer to the link on Canvas