SPOKANE COMMUNITY COLLEGE

RADIOLOGY TECHNOLOGY

MASTER PLAN OF EDUCATION

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STUDENT LEARNING GOALS:

SPOKANE COMMUNITY COLLEGE MISSION STATEMENT:

Spokane Community College offers educational opportunities in college readiness, workforce training, and university transfer that meet the needs of the diverse communities we serve. We are committed to student success through active learning, dynamic relationships, and supportive environments.

Core Themes

- Workforce Development
- Academic Transfer
- College Readiness
- Student Success

MISSION STATEMENT FOR RADIOLOGY TECHNOLOGY:

The philosophy of the Radiology Technology program at Spokane Community College is to provide the health care community with qualified and competent Radiologic Technologists.

PROGRAM EFFECTIVENESS GOALS:

Goal 1: Five-year average credentialing examination pass rate of not less than 85 percent at first attempt.

Goal 2: For each of the last five years, job placement rate of not less than 75% within twelve months for those graduates actively seeking employment.

Goal 3: Annual program completion rates, 80 percent of the students will complete the program within 3 years of program start.

Goal 4: Graduate satisfaction: the graduates will express satisfaction with the program as a 3 on a 5 point scale, point scale for the employer survey.

Goal 5: **E**mployer satisfaction: the employers will rate the graduates as = 3 on a 5 point scale for the employer survey.

STUDENT LEARNING GOALS:

Goal 1: Students will have knowledge and skills required to be clinically competent in all radiographic tasks necessary for an entry level radiographer:

Student Learning Outcomes, students will:

- Apply positioning skills.
- Select technical factors.
- Utilize safe radiation protection practices.
- Attain the technical knowledge appropriate for an entry level technologist on the ARRT examination.

Goal 2: Students will demonstrate communication skills

Student Learning Outcomes, students will:

- Demonstrate written communication skills.
- Demonstrate oral communication skills.

Goal 3: Students will develop critical thinking skills.

Student Learning Outcomes, students will:

- Adapt standard procedures for non-routine patients.
- Critique images for diagnostic quality.

Goal 4: Students will model professionalism.

Student Learning Outcomes, students will:

- Demonstrate a good work ethic.
- Participate in personal and professional growth opportunities.

ASSESSMENT PLAN

The program is always striving to make sure it is providing the best education possible to the students. The program has an assessment committee, which is comprised of faculty, clinical instructors and preceptors. The committee meets a minimum of once a year to evaluate and revise the assessment plan for the current and/or upcoming new classes. The assessment plan is designed to monitor the how effective the program is at assisting the students in becoming entry-level graduates upon graduation. Thus allowing the program to make improvements and/or changes as needed. Each quarter the faculty reports the assessment information to the program director, who in turn compiles and places the results on the assessment plan for the assessment committee to review. Finally, the assessment information is shared with the advisory board for their final input.

An individual can ask to see the assessment plans at any time and some of it is located on the radiology website at: http://www.scc.spokane.edu/HealthSciences/AlliedHealth/RadTech.aspx?page=PV6

CURRICULUM AND COURSE SEQUENCE

RADIOLOGY TECHNOLOGY

Spring 2015

AAS - SCC
Offered at Locations: Spokane Community College

Prerequisites
- BIOL&160 General Biology w/Lab
- BIOL&241 Human A & P 1 *1*
- BIOL&242 Human A & P 2 *1*
- CIS 105 Computer Fundamentals for Vocations I
- ENGL&101 English Composition I *2*
- HED 125 Medical Terminology
- MATH 099 Intermediate Algebra *2*
- PHYS 100 Introductory Physics

First Quarter		
RAD 111	Radiographic Positioning I	5
RAD 113	Patient Care and Ethics I	2
RAD 114	Radiographic Image Evaluation I	2
RAD 115	Fuch's Radiographic Principles I	3
RAD 116	Clinical Education I	8
		20
Second Quarter		
RAD 121	Radiographic Positioning II	3
RAD 123	Patient Care and Ethics II	2
RAD 124	Radiographic Image Evaluation II	2
RAD 125	Fuch's Radiographic Principles II	3
RAD 126	Clinical Education II	9
RAD 127	Mobile/Surgical Procedures	1
		20
Third Quarter		
RAD 131	Radiographic Positioning III	2
RAD 134	Radiographic Image Evaluation III	2
RAD 136	Clinical Education III	9
RAD 145	Fuch's Radiographic Principles III	2
		15
Fourth Quarter		
RAD 132	Radiation Physics	2
RAD 141	Radiographic Positioning IV	2
RAD 144	Radiographic Image Evaluation IV	1
RAD 146	Clinical Education IV	7
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Fifth Quarter

RAD 212	Quality Management	1
RAD 213	Various Modalities	2
RAD 214	Radiographic Image Evaluation V	2
RAD 215	Radiation Biology and Protection	2
RAD 216	Clinical Education V	9
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Sixth Quarter

RAD 211	Radiographic Positioning V	1
RAD 223	Radiation Pathology	2
RAD 224	Radiographic Image Evaluation VI	2
RAD 225	Skull and GI Review	1
RAD 226	Clinical Education VI	9
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Seventh Quarter

RAD 235	Pharmacology/Venipuncture	1
RAD 236	Clinical Education VII	9
RAD 237	Review and Registration Preparation	3
RAD 238	Cat Scan	1
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112 credits are required for the AAS

1 This course has a prerequisite of BIOL& 160.

2 This related education requirement may be met by any course or combination of courses approved by the instructional dean.

Disclaimer: The college cannot guarantee courses will be offered in the quarters indicated. During the period this guide is in circulation, there may be curriculum revisions and program changes. ***Students are responsible for*** *consulting the appropriate academic unit or adviser for more current and specific information. The information in this guide is subject to change and does not constitute an agreement between the college and the student.*

COURSE DESCRIPTIONS AND LEARNING OUTCOMES

RAD 111 — Radiographic Positioning I (5 cr)

This course reviews specific anatomy as it appears on x-ray images such as chest and abdomen, upper and lower limbs, shoulder and pelvic girdles, and vertebral column systems. Students learn positional techniques used to take appropriate radiographs of each body part based on the physician's request. Correct alignment of radiographic equipment is emphasized. Exposure factors, patient apprehension, safety and comfort are addressed. (SCC)

Course Learning Outcomes:

- Demonstrate competence in the identification of a diagnostic projection
- Demonstrate identification of anatomical parts
- Perform diagnostic positioning relative to the patient's symptoms and physicians' requests for the following exams

    I. Routine Chest X-rays
    II. Routine Abdominal Series
    III. Upper Limb
    IV. Lower Limb
    IV. Pelvic Girdle
    V. Shoulder Girdle
    VIII. Vertebral Column

RAD 113 — Patient Care and Ethics I (2 cr)

Students learn the necessary skills for meeting the physical and emotional needs of the patient. Patient preparation required to perform a radiographic examination is emphasized. (SCC)

Course Learning Outcomes:

- Apply the principles of the "Professional Performance Standards" and the "Standards of Ethics" for the radiology technologist
- Discriminate between the ethical and legal rights of the patient
- Demonstrate protocols for emergencies—fire, bomb threat, respiratory and cardiac arrest, traumas, etc.
- Demonstrate care for the patient's physical and emotional needs through skilled communication techniques
- Apply the principles of interpersonal relationships pertaining to patients, co-workers, physicians, and the healthcare team
- Apply the principles of confidentiality
- Demonstrate the principles of sterile techniques
- Demonstrate self-care concepts such as proper body mechanics, prevention of exposure to blood and body fluids, and malpractice prevention

RAD 114 — Radiographic Image Evaluation I (2 cr)

This course introduces essential technical factors used to evaluate radiographic quality including collimation, shielding, positioning, anatomical anomalies, density, contrast and film artifacts in the developed radiograph. Types of images being evaluated build as students' knowledge of positioning grows. (SCC)

Course Learning Outcomes:

- Describe the necessity of radiographic examinations as they relate to identifying the disease process
- Select the correct exposure combination based on age, atrophy, disease process, and contrast media
- Demonstrate the use of appropriate film size, field view, combinations of screens, film speed and grids
- Demonstrate proper shielding and marker placement
- List basic positioning procedures for each exam
- Identify positioning landmarks and positional corrections
- Identify the anatomy and anatomical anomalies on radiographs
- Describe influencing factors of radiographic quality (density, contrast resolution, distortion and magnification)

RAD 115 — Fuch's Radiographic Principles I (3 cr)

This course introduces various forms of imaging. Students learn the basic principles of radiographic exposure, formulation of techniques and purpose, and the use of accessories such as grids, screens, collimators, filters and the x-ray tube. (SCC)

Course Learning Outcomes:

- Identify considerations that affect the recorded details of the radiograph
- Identify and control technical factors affecting image distortion, density and contrast
- Apply knowledge in controlling image quality in a clinical setting
- Demonstrate the understanding of the interrelationships of radiographic image formation factors
- Discuss film structures and composition
- Describe the action of processing chemicals
- Distinguish between film types relative to processing methods
- Define the properties and characteristics of x-rays
- Identify, define and discuss radiographic quality

RAD 116 — Clinical Education I (8 cr)

Students learn radiographic positioning, darkroom and office procedures, patient management and critical analysis of radiographs in a clinical setting. Students develop psychomotor skills, cognitive domain and affective behavior in the science of radiographic technology. (SCC)

Course Learning Outcomes:

- Learn radiographic positioning, darkroom and office procedures
- Clinical Education I
    - Radiographic positioning
    - Darkroom procedures
    - Office procedures
    - Patient management
    - Critical analysis of radiographs
- Develop psychomotor skills
    - Cognitive domain
    - Affective behavior

RAD 121 — Radiographic Positioning II (3 cr)

This course reviews the anatomy of each body part and system such as GI, Urinary, respiratory, bony thorax, and reproductive. Students learn positional techniques used to take appropriate radiographs of each body part or system based on the physician's request. Correct alignment of the image receptor and x-ray tube is emphasized. Exposure factors, patient apprehension, safety and comfort are covered. Prerequisite: RAD 111. (SCC)

Course Learning Outcomes:

- Describe the anatomy and function of the GI, urinary, respiratory, bony thorax, central nervous and reproduction systems, along with arthrograms
- Demonstrate identification of anatomical parts
- Describe the appropriate safety devices applicable for each procedure
- Demonstrate the appropriate radiation protection procedures
- Employ the appropriate immobilization devices and safety equipment required by the procedure
- Demonstrate the appropriate radiographic techniques for each procedure
- Demonstrate appropriate patient care for each procedure with an empathetic attitude
- Establish good communication with the patient
- Assist the radiologist with each procedure

RAD 123 — Patient Care and Ethics II (2 cr)

This course continues with the concepts introduced in RAD 113. Students learn the necessary skills for meeting the physical and emotional needs of the patient. Patient preparation required to perform a radiographic examination is emphasized. Potential situations that may lead to litigation are covered. Students also learn to protect themselves and the patient. Prerequisite: RAD 113. (SCC)

Course Learning Outcomes:

- Apply the principles of the "Code of Ethics" and the "Principles of Professional Conduct" for the radiology technologist
- Discriminate between the ethical and legal rights of the patient
- Demonstrate protocols for emergencies—fire, bomb threat, respiratory and cardiac arrest, traumas, etc.
- Demonstrate care for the patient's physical and emotional needs through skilled communication techniques
- Apply the principles of interpersonal relationships pertaining to patients, co-workers, physicians, and the healthcare team
- Apply the principles of confidentiality
- Demonstrate the principles of sterile techniques
- Demonstrate a basic understanding of drug administration, oxygen therapy, intravenous therapy, and contrast media administration
- Recite the rules governing labor relations (Fair Labor Standards, Civil Rights Acts, Worker's Compensation and Unlawful Harassment Laws)
- Demonstrate self-care concepts such as proper body mechanics

RAD 124 — Radiographic Image Evaluation II (2 cr)

Students build on the skills introduced in RAD 114 and develop radiographic assessment skills based on technical factors such as collimation, shielding, positioning, anatomical anomalies, density, contrast and image artifacts. Prerequisite: RAD 114. (SCC)

Course Learning Outcomes:

- Describe the necessity of radiographic examinations as they relate to identifying the disease process
- Select the correct exposure combination based on age, atrophy, disease process, and contrast media
- Demonstrate the use of appropriate film size, field view, combinations of screens, film speed and grids
- Demonstrate proper shielding and marker placement
- List basic positioning procedures for each exam
- Identify positioning landmarks and positional corrections
- Identify the anatomy and anatomical anomalies on radiographs
- Describe influencing factors of radiographic quality (density, contrast resolution, distortion and magnification)

RAD 125 — Fuch's Radiographic Principles II (3 cr)

This course continues with the concepts introduced in RAD 115. Students learn about radiation protection and use of protective devices. Film and film holders are emphasized. Students learn about radiation processing chemicals, darkroom design and care are emphasized. Prerequisite: RAD 115. (SCC)

Course Learning Outcomes:

- Identify the considerations that affect the recorded details of the radiograph
- Identify and control technical factors affecting image distortion, density and contrast
- Describe the interrelationships of radiographic image formation factors
- Identify and describe film structures and composition inclusive of differentiation of types
- Identify and discuss the action of processing chemicals
- Identify and discuss the procedure and equipment for radiographic film processing
- Distinguish between film types relative to processing methods
- Define the properties and characteristics of x-rays
- Identify, define and discuss radiographic quality

RAD 126 — Clinical Education II (9 cr)

Students learn radiographic positioning, darkroom and office procedures, patient management and critical analysis of radiographs in a clinical setting. Students continue to develop psychomotor skills, cognitive domain and affective behavior in the science of radiographic technology. Prerequisite: RAD 116. (SCC)

Course Learning Outcomes:

Learn radiographic positioning, darkroom and office procedures

- Clinical Education II
    - Radiographic positioning
    - Darkroom procedures
    - Office procedures
    - Patient management
    - Critical analysis of radiographs
- Develop psychomotor skills
    - Cognitive domain
    - Affective behavior

RAD 127 — Mobile/Surgical Procedures (1 cr)

This course reviews common mobile/surgical procedures using positional techniques to take appropriate radiographs of each body part based on the physician's request. Students review correct alignment of radiographic equipment, exposure factors, patient apprehension, safety and comfort. (SCC)

Course Learning Outcomes:

- Identify the different types of mobile machines and their capabilities
- Identify the different mobile radiology procedures
- Identity the different surgical procedures
- Describe the types of sterile techniques in the surgical suite
- Identify types of fractures and signs of fractures
- Describe trauma radiology

RAD 131 — Radiographic Positioning III (2 cr)

Students review the anatomy of the skull and facial bones and positional techniques utilized to take appropriate radiographs based on the physician's request. Correct alignment of image, anatomy and x-ray tube are emphasized. Students prepare for comprehensive tests. Prerequisite: RAD 121. (SCC)

Course Learning Outcomes:

- Identify and explain the diagnostic positions
- Demonstrate competence in performing diagnostic positioning
- Describe the anatomy of the skull and facial bones including paranasal sinuses and mastoids
- Assign the central ray for the indicated projection
- Describe the correct size, type and placement of the cassette
- Utilize restraint, ancillary and protective devices applicable to each procedure

RAD 132 — Radiation Physics (2 cr)

This course reviews principles and concepts of scientific measurement, molecular theory, matter and energy, and electricity, magnetism and circuitry. Particular emphasis is placed on imaging modalities, x-ray circuitry, and the principles and production of x-rays. (SCC)

Course Learning Outcomes:

- Describe and list the major sources of natural and manmade radiation
- Define terms: exposure, absorbed dose, and dose equivalent
- Name the units of radiation (R, RAD, and REM) for each given quantity
- Describe the interrelationship of the units of radiation
- Define and explain the inverse square law
- Describe the basic components of an x-ray tube and their functions
- Define electromagnetic radiation and give examples (EM)
- Recognize and explain the wave formula
- Define the quality of the x-ray beam
- Describe the production of x-rays
- Define the half value layer (HVL)

RAD 134 — Radiographic Image Evaluation III (2 cr)

Students continue to develop radiographic assessment skills based on technical factors such as collimation, shielding, positioning, anatomical anomalies, density, contrast and image artfacts. Prerequisite: RAD 124. (SCC)

Course Learning Outcomes:

- Describe the necessity of radiographic examinations as they relate to identifying the disease process
- Select the correct exposure combination based on age, atrophy, disease process, and contrast media
- Demonstrate the use of appropriate film size, field view, combinations of screens, film speed and grids
- Demonstrate proper shielding and marker placement
- List basic positioning procedures for each exam
- Identify positioning landmarks and positional corrections
- Identify the anatomy and anatomical anomalies on radiographs
- Describe influencing factors of radiographic quality (density, contrast resolution, distortion and magnification)

RAD 136 — Clinical Education III (9 cr)

This course continues with the development of clinical skills introduced in RAD 126. Prerequisite: RAD 126. (SCC)

Course Learning Outcomes:

- Describe the necessity of radiographic examinations as they relate to identifying the disease process
- Select the correct exposure combination based on age, atrophy, disease process, and contrast media
- Demonstrate the use of appropriate film size, field view, combinations of screens, film speed and grids
- Demonstrate proper shielding and marker placement
- List basic positioning procedures for each exam
- Identify positioning landmarks and positional corrections
- Identify the anatomy and anatomical anomalies on radiographs
- Describe influencing factors of radiographic quality (density, contrast resolution, distortion and magnification)

RAD 141 — Radiographic Positioning IV (2 cr)

This course is a review of specific anatomy as it appears on x-ray images such as nervous, biliary arthrography and tomography systems. Students learn positional techniques used to take appropriate radiographs of each body part based on the physician's request. Correct alignment of radiographic equipment is emphasized. Exposure factors, patient apprehension, safety and comfort are addressed. Prerequisite: RAD 131. (SCC)

Course Learning Outcomes:

- Demonstrate proper positioning of bony anatomy
- Describe the appropriate mAs and kVp for each procedure
- Identify the image criteria needed on the images for each procedure
- Describe the appropriate safety devices applicable for each procedure
- Demonstrate the appropriate radiation protection procedures
- Employ the appropriate immobilization devices and safety equipment required by the procedure
- Demonstrate the appropriate radiographic techniques for each procedure
- Demonstrate appropriate patient care for each procedure with an empathetic attitude

RAD 141 Course Learning Outcomes (cont'd)

- Establish good communication with the patient
- Assist the radiologist with each procedure
- Review of Bony Positioning, Image Criteria, & Techniquing
    - Upper Limbs
    - Lower Limbs
    - Shoulder Girdle
    - Pelvic Girdle
    - Vertebral Column
    - Chests
    - Abdomens

RAD 144 — Radiographic Image Evaluation IV (1 cr)

Students continue to develop radiographic assessment skills based on technical factors such as collimation, shielding, positioning, anatomical anomalies, density, contrast and image artifacts. Prerequisite: RAD 134. (SCC)

Course Learning Outcomes:

- Describe the necessity of radiographic examinations as they relate to identifying the disease process
- Select the correct exposure combination based on age, atrophy, disease process, and contrast media
- Demonstrate the use of appropriate film size, field view, combinations of screens, film speed and grids
- Demonstrate proper shielding and marker placement
- List basic positioning procedures for each exam
- Identify positioning landmarks and positional corrections
- Identify the anatomy and anatomical anomalies on radiographs
- Describe influencing factors of radiographic quality (density, contrast resolution, distortion and magnification)

RAD 145 — Fuch's Radiographic Principles III (2 cr)

This course continues with the concepts introduced in RAD 125. Students learn about computerized and digital imaging, while radiation protection is emphasized. Prerequisite: RAD 125. (SCC)

Course Learning Outcomes:

- Basic Principles of Digital Radiography
    - Digital image characteristics
    - Digital receptors
    - Comparison of detector properties and evaluative criteria
    - Dynamic range vs. latitude
- Image Acquisition
    - Raw data acquisition – "latent image"
    - Image extraction – cassette-less system
    - Exposure indicators
- Image Acquisition Errors
    - Histogram analysis error
    - Low intensity radiation response
    - Scatter control

RAD 145 Course Learning Outcomes (cont'd)

- Fundamental Principles of Exposure
    - Optimal receptor exposure
    - Exposure myths associated with digital systems
    - Control patient exposure
    - Monitor patient exposure
- Image Evaluation
    - Evidence of appropriate exposure level
    - Contrast
    - Recorded detail
    - Artifacts
- Quality Assurance and Maintenance Issues
    - Uniformity of default processing codes
- Display
    - Monitor
    - Film
    - Picture archiving and communication system (PACS)
    - Teleradiology
    - Radiographer's responsibilities

RAD 146 — Clinical Education IV (7 cr)

This course continues with the development of clinical skills introduced in RAD 136. Prerequisite: RAD 136. (SCC)

Course Learning Outcomes:

- Describe the necessity of radiographic examinations as they relate to identifying the disease process
- Select the correct exposure combination based on age, atrophy, disease process, and contrast media
- Demonstrate the use of appropriate film size, field view, combinations of screens, film speed and grids
- Demonstrate proper shielding and marker placement
- List basic positioning procedures for each exam
- Identify positioning landmarks and positional corrections
- Identify the anatomy and anatomical anomalies on radiographs
- Describe influencing factors of radiographic quality (density, contrast resolution, distortion and magnification)

RAD 211 — Radiographic Positioning V (1 cr)

This course is a review of specific anatomy as it appears on x-ray images such as chest and abdomen, upper and lower limbs, shoulder and pelvic girdles, bony thorax, vertebral column and gastrointestinal systems. Students learn positional techniques used to take appropriate radiographs of each body part based on the physician's request. Correct alignment of radiographic equipment is emphasized. Exposure factors, patient apprehension, safety and comfort are addressed. Prerequisite: RAD 141. (SCC)

Course Learning Outcomes:

- Identify and explain the diagnostic positions
- Demonstrate competence in performing diagnostic positioning

RAD 211 Course Learning Outcomes (cont'd)

- Describe the anatomy of the upper limbs, shoulder girdle, lower limbs, knees, pelvic girdle, vertebral column, thoracic spine, and bony thorax/thoracic viscera
- Assign the central ray for the indicated projection
- Describe the correct size, type and placement of the cassette
- Utilize restraint, ancillary and protective devices applicable to each procedure
- Upper Limb
    - Bone age
    - Papilion Projection
    - Carpal Boss
    - Carpal Canal
    - Carpal Bridge
    - Norgaard Method
    - Clements-Nakayama
    - Oblique of the Elbow
    - Radial Head—Capitellum View
- Shoulder Girdle
    - Axial Shoulder
    - AP Axial Coracoid Process
    - Scapular Spine
    - Intertubercular Groove
- Lower Limbs
    - Sesamoid Bones
    - Weight-bearing Feet
    - Obliques of the Knee
    - Club Feet
    - Weight-bearing Knees
    - Kuchendorf Patella
    - Orthoroentgenography
- Pelvic Girdle
    - Chassard-Lapine Method
    - Cleaves
    - Andren Von-Rosen
    - Hickey vs. Lauenstein
    - Axiolateral
    - Hsieh
    - Friedman
    - Lilienfeld
    - Teufel
- H. Staunig
    - Judet
    - Ilium
- Vertebral Column
    - C-spine
    - Thoracic Spine
    - Scoliosis Series
- Bony Thorax/Thoracic Viscera
    - Costal Joints
    - Trachea
    - Pulmonary Apices
    - Sternoclavicular Articulations

RAD 212 — Quality Management (1 cr)

This course introduces quality assurance programs and techniques used in film quality evaluation, processing and x-ray instrumentation. Students study the theory and practical application of quality assurance. (SCC)

Course Learning Outcomes:

- Perform and interpret various control tests
- Describe the difference between quality management, quality control and quality assurance
- Demonstrate basic control testing procedures and describe the results

RAD 213 — Various Modalities (2 cr)

This course introduces the elements of ultrasound technology principles, nuclear medicine, mammography, radiation therapy, magnetic resonance imaging (MRI) and other special procedures. Principles of interventional and angiographic procedures, angiographic equipment and visualized anatomy are addressed. History of development, application and image presentation also are presented. The scope of medical imaging techniques and their correlation is emphasized. (SCC)

Course Learning Outcomes:

- Describe the practical physics of ultrasonography
- Describe the biological effects of ultrasound waves
- List various modes of scanning and describe their functions
- Describe the basic anatomical landmarks and scanning planes used in imaging
- Describe the properties and mass of an atom
- Describe the components and physics of a scintillation detector
- Describe the history and development of CT technology
- Describe the advantages of CT over conventional radiography
- Describe the history and development of MRI technology
- Describe the basic physics and principles of operation of the MRI system
- Critique MRI, CT and ultrasound images
- Demonstrate basic control testing procedures and describe the results
- Describe the history and development of Mammography
- Describe the history and development of DEXA

RAD 214 — Radiographic Image Evaluation V (2 cr)

This course introduces essential technical factors used to evaluate radiographic quality including collimation, shielding, positioning, anatomical anomalies and density, contrast, and film artifacts in the developed radiograph. Types of images being evaluated build as the students' knowledge of positioning grows. Prerequisite: RAD 134. (SCC)

Course Learning Outcomes:

- Describe the necessity of radiographic examinations as they relate to identifying the disease process
- Select the correct exposure combination based on age, atrophy, disease process, and contrast media
- Demonstrate the use of appropriate film size, field view, combinations of screens, film speed and grids
- Demonstrate proper shielding and marker placement
- List basic positioning procedures for each exam
- Identify positioning landmarks and positional corrections
- Identify the anatomy and anatomical anomalies on radiographs

- Describe influencing factors of radiographic quality (density, contrast resolution, distortion and magnification)

RAD 215 — Radiation Biology and Protection (2 cr)
This course introduces the effects of ionizing radiation on biologic tissue. An overview of pertinent pathological diseases is presented, and the concepts of radiation protection is discussed and emphasized. (SCC)

Course Learning Outcomes:
- Describe the major subdivisions of a cell
- Identify the nucleus and cytoplasm of a cell from a diagram
- Define the term chromosome
- List the primary constituents of chromosomes
- Describe the importance of DNA in the cell
- Describe the importance of linkage of the ladder arrangement of DNA
- Identify the structures of a DNA molecule
- Discriminate between genetic and somatic cells
- Differentiate between the direct and indirect interactions
- Describe an ion and a free radical
- Describe relative biological effect (RBE), linear energy transfer (LET), and the quality factor (QF).
- Describe the general effects of radiation on other cellular constituents
- Describe the difference between a differentiate and undifferentiated cell
- List factors contributing to the radiosensitivity of tissues
- Describe the mechanisms of radiation damage to radioresistant and radiosensitive tissue
- Select the most radiosensitive and radioresistant organs and tissues

RAD 216 — Clinical Education V (9 cr)
This course continues with the development of clinical skills introduced in RAD 146. Prerequisite: RAD 146. (SCC)

Course Learning Outcomes:
- Describe the necessity of radiographic examinations as they relate to identifying the disease process
- Select the correct exposure combination based on age, atrophy, disease process, and contrast media
- Demonstrate the use of appropriate film size, field view, combinations of screens, film speed and grids
- Demonstrate proper shielding and marker placement
- List basic positioning procedures for each exam
- Identify positioning landmarks and positional corrections
- Identify the anatomy and anatomical anomalies on radiographs
- Describe influencing factors of radiographic quality (density, contrast resolution, distortion and magnification)

RAD 223 — Radiation Pathology (2 cr)
A radiologist discusses disease processes, anomalies and technical factors related to properly completed radiographs. (SCC)

Course Learning Outcomes:

- Identify signs and symptoms of various tumors and disease as presented on images from CT, MRI, nuclear medicine, ultrasound, general diagnostics and angiography
- Explain the course of treatment from images found on the various imaging modalities
- Identify body system disease, anomalies and organ injuries as shown on imaging procedures
- Describe the difference between a normal and abnormal image
- Describe the principles used in the identification of anatomical and physiological disorders

224 — Radiographic Image Evaluation VI (2 cr)

This course introduces essential technical factors used to evaluate radiographic quality including collimation, shielding, positioning, anatomical anomalies and density, contrast, and film artifacts in the developed radiograph. Types of images being evaluated build as the students' knowledge of positioning grows. Prerequisite: RAD 214. (SCC)

Course Learning Outcomes:

- Describe the necessity of radiographic examinations as they relate to identifying the disease process
- Select the correct exposure combination based on age, atrophy, disease process, and contrast media
- Demonstrate the use of appropriate film size, field view, combinations of screens, film speed and grids
- Demonstrate proper shielding and marker placement
- List basic positioning procedures for each exam
- Identify positioning landmarks and positional corrections
- Identify the anatomy and anatomical anomalies on radiographs
- Describe influencing factors of radiographic quality (density, contrast resolution, distortion and magnification)

RAD 225 — Skull and GI Review (1 cr)

This course reviews the positional techniques utilized when taking radiographs of the skull and GI system based on the physician's request. (SCC)

Course Learning Outcomes:

- Demonstrate positioning and image evaluation of the GI system
- Demonstrate positioning and image evaluation of the skull

RAD 226 — Clinical Education VI (9 cr)

This course continues with the development of clinical skills introduced in RAD 216. Prerequisite: RAD 216. (SCC)

Course Learning Outcomes:

- Describe the necessity of radiographic examinations as they relate to identifying the disease process
- Select the correct exposure combination based on age, atrophy, disease process, and contrast media
- Demonstrate the use of appropriate film size, field view, combinations of screens, film speed and grids
- Demonstrate proper shielding and marker placement
- List basic positioning procedures for each exam
- Identify positioning landmarks and positional corrections
- Identify the anatomy and anatomical anomalies on radiographs

- Describe influencing factors of radiographic quality (density, contrast resolution, distortion and magnification)

RAD 235 — Pharmacology/Venipuncture (1 cr)

Students learn safe administration of pharmaceuticals including clinical experience in needle placement. Needle insertion and contrast media injection, and principles of pharmacological agents used in a radiology department are emphasized. (SCC)

Course Learning Outcomes:

- Demonstrate knowledge of medications and contrast medias
- Converse effectively with medical personnel using various pharmacological terminologies
- Describe various types of medications that may be used during an emergency situation
- Describe the important pharmacological principles
- Demonstrate proper patient care
- Describe the five rights of drug administration
- Differentiate between the various methods of administration of drugs

RAD 236 — Clinical Education VII (9 cr)

This course continues with the development of clinical skills introduced in RAD 226. Prerequisite: RAD 226. (SCC)

Course Learning Outcomes:

- Describe the necessity of radiographic examinations as they relate to identifying the disease process
- Select the correct exposure combination based on age, atrophy, disease process, and contrast media
- Demonstrate the use of appropriate film size, field view, combinations of screens, film speed and grids
- Demonstrate proper shielding and marker placement
- List basic positioning procedures for each exam
- Identify positioning landmarks and positional corrections
- Identify the anatomy and anatomical anomalies on radiographs
- Describe influencing factors of radiographic quality (density, contrast resolution, distortion and magnification)

RAD 237 — Review and Registration Preparation (3 cr)

Students review all the material covered in previous radiology technology courses in preparation of the ARRT examination which may be taken on or after the day of graduation from the program. (SCC)

Course Learning Outcomes:

- Define medical terms
- Demonstrate communications skills
- Demonstrate correct positioning for various modalities
- Evaluate a variety of medical imaging techniques
- Complete the simulated registry exam with a competency of 75% or above

RAD 238 — Cat Scan (1 cr)

Course content is designed to provide entry-level radiography students with principles related to computed tomography (CT) imaging. This course includes instruction on the history, various components, operations and processes applied in CT. The students will also be instructed on the appropriate radiation protection that should be utilized. (SCC)

Course Learning Outcomes:

- Discuss the history of CT and its advantages as an imaging modality in the health field
- Discuss the background of computer systems and how they have evolved in Radiology departments today
- Trace the history of digital image processing, the steps in digitizing an image, the characteristics of digital image processing, and the advantages of digitizing an image
- Demonstrate knowledge of the basic principles of Computed Tomography
- Identify and describe the basic components of a data acquisition scheme in CT with consideration to generator type, detector characteristics, and the five generations of CT Scanners
- Differentiate dynamic versus spiral and helical scanning
- Trace the history of image reconstruction techniques while identifying the various algorithms used during this process
- Describe the major components of the CT Scanner, implementing the elements of a CT image processing system, CT gantry, display, storage and recording devices
- Evaluate the techniques used for image manipulation in CT
- Identify the properties which effect image quality in CT Scanning
- Discuss biological effects of CT and adhere to radiation protection guidelines
- Explain quality control for CT Scanners, stating the benefits of a QC program selection of technique for QC measurements and tests performed in a QC program
- Survey post processing computer manipulations, e.g. 3-D CT reconstruction

TEXTBOOKS

Required Textbook list for the class that started on September 20, 2017

1. Basic Medical Techniques & Patient Care for the Radiologic Technologist (L.S. Torres, C.M. Moore), 8th Edition, ISBN 13: 9781451115659.

2. Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 13th Edition, ISBN-13: 9780323263412.

3. Radiography in the Digital Age: Physics, Exposure, Radiation Biology: (Carroll) 2nd Edition, ISBN 13: 9780398080969.

4. Radiologic Science for Technologists: Physics, Biology, and Protection: (Bushong) 11th Edition, ISBN-13 97803233353779.

6. Radiographic Image Analysis (McQuillen & Martensen) 4th Edition, ISBN-13:9780323280525.

7. Medicolegal Issues for Diagnostic Imaging Professionals (Parelli), 4th Edition, ISBN-13: 9781420086638.

8. Digital Radiography and PACS, (Carter) 2nd Edition, ISBN 13: 9780323086448.

9. Comprehensive Radiographic Pathology (Eisenberg), 5th Edition, ISBN 13: 9780323078474.

10. Quality Management in the Imaging Sciences (Papp), 5th Edition, ISBN-13: 9780323261999.

11. Pharmacology & Drug Administration for Imaging Technologists (Jensen, Peppers), 2nd Edition, ISBN-13: 9780323030755

Recommended Textbook & Website list for September 20, 2017

1. Appleton & Lange's Review for the Radiography Examination, 10th Edition, ISGN-13: 9780071833103

2. Mosby's Comprehensive Review of Radiography, 7th Edition, ISBN-13: 9780323354233

3. The Radiologic Technologist's Handbook of Surgical Procedures (Anderson), 1st Edition, ISBN-13:9780849315060

SYLLABI

COURSE TITLE: Radiographic Positioning I **COURSE NUMBER:** RAD 111

CREDIT HOURS: 5 **QUARTER:** Fall

INSTRUCTOR: Debbie Miller
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiologic Procedures, 13th edition, Ballinger & Frank

COURSE DESCRIPTION:

This course reviews the anatomy of each part of the body or region to include: upper limb, lower limb, pelvic and shoulder girdles, bony thorax and vertebral column. The students will be taught positioning techniques for upper limb, lower limb, pelvic & shoulder girdles, vertebral column, routine chest x-rays and abdominal series. Correct alignment of the image receptor, body part and x-ray tube is emphasized along with exposure factors, radiation protection and collimation. In addition, patient safety and comfort will be addressed.

COURSE OBJECTIVES:

1. Review the anatomy of each anatomical area
2. Present the radiographic positions for imaging each anatomical area to include proper centering of the x-ray beam
3. Present methods to provide patient comfort, immobilization & radiation protection
4. Discuss imaging techniques for each image to include: optimum kVp, average MAS, SID & appropriate collimation

METHOD OF TEACHING:

Lecture, demonstration and lab presentations, and practice

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

This course's grade will be a combination grade that will be based on quizzes, tests and a comprehensive final. The combined grades of quizzes and tests will account for 75% of the final grade. If you are absent on a quiz or test day the quiz or test must be made up on the first day back to clinical or class depending on which comes first. For each day the quiz or test is not made up (after returning to school) a 5%

deduction will be applied to final quiz or test grade. A comprehensive final will be given which constitutes the remaining 25% of the final grade. Grades can be checked online on Canvas. The following is a breakdown of the grading method:

GRADING METHOD:

Scheduled & Pop quizzes----------	=	20%
Tests----------	=	45%
Comprehensive Final----------	=	35%
		100%

Students will be allowed to drop their lowest quiz score. This includes pop quizzes.

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Identify the anatomy of the upper limb, lower limb, shoulder & pelvic girdles, bony thorax and vertebral column
- Maneuver the radiographic imaging equipment for imaging those anatomical parts
- Demonstrate patient care and safety; radiation protection
- Position the patient into the required positions for upper limb, lower limb, shoulder & pelvis girdles, and vertebral column
- Demonstrate optimal technical factors for each image
- Examine the images critically for correct positioning and technical factors and understand what corrections may be necessary
- Successfully complete the class with at least a 2.0 (78%) grade.

***COLLEGE WIDE ABILITIES**
The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility
Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.
Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the SCC Radiology Technology Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:
Penalties for Deliberate Plagiarism or Cheating:
First Offense: Automatic failure of the paper or test and possible failure of the course.
Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

Works cites for all powerpoints are from required textbook:

Merrill's Atlas of Radiographic Positions & Radiologic Procedures, 12th edition, Ballinger & Frank

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PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

***TENTATIVE* CLASS SCHEDULE**

Week 1			Intro to Radiographic Positioning
			Positioning Terms
			Preliminary Steps for Positioning I
Week 2			Quiz on Merrill Terms Positioning: PA & Lateral Chest
			Positioning: Abdominal series
			Positioning Labs (chest & abdomen)
			Quiz: Upper limb anatomy;
Week 3	Monday	am -	Positioning: Digits, Thumb & Hand
		pm -	Positioning: Wrist & Forearm
	Thursday	am -	Positioning: Elbow & Special elbow views
		pm -	Positioning: Humerus (inc. Transthoracic Lateral Humerus) Review of upper limb positioning
Week 4	Monday	am -	**TEST:** all Upper Limb Positioning & Anatomy
		pm -	Positioning Labs (digit/hand/wrist/forearm)
	Thursday	*am* -	*Positioning Lab open for practice*
		pm -	*Positioning Lab open for practice*

Week 5	Monday	am -	**Quiz:** Lower limb anatomy Positioning: Toes & Foot
		pm-	*Positioning Lab open for practice*
	Thursday	am -	Positioning: Lower Leg & begin knee
		pm -	finish up knee
Week 6	Monday	am -	Positioning: Femur (inc. Danelius-Miller axiolateral), Review of lower limb positioning
		pm -	*Positioning Lab open for practice*
	Thursday	am -	**TEST:** all Lower Limb positions
		pm -	*Positioning Lab open for practice*
Week 7	Monday	am -	**Quiz:** Shoulder Girdle anatomy; Positioning: Shoulder (Int, ext, neutral, Grashey & Scap Y)
		pm -	Finish up Shoulder (inferior & superior views)
	Thursday	am -	Positioning: Clavicle, Scapula & AC Jts.
		pm-	*Positioning Lab open for practice*
Week 8	Monday	am -	**Quiz:** Pelvic Girdle anatomy; Positioning: Pelvis & Hip
		pm-	*Positioning Lab open for practice*
	Thursday	am-	**Test:** Shoulder & Pelvic Girdles
		pm-	*Positioning Lab open for practice*

Week 9	Monday	am -	**Quiz:** Vertebral Column anatomy Positioning: Lateral Cervical spine (Upright, x-table, flexion, extension)
		pm -	*Positioning Lab open for practice*
	Thursday	am -	Positioning: remainder of Cervical spine
		pm -	Positioning: Thoracic spine & Lumbosacral spine
Week 10	Monday	am -	Positioning: Bending series, Sacrum/Coccyx & SI joints
		pm -	*Positioning Lab open for practice*
	Thursday		**Thanksgiving Day**
Week 11	Monday	am -	**TEST:** entire vertebral column
		pm -	*Positioning Lab open for practice*
	Thursday	am -	Review for Quarter Final
		pm -	*Positioning Lab open for practice*
Week 12	TBA		**COMPREHENSIVE FINAL**

POSITIONING I – RAD 111
COURSE OUTLINE

I. Routine Chest X-rays

- A. Equipment Shielding
- B. Routine Positions
- C. High kVp, grid 72" SID

II. Routine Abdominal Series

- A. Technical Factors
- B. Respiration
- C. Radiographic Positions
- D. Use of Retention Bands

III. Upper Limb

- A. Anatomy
- B. Technical Factors/Shielding
- C. Radiographic Positioning

IV. Lower Limb

- A. Anatomy
- B. Technical Factors/Shielding
- C. Radiographic Positioning

V. Shoulder Girdle

- A. Anatomy
- B. Technical Factors/Shielding
- C. Radiographic Positioning

VI. Pelvic Girdle

- A. Anatomy
- B. Technical Factors/Shielding
- C. Radiographic Positioning

VII. Vertebral Column

A. Anatomy

B. Landmarks

C. Technical Factors/Shielding

D. Radiographic Positioning

SYLLABI *(cont'd)*

COURSE TITLE: Patient Care & Ethics I **COURSE NUMBER:** RAD 113

CREDIT HOURS: 2 **QUARTER:** Fall

INSTRUCTOR: Kim Eikum, M.Ed., R.T. (R) (M)
Office #: Rm. 7-138
Office phone #: 509-533-8613
Cell phone #: 509-280-0001
kimberly.eikum@scc.spokane.edu.
Office hours posted by office door

REQUIRED TEXT:

Patient Care in Imaging Technology, Eighth Edition. Torres, Lillian S., Guillen Dutton, Andrea. Linn-Watson, Terri Ann. (2013). In Pete Sabatini (Ed.), Patient care in imaging technology (8th ed.). Baltimore, Maryland: Wolters Kluwer Health/Lippincott Williams & Wilkins.

This text is designed to aid the radiology student in patient safety, emphasized in each chapter and reinforced with clinical case examples. In addition, the text stresses the need for professionalism, ethics, and effective communication.

COURSE DESCRIPTION:

This course presents techniques for handling situations which may arise while taking care of patients in the radiology department such as medical emergencies and exposure to blood and body fluids. It also teaches vital signs, oxygen administration, and basic emergency drugs. It will introduce to the student special equipment that needs to be handled appropriately while caring for patients, such as nasogastric tubes, suction, tissue drains and feeding tubes. The student will be taught standard precautions, infection control and isolation techniques in order to reduce the spread of microorganisms. In addition, the ARRT and ASRT ethical standards will be addressed along with the Patient Bill of Rights.

COURSE OBJECTIVES:

1. Identify and describe infection control policies & standard precaution techniques to include hand washing methods
2. Identify and describe the proper sterile technique for setting up trays and supplies, accomplishing patient skin preps, and donning sterile gowns & gloves.
3. Describe the ARRT/ASRT ethical standards and Patient Bill of Rights.
4. Identify and describe the basics of oxygen administration & how to assess the patient's vital signs
5. Describe how to respond to medical emergencies with the emphasis on anaphylactic reactions (to contrast agents)
6. Describe special techniques necessary in the patient care of pediatric and geriatric patients
7. Identify and describe the use of suction equipment & drainage tubes

METHOD OF TEACHING:

This course will consist of lecture and class discussion.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

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"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
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Above Average Achievement	3.1	89
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	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
Sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

All homework or assignments must be turned in on the date and time due in order to receive full credit. Any homework or assignments turned in after the due date/time will receive half credit. If you are absent on a test or quiz day, the test or quiz it is your responsibility to complete by the scheduled date and time on **Canvas.**

Homework/Quiz's/Discussions	15% of final grade
Unit Tests	60 % of final grade
Final	25% of final grade

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Follow infection control and standard precautions measures to prevent the spread of microorganisms
- Understand and adhere to the ethical standards of the ARRT/ASRT as well as safeguard the patients' Bill of Rights
- Practice sterile technique; be able to don sterile gown & gloves
- Practice isolation techniques
- Assess the patient's vital signs
- Care for patients with oxygen therapy, suctions tubes, drainage tubes, nasogastric tubes and feeding tubes
- Know the appropriate steps for treating medical emergencies including anaphylactic reactions
- Provide good patient care for all patients including pediatrics and geriatrics

***COLLEGE WIDE ABILITIES**
The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility
Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

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Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

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- Read and listen analytically with understanding and openness toward another point of view
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(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

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In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

Unit Objectives

Patient Care and Ethics I

ORIENTATION

(SWBAT-Student will be able to…)

Objective 1. Identify and describe proper hand washing and Infection control

Objective 2. Describe the different emergency procedures

Objective 3. Identify and describe the difference between MRSA, VRE, and TB

Objective 4. Identify the professional issues in imaging

Objective 5. Identify and describe proper body mechanics and patient transfer

Chapters 1 and 2

(SWBAT-Student will be able to…)

Objective 1. Identify the biologic effects of radiation

Objective 2. Describe how to protect against radiation

Objective 3. Define general positioning terminology

Objective 4. Explain Practice of Standards and professional growth

Objective 5. Define ethics and identify ethics as it applies to radiologic technology

Objective 6. Identify the ARRT Standards of Ethics

Objective 7. Describe the legal obligations that the radiographer has in the health care setting.

Chapters 3 and 14

(SWBAT-Student will be able to…)

Objective 1. Identify and describe proper patient assessments and history taking

Objective 2. Describe the different communications skills needed in patient care

Objective 3. Identify and describe the Grieving process

Objective 4. Identify the Maslow Hierarchy of basic human ethics

Objective 5. Identify and describe Medical Asepsis and Surgical Asepsis

Objective 6. Identify the 3 zones of the OR and the attire needed

Objective 7. Identify and describe skin preps, dressings and the methods of sterilization

Objective 8. Identify the Radiology technologist responsibility in the OR

Chapters 4 and 5

(SWBAT-Student will be able to…)

Objective 1. Identify and describe Standard Precautions

Objective 2. Describe the transmission of microorganisms

Objective 3. Identify and describe the Exposure Control Plan

Objective 4. Identify Nosocomial and Iatrogenic Infections

Objective 5. Identify and describe the process of infections

Objective 6. Identify the 5 phases of HIV/AIDS

Objective 7. Identify and describe viral hepatitis and tuberculosis

Objective 8. Identify the confidentiality responsibilities due to infections

Chapters 6, 9, and Anaphylactic Shock

(SWBAT-Student will be able to…)

Objective 1. Identify and describe Glasgow Coma Scale

Objective 2. Describe the different types of oxygen therapies

Objective 3. Identify and describe and perform the steps for taking a blood pressure

Objective 4. Identify the all pertinent vital signs

Objective 5. Identify and describe the types of shock

Objective 6. Identify the Pulmonary Embolus, Diabetes, CVA, Syncope and seizures

Objective 7. Identify and describe Contrast Medias

Objective 8. Identify the Radiology technologist responsibility in the delivery of contrast media

Chapters 7, 8, 10, &13

(SWBAT-Student will be able to…)

Objective 1. Identify and describe nasogastric tubes, feeding tubes, and tissue drains

Objective 2. Describe the different chest tubes

Objective 3. Identify and describe Trauma and Abuse

Objective 4. Identify head and Spinal Cord Injuries

Objective 5. Identify and describe the steps to take with agitated and intoxicated patient

Objective 6. Identify and describe the rules for pediatric, geriatric and high risk newborns

SYLLABI *(cont'd)*

COURSE TITLE: Radiographic Image Evaluation I

COURSE NUMBER: RAD 114

CREDIT HOURS: 2

QUARTER: Fall

INSTRUCTOR:

Helen Murphy, RT (R)
Office #: Rm. 7-137
Office phone #: 509-533-8616
Cell phone #: 509-991-1571
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

This course will review the essential technical factors used in evaluation of radiographic image quality. The student will use such evaluation factors as: what projection/view is shown, what anatomical part(s) are required, is the correct field size used, is there acceptable collimation shown, are there any artifacts present, is it correctly position, is the technique (density & contrast) near perfect, & is the central ray correctly centered. You will use these factors to evaluate test images (developed, CR and DR images).

COURSE OBJECTIVES:

1. Identify anatomy on radiographic images.
2. Describe an effective image analysis method.
3. Apply the process for evaluating images for adequate density/brightness, contrast, recorded detail/spatial resolution and acceptable limits of distortion.
4. Explain how the radiographer determines that an adequate level of penetration has been applied to produce the desired level of contrast.
5. Summarize the importance of proper positioning.
6. Analyze images to determine the appropriate use of beam restriction.
7. Critique images for appropriate technical, procedural and pathologic factors, and explain corrective actions needed.

METHOD OF TEACHING:

Power Points are available on the P drive under Health & Environmental Science - Allied Health - Radiology -1st year- Helen's Film Critique or on Canvas. There will be online discussion questions and films, image presentations with group discussion of images and weekly quizzes.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78

	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Class participation (Weekly discussion questions)	20 points
Weekly quizzes	100 points each

*Quizzes can't be taken early or made up after a missed class, due to the nature of the class. The student will not be penalized or lose points, all quizzes will be average for the quarter, for their overall grade.

Final	300 points

* Check grades online on Canvas

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this course a student should be able to:

- Identify projection/views of various images of the upper & lower extremities, shoulder & pelvic girdle, thorax, chest, abdomen and spine.
- Identify the basic views for each exam
- Identify the anatomy on images
- Describe anatomical part(s) required on each projection
- Identify positioning landmarks and positional corrections that need to be made to the image
- Identify the correct exposure factors based on contrast and density of image
- Determine the corrective actions necessary to correct for poor exposure factors
- Identify the use of appropriate field size used
- Identify proper shielding and marker placement
- Describe influencing factors of radiographic quality (artifacts, resolution, distortion and magnification)
- Identify the steps in the decision-making process used before repeating a image

***COLLEGE WIDE ABILITIES**
The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility
Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.
Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)
Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.
Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving
Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.
Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:

Penalties for Deliberate Plagiarism or Cheating:

First Offense: Automatic failure of the paper or test and possible failure of the course.

Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

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DISCUSSION BOARD PARTICIPATION:

Students are responsible to participate each week in the discussion board questions posted on Canvas. You must post on each discussion board category at least twice: first by giving your answer to each of the questions posted and second by commenting on at least one classmate's (Snrs or Jnrs) posting under each of the categories per week. Please use the classmates name when responding, comments must be at least 10 words in length and your comment must either add to the post or take the post in a different direction. This should work out to be 2 postings in a week. More is ok, less will cost you points.

It is better to post early in the week and check back later in the week to add your reply. Please remember to watch all language used and please do not use abbreviations ("u" use you). I will read all posting and replies but will not directly reply back to you unless asked to. Remember there is a due date and time. You will be locked out after that. Do not wait until the last minute because computer issues do happen!

What you need to succeed:

1. Actively participate in all course activities. Ask question, and answer questions asked of you.
2. There will be **a quiz each Thursday** over material cover in the previous classes.
3. Apply information learned to gain knowledge from the clinical setting. Use what you learned. You need to look at a lot of images at your sites, the more the better!
4. Be prepared to actively participate in classroom discussions and exercises. **READ** your Merrill's before class!
5. Know the **Structures shown (Merrill's)** for every view we do for this class.
6. Complete the class with at least a 2.5 grade.

Criteria for evaluation of radiographic images:

1. **Density** (attenuation) is the overall "darkness" of a radiograph. For a pathological condition to require a technical adjustment, it must substantially alter the presence and amount of the five radiographically demonstrable materials. These five types of substances, in order of increasing attenuation are:
    - **Gas and air**
    - **Fat**
    - **Fluid or fluid like**: blood, generally, soft tissues such as connective tissues, muscles and visceral organs, are of "fluid like" density, equal to water radiographically.
    - **Bone**
    - **Metal**s: hardware for fixation, barium and iodine compounds are, chemically, metals

2. **Contrast** Gray scale-You want it to be long enough to visualize the different bony and soft tissue structures

3. **Correct position for demonstration of intended anatomy** Merrill's (Evaluation criteria)

4. **Collimation and markers-** As a rule, there should be sufficient collimation of the body part with the ***marker inside the collimated field.*** Marker placement as a rule is somewhat optional, as long as it is not in the anatomy that is to be demonstrated. However, I place my marker on the lateral aspect of the body.

5. **Shielding/ Radiation Protection-** will not always be present on the film. When doing infants and children, it is desirable to demonstrate shielding (i.e. hips should show gonadal shielding on one view, a chest x-ray should show shielding of the abdomen no chabdomen etc…) Try and keep your and other holders hands out of shot when holding pts.

6. **Sharpness of recorded detail** – This refers basically to the absence of motion in regards to this class. The exception to this is when utilizing a shallow breathing technique.

7. **Correct patient identification-** The patient identification should routinely be reviewed when looking at your radiographs. It is especially important when using conventional radiography, since you are using a flash card and films can easily be mislabeled and equally important with CR &DR as names are selected from a work list.

8. **Elimination of potential artifacts –**The finished radiograph should be absent of artifacts.

Artifacts

Undesirable densities or blemishes on a radiograph that can be removed by you are called artifacts.

***Processing Artifacts*:** Artifacts produced during processing. Some examples are roller markers, chemical fog, and dirt.

***Storage and Handling Artifacts*:** They are caused by improper storage or handling. Some examples are pressure marks, finger marks, static, stains, scratches, light fog and creases.

External Artifacts*:** Objects found on, near, or under the patients. Some examples are Jewelry, hair ornaments, objects in pockets, snaps, buttons, pins, zippers, hearing aids, dentures, ***REMOVABLE orthodontic devices, eyeglasses, blood/fluid soaked clothing/gowns, thick or folded clothing/blankets/ sheets, dressings, IV or monitoring lines, pillows, imprinted designs on clothing, thick or wet hair, etc.

NOTE: Internal objects that are found within the patient such as surgical pins/clips/suture, prostheses, central venous lines, pacemakers, nasogastric tubes, residual barium or contrast media are all examples of items which are not preventable; these must be accepted on the radiograph. They will NOT be considered "***ARTIFACTS***" for radiographic film evaluation classes.

*** Textbooks vary on the definition of artifacts. This is the criterion that is established by Spokane Community College School of Radiologic Technology. This is what we will go by for this class.

IMAGE EVALUATION BASICS

The idea of this class is to be able to notice the difference between a good and a bad radiograph.

Every time you look at a film to evaluate it you should ask yourself the same set of questions.

1. What anatomy are you looking at?
2. What projection is it?
3. Is it positioned correctly?
4. Is the part/anatomy on the film?
5. Is it too light? Too dark?
6. Is there motion or artifact?

These are the major questions to ask in order to decide if the film needs to be repeated. (When looking at a film in image evaluation class, the film is considered the first try at the projection, what will you do?)

Then you need to look at the little things like.

1. Is there a marker?
2. Is there coning/shielding?
3. Is it the correct field size used?

These are very important things to look for but are not necessarily reasons to repeat the film.

The ultimate question is: Are you proud to put your initials on this film?

IMAGE EVALUATION
FACTS FOR CLASS

1. Each site has various protocols; the films used in film Critique *are* protocol films. They just may be incorrectly positioned films.

2. I personally will hang the films correctly. With this in mind you can/will be able to distinguish right and left for each film.

3. Test films can be ***ANYTHING***. Be prepared! If we go over a certain exam it ***MAY*** appear as a test either in the spring or summer quarter.

4. You are responsible for knowing the size of film that is hung. If you have difficulty with this concept remember that a standard piece of paper is 8 ½ x 11 inches.

5. There is no set schedule for this course. We will be covering various exams and images each week.

6. It is your responsibility to review Merrill or the Image Analysis books regularly.

7. If you fall into the "All or Nothing Method" with a quiz, I will place a new test sheet with a film in your mailbox. You must reference on the test sheet your findings along with filling out the test sheet on the film. You have 1 week to complete and return the test to me. I will put the due date at the top of the test page. Any test's turned in after the stated due date will not be counted.

8. In regards to testing:
   - *Long Critique* images will be given a 8 min. time limit
   - *Quick Critique* images will be given 60 seconds per image
   - *Why or Why not* Quiz's will be given a 20 min. time limit to review all 10 images.

9. When doing a Long Critique you must indicate, at the bottom of the page, an *average technique* for the image.

10. If you are experiencing any problems, difficulties or you have questions with film critique you need to come see **me** about the issues. I am here to help you succeed in this course.

Name: _____

Radiographic Image Evaluation

Film #: _____ Area of Anatomy: _____

(20 points) Projection/View: _____
(Include right, left, upright, etc)

(10 points) What anatomical part(s) is/are required on this projection? _____
_____

(2 points) Is the correct field size used? Yes ☐ No ☐

(2 points) If incorrect field size, what is the correct size? _____

(2 points) Is there acceptable collimation? Yes ☐ No ☐

(2 points) Are there any artifacts? Yes ☐ No ☐

(2 points) If an artifact, what is it? _____

(10 points) Is the anatomical part correctly positioned? Yes ☐ No ☐

(10 points) If not correctly positioned, what corrections are necessary? _____
_____

(5 points) Evaluate the radiographic technique, as follows:

☐	☐	☐	☐	☐
too light	Light, but acceptable	near perfect	dark, but acceptable	too dark

(5 points) If not, near perfect, how should the radiographic technique be changed? _____
_____

(5 points) Is the central ray correctly centered to the anatomical part? Yes ☐ No ☐

(5 points) Is the central ray correctly directed to the anatomical part? Yes ☐ No ☐
(Perpendicular, or correct degree & direction of angle)

(10 points) Should this projection be repeated? Yes ☐ No ☐

(10 points) Why or why not? _____
_____

Average Technique for this view: _____

SYLLABI *(cont'd)*

COURSE TITLE: Fuch's Radiographic Principles I **COURSE NUMBER:** RAD 115

CREDIT HOURS: 3 **QUARTER:** Fall

INSTRUCTOR: Debbie Miller
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Radiography in the Digital Age, 2nd Ed. By: Quinn B. Carroll

Principles of Radiographic Exposure, Processing and Quality Control, 8th Ed. By Quinn B. Carroll

Radiologic Science for Technologists: Physics, Biology & Protection 11th Ed. By: Stewart Carlyle Bushong

COURSE DESCRIPTION:

This course will present the elements of physics, instrumentation and principle theories of radiographic exposure. The student will learn the controlling factors that influence the radiographic image. This course will present radiographic theory and demonstrate its' practical application and usefulness in the clinical setting. Students will learn the proper terminology as it relates to radiographic exposure. Study questions at the end of each chapter will be assigned as homework and will be discussed in class.

COURSE OBJECTIVES:

1. Actively participate in all course activities.
2. Attend all lectures and demonstration.
3. Read all the required reading assigned.
4. Do the required homework assignments.
5. Take all quarter tests.

METHODS OF TEACHING:

Lectures are created to present the principles of producing a top quality radiograph, making the appropriate corrections and problem solving as it relates to radiography in the clinical setting. Lectures will be supplemented by demonstrations, video tapes, radiographic images, white board and guest speakers.

Laboratory setting will enhance the demonstrations of the lecture material by discussing and presenting portions of the information with the ability to utilize the radiology equipment.

CLASSROOM BEHAVIOR:

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Minimum Achievement	1.8	76
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these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

This course's grade will be a combination grade that will be based on homework, experiments, quizzes, tests and a comprehensive final.

All homework must be turned in on the date due, prior to the start of class, in order to receive full credit. For each day that homework or experiment lab is late a 15% deduction will occur (classroom or clinical days). If you are absent on a quiz or test day the quiz or test must be made up on the first day back to clinical or class depending on which comes first. For each day the quiz or test is not made up (after returning to school) a 5% deduction will be applied to final quiz or test grade. A comprehensive final will be given which constitutes the remaining 25% of the final grade. Grades can be checked online on Canvas. The following is a breakdown of the grading method:

Homework----------	=	20%
Tests----------	=	45%
Comprehensive Final----------	=	35%

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Identify considerations that affect the recorded details of the radiograph.
- Identify and control technical factors affecting image distortion, density and contrast.
- Apply knowledge in controlling image quality in the clinical setting.
- By written demonstration, show understanding of the interrelationships of radiographic image formation factors which include mAs, kVp, SID, OID, etc.
- Identify and discuss film structures and composition inclusive of differentiation of types.
- Define the properties and characteristics of x-rays.
- Identify and discuss radiographic quality.

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
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Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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Plagiarism Policy: WAC 132Q-04-061

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:
Penalties for Deliberate Plagiarism or Cheating:
First Offense: Automatic failure of the paper or test and possible failure of the course.
Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

Tentative **Schedule**

Week 1	MON.	Introduction to Radiographic Principles & review syllabus
		(Principles of Radiographic Exposure, Processing and Quality Control textbook)
	TUES.	Lecture on Chapter 1: "X-rays & Radiographic Variables"
	WED.	Lecture on Chapter 2: "Recording the Permanent Image" & review
	FRI.	**TEST:** Chapters 1 & 2 (Ch. 1 & 2 homework due)
Week 2	MON.	Lecture on Chapter 3: "Qualities of the Radiographic Image"
	TUES.	Lecture on Chapter 4: "Interactions of X-rays within the Image" & review
		(Radiography in the Digital Age textbook)
Week 3	MON.	**TEST:** Chapters 3 & 4 (Ch. 3 & 4 homework due)
	THURS.	Lecture on Chapter 14: "Milliampere-seconds"
Week 4	MON.	Lecture on Chapter 15: "Kilovoltage" &
	THURS.	continuation of Ch. 15 & Lecture on Chapter 12: "Production of Subject Contrast"
Week 5	MON.	**TEST:** Chapters 12, 14 & 15 (Ch. 12, 14 & 15 homework due)
	THURS.	Lecture on Chapter 19: "Scattered Radiation & Grids"
Week 6	MON.	Continuation of chapter 19 **&** Begin lecture on "Intensifying Screens"
	THURS.	Continuation of lecture on "Intensifying Screens" **&** Lecture on "Image Receptor Systems"

Week 7	MON.	**TEST:** Chapter 19, Intensifying Screens & IR System (Ch.19, handouts homework due)
	THURS.	Chapter 26: "Using Automatic Exposure Controls (AEC)"
Week 8	MON.	**TEST:** Chapters 26 (Ch. 26 homework due)
	THURS.	Lecture on Chapter 16: "Generators & Filtration"
Week 9	MON.	Lecture on Chapter 17: "Field Size Limitations"
	THURS.	Lecture on Chapter 18 "Patient Condition, Pathology & Contrast Agents"
Week 10	MON.	**TEST:** Chapters 16, 17 & 18 (Ch. 16, 17 & 18 homework due)
	THURS.	**THANKSGIVING DAY**
Week 11	MON.	review for Comprehensive Final
Week 12	TBA	**COMPREHENSIVE FINAL**

SYLLABI *(cont'd)*

COURSE TITLE: Clinical Education I **COURSE NUMBER:** RAD 116

CREDIT HOURS: 8 **CLINICAL HOURS:** 264 **QUARTER:** Fall

INSTRUCTORS:

Debbie Miller
Office #: Rm. 7-137
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
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Kim Eikum
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Helen Murphy
Office #: Rm. 7-139
Office phone #: 509-533-8616
Cell phone #: 509-991-1571
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

Students learn radiographic positioning, department and office procedures, patient management and critical analysis of radiographs in a clinical setting. Students develop psychomotor skills, cognitive domain and affective behavior in the science of radiographic technology.

COURSE OBJECTIVES:

1. Actively participate in all examinations student is assigned to in addition to the specific objectives for the assigned rotation.
2. Attend all clinical days.
3. Maintain clinical logbook.
4. Create & update a "mini- book" for all positioning and set up of Examinations.
5. Complete the required number of competency clearances for the quarter.

METHODS OF TEACHING:

Laboratory setting will enhance the demonstrations of the lecture material by discussing and presenting portions of the information with the ability to utilize the radiology equipment.

Practical application during clinical will enhance the information that has been taught in the classroom and from all the course information the student has successfully passed during previous quarters, and this quarter, while in the program.

CLINICAL REQUIREMENTS:

Students must successfully pass their DRUG SCREENING and BACKGROUND CHECK in order to be accepted at the clinical sites. NO EXCEPTIONS! All clinical sites have the option of refusing a student's admittance to their facility, if this occurs the student will not be allowed to start or continue the program. All students rotate through the 4 main hospitals in Spokane along with the Inland Imaging and Rockwood Clinic outpatient facilities.

LINES OF AUTHORITY:

In the classroom you are responsible to your instructor. During clinical responsibilities you are responsible to your instructor and personnel so designated. RESPONSIBILITY FOR PATIENT CARE RESTS WITH THE CLINICAL FACILITY. THE CLINICAL FACILITY HAS THE AUTHORITY TO GRANT OR REFUSE STUDENT ACCESS OF ANY STUDENT FOR JUST CAUSE. Remember, you are a guest and represent Spokane Community College and your program. *See additional information under the CONDUCT section in the SCC Radiology Technology Student Handbook.* If you are asked to leave a clinical site or if a site does not allow you to attend their facility (for any reason), you will not be allowed to transfer to another clinical site to finish your schooling. You will be terminated from the program.

CLINICAL BEHAVIOR:

Refer to the clinical behavior guidelines located in the SCC Radiology Technology Student Handbook.

CLINICAL ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

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RADIOLOGY TECHNOLOGY CLINICAL GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
Lowest grade to progress	2.5	83
	2.4	82
"C"	2.3	81
Average Achievement	2.2	80
	2.1	79
	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Evaluations and Competency Clearances……. 90% of Final Grade
Blue Log Books……. 10 % of Final Grade

COMPETENCY CLEARANCE GRADING POLICY:

See SCC Radiology Technology Student Handbook for competency clearances required per quarter. A successful passing score on each clearance is 83% (which is equivalent to a 2.5). All competency clearances must be successfully completed by the end of the 6th quarter. Failure to complete the minimum required competency clearances for the quarter will result in a 0.25 reduction from your clinical grade for EACH clearance not completed, and you must complete the delinquent clearance(s) before the start of the next quarter. This includes those clearances that must be completed during specific quarters.

During a competency clearance, the clinical instructor may abort the clearance at his/her discretion. A student may receive an "automatic failure" on a clearance attempt for noncompliance of certain patient care/safety guidelines. (See Radiology Technology Student Handbook for additional information.)

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.5 GPA (83%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

***COLLEGE WIDE ABILITIES**

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Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

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accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

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This syllabus may be subject to change.

SYLLABI *(cont'd)*

COURSE TITLE: Radiographic Positioning II **COURSE NUMBER:** RAD 121

CREDIT HOURS: 3 **QUARTER:** Winter

INSTRUCTOR:
Debbie Miller
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiologic Procedures 13th edition (Ballinger & Frank)

COURSE DESCRIPTION:

This course reviews the anatomy of each part such as digestive, urinary, respiratory, reproductive, & mammography. Students learn positional techniques used to take appropriate radiographs of each body part or system based on the physician's request. Correct alignment of the image receptor and x-ray tube is emphasized. Exposure factors, patient apprehension, safety and comfort are covered.

COURSE OBJECTIVES:

1. Review the anatomy/physiology of the gastrointestinal, urinary, reproductive and respiratory systems
2. Describe patient safety inc. radiation protection
3. Present the necessary room set-up and supplies for each procedure
4. Discuss the appropriate patient care for each procedure
5. Discuss the requirements in assisting the radiologist for each procedure
6. Present the required radiographic positions for each procedure to include: position, central ray, and alignment of IR
7. Discuss the radiographic imaging techniques for each procedure to include: mAs (or AEC), kVp & respiration

METHOD OF TEACHING:

Lecture, demonstration and lab presentations, and practice.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

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Superior Achievement	3.8	96
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	3.6	94
	3.5	93
	3.4	92
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	2.7	85
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	2.5	83
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"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

This course's grade will be a combination grade that will be based on quizzes, tests and a comprehensive final.

If you are absent on a quiz or test day the quiz or test must be made up on the first day back to clinical or class depending on which comes first. For each day the quiz or test is not made up (after returning to school) a 5% deduction will be applied to final quiz or test grade. A comprehensive final will be given which constitutes the remaining 35% of the final grade. Grades can be checked online on Canvas. The following is a breakdown of the grading method:

Scheduled & pop quizzes---------- 20%
Tests---------- 45%
Comprehensive Final---------- 35%

Pertinent Information Regarding Tests

Pop quizzes cannot be made up. You just have one less quiz score at the end of the quarter. ***Students will be allowed to drop their lowest quiz score. This includes pop quizzes.***

For exams/quizzes given in the class room, students will grade their own exam immediately following the completion of the exam. If you have a question, be sure to put a question mark by it. If a student fails to mark themselves wrong on a particular question/answer they will lose double the possible points for that question. Once the exam has been graded and reviewed in class the student will turn in the exam and the instructor shall review the exam for accuracy and determination of exam score. If the exam is given via Canvas, the exam will be reviewed in class together and the exam will be available for future review in preparation for the comprehensive final. Scores shall be entered into Canvas for student to viewing.

If a student is caught cheating, they will receive a "0" for that exam score, which may result in failure of the course. The cheating shall be reported to the VP of Student Services as Academic Dishonesty.

Students will not be allowed to have any drinks, papers, books, etc. on their table while taking an exam. The student will be provided a calculator if there is any math involved. Students are not allowed to use their own phone or calculator when taking an exam.

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Identify the anatomy of the GI, GU, Respiratory & Reproductive systems
- Maneuver the radiographic imaging equipment for imaging those anatomical parts
- Demonstrate patient care and safety; radiation protection
- Position the patient into the required positions for GI, GU, Respiratory & Reproductive systems
- Demonstrate optimal technical factors for each image
- Examine the images critically for correct positioning and technical factors and understand what corrections may be necessary

***COLLEGE WIDE ABILITIES**

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Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:

Penalties for Deliberate Plagiarism or Cheating:

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Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

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All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

TENTATIVE **CLASS SCHEDULE**

Week 1	Monday	Introduction/assignments Review first quarter positioning
	Thursday	**QUIZ: *Bony Thorax & Respiratory System Anatomy*** Positioning: Ribs, SC Joints & Sternum
Week 2	Monday	Positioning of: Routine CXR, Mobile CXR, Peds CXR, "Special" CXR: Inspiration/Expiration, Decubitus, and Apical lordotic
	Thursday	**TEST: Entire Bony Thorax & Respiratory System**
Week 3	Monday	NO CLASS – Martin Luther King Day
	Thursday	***QUIZ: GI system anatomy*** Discussion of terms Discussion of fluoro guidelines
Week 4	Monday	***QUIZ: GI Terminology*** Discussion of: Feeding tube placements & Fistula (sinus) Tract Injections
	Thursday	Positioning of: Barium Swallow/Esophagram Discussion of: Modified Swallows
Week 5	Monday	Positioning of: Upper GI series (single & biphasic)
	Thursday	Positioning of: SBFT, SB enteroclysis & SB enterovue studies
Week 6	Monday	Positioning of: Barium enemas (single & biphasic)
	Thursday	Discussion of: BE via colostomy, defecography, colon transit studies

Week 7	Monday	NO CLASS – President's Day
	Thursday	**TEST: GI system**
Week 8	Monday	***QUIZ: GU system anatomy*** Positioning of KUB, IVU
	Thursday	Discussion of: Cystograms, VCUG, Loopograms & Urethrograms
Week 9	Monday	**TEST: Urinary system**
	Thursday	**QUIZ: *Central Nervous System & Reproductive Anatomy*** Lecture: Myelograms & Lumbar Punctures
Week 10	Monday	Lecture on: Arthrograms & Hysterosalpingograms (HSG)
	Thursday	**TEST: Myelograms, Lumbar Punctures, Arthrograms, & Hysterosalpingograms**
Week 11	Monday	Review for Comprehensive Positioning II Final
	Thursday	Positioning Lab practice
Week 12	**TBA**	**Comprehensive Final**

POSITIONING II OUTLINE

I. Respiratory System

- A. Anatomy/Physiology
- B. Procedures

II. Digestive System

- A. Anatomy/Physiology
- B. Procedures

III. Central Nervous System

- A. Anatomy/Physiology
- B. Procedures

IV. Miscellaneous Studies

- A. Arthrograms
- B. Hysterosalpingograms

V. Urinary System

- A. Anatomy/Physiology
- C. Procedures

SYLLABI *(cont'd)*

COURSE TITLE: Patient Care & Ethics II **COURSE NUMBER:** RAD 123

CREDIT HOURS: 2 **QUARTER:** Winter

INSTRUCTOR: Kim Eikum, MEd, R.T. (R) (M)
Office#: Rm. 7-138
Office phone #: 509-533-8613
Cell phone #: 509-280-0001
kimberly.eikum@scc.spokane.edu
Office hours as posted by office door

REQUIRED TEXT:

Patient Care in Imaging Technology, Seventh Edition

Torres, Lillian S., Guillen Dutton, Andrea., Linn-Watson, TerriAnn. (2013). In Pete Sabatini (Ed.),

Patient care in imaging technology (8th ed.). Baltimore, Maryland: Wolters Kluwer health/Lippincott Williams & Wilkins.

This text is designed to aid the radiology student in patient safety, emphasized in each chapter and reinforced with clinical case examples. In addition, the text stresses the need for professionalism, ethics, and effective communication.

Medicolegal Issues for Diagnostic Imaging Professionals, Fourth Edition

Parelli, R. J. (2009). In Taylor & Francis Group, LLC (Ed.), *Medicolegal issues for diagnostic imaging professionals* (Fourth ed.). Boca Raton, Florida: Auerbach.

This text provides a basic understanding of the important legal definitions, legal doctrines, malpractice and risk management information, ethics and patent rights relevant to the field of diagnostic imaging and the role of the imaging professional.

COURSE DESCRIPTION:

This course will extend the student's knowledge of the physical and emotional needs of the patient. Students will learn the ethical concepts of the profession of radiologic technology. Students will learn a variety of patient care skill and techniques that will be readily applicable in the clinical setting. The student will also be instructed in medico legal issues that are applicable to the radiographer.

COURSE OBJECTIVES:

1. Describe the patient preparation and education required for Gastrointestinal imaging
2. Describe the appropriate scheduling of Gastrointestinal imaging
3. Identify the equipment required for Gastrointestinal imaging

4. Identify the patient care necessary for Gastrointestinal imaging
5. Describe the patient preparation and education required for Urinary tract imaging
6. Identify the equipment required for Urinary tract positioning
7. Identify the patient care necessary for Urinary tract positioning
8. Identify the Pharmacology and Drug Administration needed for radiology
9. Introduce basic electrocardiogram monitoring
10. Describe the care of patients during special procedures
11. Identify the medical legal aspect of radiology

METHOD OF TEACHING:

This course will consist of lecture and class discussion.

All homework must be turned in on the date due in order to receive full credit. For each day that homework is late a 15% deduction will occur (classroom or clinical days). If you are absent on a test day the test must be made up on the first day back to clinical or class depending on which comes first. For each day the test is not made up (after returning to school) a 5% deduction will be applied to final test grade. Quiz's will be done on Canvas and they will have a designated due date (no exception). Quizzes will not be reopened for any reason. Quizzes are allowed to be done away from SCC, for this reason it is the students responsibility to find a computer that will allow them to take the quiz without any difficulty.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

- Quizzes (approx. 2-3 per quarter): 10% of overall grade
- Tests (4) & Patient Care Paper: 65% of overall grade
- Quarter Final: 25% of overall grade
- Final grading scale: adopted by the SCC Radiology Technology Program

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Describe and discuss patient preparation and education for a Gastrointestinal imaging
- Describe and discuss the types of contrast media used in Gastrointestinal imaging

- Describe and discuss patient preparation and education for Urinary tract imaging
- Describe the different types of pharmacology used in radiology
- Describe and discuss the different aspects of the medical legal aspect of radiology

***COLLEGE WIDE ABILITIES**
The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility
Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.
Students will be able to demonstrate the following measurable behaviors/skills:
- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)
Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.
Students will be able to demonstrate the following measurable behaviors/skills:
- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
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PATIENT CARE II RAD 123

Schedule is subject to change:

Week 1	Monday	Introduction/Essay assignments
	Thursday	Chapter 12: Gastrointestinal Procedures
Week 2	Monday	Chapter 12: Continued
	Thursday	Chapter 15: Pharmacology for the Radiographer Chapter 16: Drug Administration and Venipuncture *(we will cover only a portion of this chapter in preparation of Pharmacology class)*
Week 3	Monday	**OFF** 
	Thursday	**TEST** Chapters 12, 15, & 16
Week 4	Monday	Chapter 17: Basic Electrocardiogram Monitoring
	Thursday	Chapter 11: Urologic Procedures
Week 5	Monday	Chapter 18: Advanced Modalities and Special Procedures
	Thursday	**OFF**  WORK ON ESSAY!
Week 6	Monday	**TEST** Chapters 11, 17 and 18
	Thursday	Medicolegal text book: Chapters 1 & 2
Week 7	Monday	**OFF** 
	Thursday	Medicolegal text book: Chapters 3 & 4
Week 8	Monday	Medicolegal text book: Chapter 5 and harassment
	Thursday	**ESSAY DUE!!!** ☺ **TEST:** Chapters 1-5 and harassment
Week 9	Monday	Medicolegal text book: Chapters 6 & 7
	Thursday	Medicolegal text book: Chapters 8,9,10,11, & 12

Week 10	Monday	**TEST** Chapters 6 – 12
	Thursday	John Q, Part 1
Week 11	Monday	John Q, Part 2
	Thursday	Review for final
Week 12	TBA	**FINAL**

RAD 123 Unit Objectives

Patient Care and Ethics II

Chapters 13 and 15

(SWBAT-Student will be able to…)

Objective 1. Identify and describe PPE's and Patient Care Issues

Objective 2. Describe the different type of contrasts

Objective 3. Identify and describe preps and enema's

Objective 4. Identify and describe the routines for UGI, BE and Stoma's

Objective 5. Identify and describe Fluoroscopy procedures

Objective 6. Identify Time Out

Chapters 7, 12, and 16

(SWBAT-Student will be able to…)

Objective 1. Identify and describe all Special Procedures and Modalities

Objective 2. Describe ways to control UTI

Objective 3. Identify and describe the types of urinary bladder catheters

Objective 4. Identify and describe Cardiac Rhythm's

Medicolegal and Ethics Chapters 1-5 and Harassment

(SWBAT-Student will be able to…)

Objective 1. Identify and describe Civil law, Tort Law, Intentional Torts and Unintentional torts

Objective 2. Describe negligence and give examples

Objective 3. Identify and describe Legal Doctrines

Objective 4. Identify and describe the Anatomy of Malpractice

Objective 5. Identify and describe Labor Relations and Acts

Objective 6. Identify Risk Management

Objective 7. Identify the 5 steps of harassment

Medicolegal and Ethics Chapters 6-12

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the significance of Informed Consents

Objective 2. Describe Implied, expressed and written consent

Objective 3. Identify and describe Ethics

Objective 4. Identify and describe the patients' Bill of Rights

Objective 5. Identify and describe JCAHO

Objective 6. Identify and describe the difference between ARRT, ASRT, WSRT

Objective 7. Identify and describe licensure and certification

Patient Care and Ethics II – RAD 123

ESSAY:

Minimum of **3 FULL** pages of text (excluding work cited page which will give you 4 pages in all) ---no exceptions

Double spaced. Times New Roman, size 12

1 inch, right, left and bottom margins

2 inch top margin

Stapled left corner: PLEASE not report covers or folders

Content:

*Each student will pull a subject from the list

Paper must include:

- Explanation of subject material
- Written in first person and your opinion are allowed.
- Reference of at least (2) interviews with technologists on the subject matter.
- Explanation of (2) personal experiences from your Clinical or from a technologist experience, pertaining to the subject matter.

Cite at least 2 technologist interviews and 2 personal experiences and must be included in body of paper and on reference page. Research information you use explaining your subject must be cited in the body of the paper and on your reference page.

DUE Thursday xxxx----there will be a 10% reduction of your score for EVERY day late INCLUDING weekend days. If your paper is 10 days late, do not turn it in; you will receive a "zero" grade.

Essays will be accepted early.

Research-Action Essay Rubric

Name_____

Criterion	Exemplary (40-38)	Strong (37-33)	Passing (33-28)	Not Yet (27 or less)
Ideas and Content	paper **hooks reader immediately**; clearly **and succinctly** examines topic w/ cites; leaves reader satisfied.	paper invites reader; clearly examines the topic w/ cites; leaves reader satisfied.	paper presents information w/ cites and remains on topic; leaves reader less than satisfied.	paper meanders and may not stick to topic; citations inappropriate or not evident; ending may not be clearly apparent.
	Exemplary (20-19)	**Strong (18-17)**	**Passing (16-14)**	**Not Yet (13 or less)**
Organization	paper has **engaging** introduction; reveals logical progression with **clear** transitions; contains **memorable** closing.	paper contains solid introduction; has logical progression with transitions; ends with appropriate closing.	paper has introduction; reveals some body organization; contains ending that is truncated or perfunctory.	paper lacks any clear organizational plan; may descend into chaos.
Sentence Structure and Conventions	Less than 5 spelling, grammatical or punctuation errors; Neatly presented according to required format. Minimum of 3 full pages of text (excluding work cited page). All Sources are cited in body and reference page.	6-10 spelling, grammatical or punctuation errors; varies from required format. Some sources are cited in body and reference page.	10-15 spelling, grammatical or punctuation errors; does not follow required format. Sources are not cited in body of paper but on reference page.	sentence structure seriously impedes reader's progress Paper does not follow format and style; reveals serious mechanics errors. Sources are not cited in body of paper or on reference page.
Delivery	speaker uses appropriate tone; projects voice; uses **effective** gestures; pacing reflects material; answers questions **adroitly.**	speaker uses appropriate tone; projects voice; uses appropriate gestures; pacing reflects material; answers questions completely.	speaker uses appropriate voice techniques and gestures; attempts to answer questions.	speaker lacks effective presentation skills; unable to answer questions.
Educational Value	**grabs** audience's attention. Contributes to the art/science of radiologic technology by updating, clarifying or enhancing knowledge.	entertains audience; Minimal contri-bution to the art/science of radiologic technology by updating, clarifying or enhancing knowledge.	Presents but has lackluster effect; Does not contribute to the art/science of radiologic technology.	not well planned or executed; non-existent.

Scoring:

Ideas and Content _____ Sentence Structure/Conventions_____ Educ. Value_____

Organization _____ Delivery_____ **Total** _____

SYLLABI *(cont'd)*

COURSE TITLE: Radiographic Image Evaluation II **COURSE NUMBER**: RAD 124

CREDIT HOURS: 2 **QUARTER:** Winter

INSTRUCTOR: Helen Murphy, RT (R)
Office #: Rm. 7-137
Office phone #: 509-533-8616
Cell phone #: 509-991-1571
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

This course will review the essential technical factors used in evaluation of radiographic image quality. The student will use such evaluation factors as: what projection/view is shown, what anatomical part(s) are required, is the correct field size used, is there acceptable collimation shown, are there any artifacts present, is it correctly position, is the technique (density& contrast) near perfect, & is the central ray correctly centered. They will use these factors to evaluate test images (developed, CR and DR images).

COURSE OBJECTIVES:

1. Discuss the elements of a radiographic image.
2. Identify anatomy on radiographic images.
3. Apply the problem-solving process used for image analysis.
4. Describe an effective image analysis method.
5. Describe the role of the radiographer in image analysis.
6. Apply the process for evaluating images for adequate density/brightness, contrast, recorded detail/spatial resolution and acceptable limits of distortion.
7. Explain how the radiographer determines that an adequate level of penetration has been applied to produce the desired level of contrast.
8. Summarize the importance of proper positioning.

9. Discuss the impact of patient preparation on the resulting radiographic image.
10. Analyze images to determine the appropriate use of beam restriction.
11. Identify common equipment and patient malfunctions that affect image quality, and corrective action needed to fix them.
12. Differentiate between technical factor problems, procedural factor problems and equipment malfunctions.
13. Critique images for appropriate technical, procedural and athologic factors, and explain corrective actions needed.

METHOD OF TEACHING:

Power points (available on the P drive under Health & Environmental Science - Allied Health - Radiology -1st year- Helen's Film Critique), lecture, discussion, image presentations and daily quizzes.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
Superior Achievement "A"	4.0	100 - 98
	3.9	97
	3.8	96
	3.7	95
	3.6	94
	3.5	93
Above Average Achievement "B"	3.4	92
	3.3	91
	3.2	90
	3.1	89
	3.0	88
	2.9	87
	2.8	86

	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

<u>GRADING METHOD</u>: Discussion Questions...……..20 points
Group tests & quizzes ……..100 points
Group Project……200 points
Final …….300 points

*Check grades online (Canvas)

*Quizzes can't be taken early or made up after a missed class, due to the nature of the class. The student will not be penalized or lose points, their quizzes will be average for the quarter, for their overall grade.

<u>*On the daily Radiographic image Evaluation the "All or Nothing method" will start in the second quarter</u>:** If your answer is not correct for Projection/View you will receive a zero for the test!

Correct means: correct position <u>and</u> body part (including such things as decub, upright, axial, RPO & LPO/ RAO & LAO)

*("Right" and "Left" errors will be minus 5 points)

Anytime a student receives a "ZERO" (or any grade below 60), he or she can improve the grade by turning in an ASSIGNMENT ***<u>within one week</u>*** of receiving Zero. The ASSIGNMENT will be a film of the same part/position that they failed. He or she must use Merrill's (plus any other sources) to fill out a critique test form. He or she must cite the pages in Merrill's at the top of the page (& cite any other sources, as well). The assignment will be graded with 50% being the top score. This score will **replace the first score he or she received.**

<u>FINAL GRADE</u>:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

<u>STUDENT LEARNING OBJECTIVES</u>:

By the end of this course a student should be able to:

- Identify projection/views of various images of the upper & lower extremities, shoulder & pelvic girdle, thorax, chest, abdomen and spine.
- Identify the basic views for each exam

- Identify the anatomy on images
- Describe anatomical part(s) required on each projection
- Describe the necessity of radiographic examinations as they relate to identifying the anatomical parts shown
- Identify positioning landmarks and positional corrections that need to be made to the image
- Identify the correct exposure factors based on contrast and density of image
- Determine the corrective actions necessary to correct for poor exposure factors
- Identify the use of appropriate field size used
- Identify proper shielding and marker placement
- Describe influencing factors of radiographic quality (artifacts, resolution, distortion and magnification)
- Discuss the elements of a diagnostic image
- Identify the steps in the decision-making process used in image analysis

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

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Communications (Oral and Written)

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- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
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Plagiarism Policy: WAC 132Q-04-061

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(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

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All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES. ***This syllabus may be subject to change.***

DISCUSSION BOARD PARTICIPATION:

Students are responsible to participate each week in the discussion board questions posted on Canvas. You must post on each discussion board category at least twice: first by giving your answer to each of the questions posted and second by commenting on at least one classmate's (Snrs or Jnrs) posting under each of the categories per week. Please use the classmates name when responding, comments must be at least 10 words in length and your comment must either add to the post or take the post in a different direction. This should work out to be 2 postings in a week. More is ok, less will cost you points.

It is better to post early in the week and check back later in the week to add your reply. Please remember to watch all language used and please do not use abbreviations ("u" use you). I will read all posting and replies but will not directly reply back to you unless asked to. Remember there is a due date and time. You will be locked out after that. Do not wait until the last minute because computer issues do happen!

What you need to succeed:

1. Actively participate in all course activities. Ask question, and answer questions asked of you.
2. There will be **a quiz each Thursday** over material cover in the previous classes.
3. Apply information learned to gain knowledge from the clinical setting. Use what you learned. You need to look at a lot of images at your sites, the more the better!
4. Be prepared to actively participate in classroom discussions and exercises. **READ** your Merrill's before class!
5. Know the **Structures shown (Merrill's)** for every view we do for this class.
6. Complete the class with at least a 2.5 grade.

The due dates/times are as follows.

Week 1 - Monday @ 11:55 pm
Week 2 - Monday @ 11:55 pm
Week 3 - Monday @ 11:55 pm
Week 4 - Monday @ 11:55 pm
Week 5 - Monday @ 11:55 pm
Week 6 - Monday @ 11:55 pm
Week 7 - Monday @ 11:55 pm
Week 8 - Monday @ 11:55 pm
Week 9 - Monday @ 11:55 pm

Criteria for evaluation of radiographic images:

1. **Density** (attenuation) is the overall "darkness" of a radiograph. For a pathological condition to require a technical adjustment, it must substantially alter the presence and amount of the five radiographically demonstrable materials. These five types of substances, in order of increasing attenuation are:
    - **Gas and air**
    - **Fat**
    - **Fluid or fluid-like** blood, generally, soft tissues such as connective tissues, muscles and visceral organs, are of "fluid like" density, equal to water radiographically.
    - **Bone**
    - **Metal**s- hardware for fixation, barium and iodine compounds are, chemically, metals
2. **Contrast** Gray scale-You want it to be long enough to visualize the different bony and soft tissue structures.
3. **Correct position for demonstration of intended anatomy** Merrill's (Evaluation criteria).
4. **Collimation and markers-** As a rule, there should be sufficient collimation of the body part with the ***marker inside the collimated field.*** Marker placement as a rule is somewhat optional, as long as it is not in the anatomy that is to be demonstrated. However, I place my marker on the lateral aspect of the body.
5. **Shielding/ Radiation Protection-** will not always be present on the film. When doing infants and children, it is desirable to demonstrate shielding (i.e. hips should show gonadal shielding on one view, a chest x-ray should show shielding of the abdomen no chabdomen, etc…) Try and keep your and other holders hands out of shot when holding pts.
6. **Sharpness of recorded detail** – This refers basically to the absence of motion in regards to this class. The exception to this is when utilizing a shallow breathing technique.
7. **Correct patient identification-** The patient identification should routinely be reviewed when looking at your radiographs. It is especially important when using conventional radiography, since you are using a flash card and films can easily be mislabeled and equally important with CR &DR since names are selected from a work list.
8. **Elimination of potential artifacts –**The finished radiograph should be absent of artifacts.

Artifacts

Undesirable densities or blemishes on a radiograph that can be removed by you are called artifacts.

Processing Artifacts: Artifacts produced during processing. Some examples are roller markers, chemical fog, and dirt.

Storage and Handling Artifacts: They are caused by improper storage or handling. Some examples are pressure marks, finger marks, static, stains, scratches, light fog and creases.

External Artifacts: Objects found on, near, or under the patients. Some examples are Jewelry, hair ornaments, objects in pockets, snaps, buttons, pins, zippers, hearing aids, dentures, ***REMOVABLE*** orthodontic devices, eyeglasses, blood/fluid soaked clothing/gowns, thick or folded clothing/blankets/sheets, dressings, IV or monitoring lines, pillows, imprinted designs on clothing, thick or wet hair, etc…

NOTE: Internal objects that are found within the patient such as surgical pins/clips/suture, prostheses, central venous lines, pacemakers, nasogastric tubes, residual barium or contrast media are all examples of items which are not preventable; these must be accepted on the radiograph. They will NOT be considered "***ARTIFACTS***" for radiographic film evaluation classes.

*** Textbooks vary on the definition of artifacts. This is the criteria that is established by Spokane Community College School of Radiologic Technology. This is what we will go by for this class.

IMAGE EVALUATION BASICS

The idea of this class is to be able to notice the difference between a good and a bad radiograph.

Every time you look at a film to evaluate it you should ask yourself the same set of questions.

1. What anatomy are you looking at?
2. What projection is it?
3. Is it positioned correctly?
4. Is the part/anatomy on the film?
5. Is it too light? Too dark?
6. Is there motion or artifact?

These are the major questions to ask in order to decide if the film needs to be repeated. (When looking at a film in image evaluation class, the film is considered the first try at the projection, what will you do?)

Then you need to look at the little things like.

1. Is there a marker?
2. Is there coning/shielding?
3. Is it the correct field size used?

These are very important things to look for but are not necessarily reasons to repeat the film.

The ultimate question is: Are you proud to put your initials on this film?

IMAGE EVALUATION
FACTS FOR CLASS

1. Each site has various protocols; the films used in film Critique *are* protocol films. They just may be incorrectly positioned films.

2. I personally will hang the films correctly. With this in mind you can/will be able to distinguish right and left for each film.

3. Test films can be ***ANYTHING***. Be prepared! If we go over a certain exam it ***MAY*** appear as a test either in the spring or summer quarter.

4. You are responsible for knowing the size of film that is hung. If you have difficulty with this concept remember that a standard piece of paper is 8 ½ x 11 inches.

5. There is no set schedule for this course. We will be covering various exams and images each week.

6. It is your responsibility to review Merrill or the Image Analysis books regularly.

7. If you fall into the "All or Nothing Method" with a quiz, I will place a new test sheet with a film in your mailbox. You must reference on the test sheet your findings along with filling out the test sheet on the film. You have 1 week to complete and return the test to me. I will put the due date at the top of the test page. Any test's turned in after the stated due date will not be counted.

8. In regards to testing:
   - *Long Critique* images will be given a 8 min. time limit
   - *Quick Critique* images will be given 60 seconds per image
   - *Why or Why not* Quiz's will be given a 20 min. time limit to review all 10 images.

9. When doing a Long Critique you must indicate, at the bottom of the page, an *average technique* for the image.

10. If you are experiencing any problems, difficulties or you have questions with film critique you need to come see **me** about the issues. I am here to help you succeed in this course.

Name: _____

Radiographic Image Evaluation

Film #: _____ Area of Anatomy: _____

(20 points) Projection/View: _____
(Include right, left, upright, etc)

(10 points) What anatomical part(s) is/are required on this projection? _____
_____

(2 points) Is the correct field size used? Yes ☐ No ☐

(2 points) If incorrect field size, what is the correct size? _____

(2 points) Is there acceptable collimation? Yes ☐ No ☐

(2 points) Are there any artifacts? Yes ☐ No ☐

(2 points) If an artifact, what is it? _____

(10 points) Is the anatomical part correctly positioned? Yes ☐ No ☐

(10 points) If not correctly positioned, what corrections are necessary? _____
_____

(5 points) Evaluate the radiographic technique, as follows:

☐	☐	☐	☐	☐
too light	Light, but acceptable	near perfect	dark, but acceptable	too dark

(5 points) If not, near perfect, how should the radiographic technique be changed? _____
_____

(5 points) Is the central ray correctly centered to the anatomical part? Yes ☐ No ☐

(5 points) Is the central ray correctly directed to the anatomical part? Yes ☐ No ☐
(Perpendicular, or correct degree & direction of angle)

(10 points) Should this projection be repeated? Yes ☐ No ☐

(10 points) Why or why not? _____
_____

Average Technique for this view: _____

SYLLABI *(cont'd)*

COURSE TITLE: Fuch's Radiographic Principles II **COURSE NUMBER:** RAD 125

CREDIT HOURS: 3 **QUARTER:** Winter

INSTRUCTOR: Debbie Miller
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Radiography in the Digital Age: Physics, Exposure, & Radiation Biology: 2nd Ed. By Quinn B. Carroll.

Radiologic Science for Technologists: Physics, Biology & Protection 11th Ed. By: Stewart Bushong.

COURSE DESCRIPTION:

This course continues with the concepts introduced in RAD 115. Students learn about radiation protection, and use of protective devices. In addition, they learn about the geometric functions and some of the imaging equipment that is utilized in radiology.

COURSE OBJECTIVES:

1. Actively participate in all course activities
2. Attend all lectures and demonstration.
3. Read all the required reading assigned.
4. Do the required homework assignments.
5. Take all quarter tests.

METHOD OF TEACHING:

Lectures are created to present the principles of producing a top quality radiograph, making the appropriate corrections and problem solving as it relates to radiography in the clinical setting. Lectures will be supplemented by demonstrations, video tapes, radiographic images, white board and guest speakers.

Laboratory setting will enhance the demonstrations of the lecture material by discussing and presenting portions of the information with the ability to utilize the radiology equipment.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

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GRADING METHOD:

This course's grade will be a combination grade that will be based on homework, tests and a comprehensive final. The combined grades of attendance/participation, homework, experiments, quizzes and tests will account for 70% of the final grade.

All homework must be turned in on the date due, prior to the start of class, in order to receive full credit. For each day that homework is late a 15% deduction will occur (classroom or clinical days). If you are absent on a test day, the test must be made up on the first day back to clinical or class depending on which comes first. For each day the test is not made up (after returning to school) a 5% deduction will be applied to that test grade. A comprehensive final will be given which constitutes the remaining 30% of the final grade. If you choose to complete the extra credit experiment labs, they cannot aid you in passing the course. The extra credit will only improve your final grade once you have successfully achieved an overall grade of 78%. Grades can be checked online on Canvas. The following is a breakdown of the grading method:

Homework----------	=	20%
Tests----------	=	45%
Comprehensive Final----------	=	35%
		100%

Pertinent Information Regarding Tests

If a student is caught cheating, they will receive a "0" for that test score, which may result in termination from the program. The cheating shall be reported to the VP of Student Services as Academic Dishonesty.

Students will not be allowed to have any drinks, papers, books, etc. on their table while taking an exam. The student will be provided a calculator if there is any math involved. Students are not allowed to use their own phone or calculator when taking an exam.

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

1. Identify the considerations that affect the recorded details of the radiograph.
2. Identify and control technical factors affecting image distortion, density and contrast
3. Describe the interrelationships of radiographic image formation factors
4. Identify and describe the film structures and composition inclusive of differentiate of types.
5. Define the properties and characteristics of x-rays
6. Identify, define and discuss radiographic quality.

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All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

TENTATIVE CLASS SCHEDULE

Week 1	Mon.	Discuss class schedule, expectations and hand out assignments & review first quarter Fuchs
	Thurs.	Lecture on: Chapter 25 "Simplifying & Standardizing Technique"
Week 2	Mon.	Continuation of chapter 25
	Thurs.	**TEST: Chapter 25 *in the classroom***
Week 3	Mon.	NO CLASS – Martin Luther King Day
	Thurs.	Lecture on: Chapter 36 "Fluoroscopy & Digital Fluoroscopy"
Week 4	Mon.	**TEST: Chapter 36**
	Thurs.	Lecture on: Chapter 20 "The Anode Bevel & Focal Spot Size" Chapter 21 "Source-Image Receptor Distance"
Week 5	Mon.	Lecture on: Chapter 22 "OID & Distance Ratios"
	Thurs.	**TEST: Chapters 20, 21, 22**
Week 6	Mon.	Lecture on: Chapter 23 "Alignment & Motion" Chapter 24 "Analyzing the Radiographic Image"
	Thurs.	**TEST: Chapters 23 & 24**
Week 7	Mon.	**NO CLASS – President's Day**
	Thurs.	Lecture on: "Automatic Processors" http://www.youtube.com/watch?v=aa1Cpz7OH44 http://www.youtube.com/watch?v=6DBU9y_0FDE

Week 8	Mon.	**TEST: "Automatic Processors"**
	Thurs.	Lecture: Chapter 1 "Essential Concepts of Radiologic Science" & 8% Rule
Week 9	Mon.	**TEST: Chapter 1 & 8% Rule**
	Thurs.	Lecture on: "Solving Multiple Technique Problems"
Week 10	Mon.	continuation of lecture solving multiple technique problems
	Thurs.	**TEST: "Solving Multiple Technique Problems" *in the classroom***
Week 11	Mon.	Review for Comprehensive Principles II Final
	Thurs.	Catch-up day
Week 12	TBA	**COMPREHENSIVE FINAL**

RADIOGRAPHIC PRINCIPLES II
OUTLINE

I. Simplifying & Standardizing Techniques
- A. Radiographic Quality
- B. Evolving the Exposure System
- C. Optimum kVp Technique
- D. Variable kVp Technique
- E. Variable mA Technique
- F. Usefulness of the Proportional Anatomy System
- G. Proportional Anatomy Groupings
- H. Developing Charts
- I. Formats for Technique Charts
- J. Automatic Exposure Technique Charts

II. Special Imaging Techniques
- A. Parallactic Imaging

III. Fluoroscopy & Digital Fluoroscopy
- A. Image Intensifier (be able to briefly describe how each works)
  1. Input Phosphor & Photocathode
  2. Electrostatic Focusing Lens
  3. Accelerating Anode
  4. Output Phosphor
- B. Beam Splitter
- C. Automatic Brightness System Image Qualities (be able to define these)
  1. Scintillation
  2. Contrast
  3. Distortion
     a. Pincushion Distortion
     b. Veiling Glare
     c. Vignetting
     d. Lagging
- D. Image Recording Systems (be able to briefly describe)
  1. Photospot cameras
  2. Digital Photospot
  3. Cineradiography
  4. Spot-Film Devices
- E. Minimizing Patient & Operator Exposure
  1. Pulsed fluoroscopy
  2. ALARA
  3. 3 – Cardinal Principles for Decreasing Patient Exposure

IV. The Anode Bevel & Focal Spot
- A. Line-Focus Principle
- B. Anode Heel Effect
- C. Define focal spot
- D. Know the effects the focal spot has on
  1. Visibility functions
  2. Geometric functions
- E. Effects on Penumbra

V. Source-Image Receptor Distance

A. Effects on Geometric Functions
   a. Sharpness of Recorded Detail
   b. Magnification
   c. Shape Distortion

B. Effects on Visibility Functions
   1. Effect on Density
      a. Inverse Square Law
      b. Square Law
   2. Effect on Contrast

VI. OID & Distance Ratios

A. Effects on Geometric Functions
   1. Effect on Sharpness of Recorded Detail
   2. Effect on Magnification
   3. Effect on Shape Distortion

B. Effects on Visibility Functions
   1. Effect on Contrast
   2. Effect on Distance

C. Air Gap Technique

D. Magnification
   1. Magnification Factor
   2. Magnification Ratio

E. Sharpness
   1. Geometric Unsharpness
   2. Geometric Sharpness
   3. Visibility Functions

F. Macroradiography & Define similar triangle

VII. Alignment & Motion

A. Off-centering & Beam Divergence

B. Effects on Geometric Functions
   1. Shape Distortion
   2. Ceiszynski's Law of Isometry
   3. Objects with Long Axis
   4. Objects without Long Axis
   5. Effects on Visibility Functions

C. Routine Projections

D. 4 - Positioning Objectives

E. Voluntary / Involuntary Motion

F. 3 – ways to control motion

G. Effects on Geometric Functions

H. Effects on Visibility Functions

VIII. Analyzing the Radiographic Image

A. ***KNOW THIS CHAPTER FORWARDS & BACKWARDS***

IX. Automatic Processors

A. 6 Steps in Processing Radiographs

B. Developer Solutions & Process

C. Fixer Solutions & Process

D. Definitions
E. 5 Electromechanical Systems
F. Processing Artifacts
G. Storage
H. Handling of Film

X. Essential Concepts of Radiologic Science

A. Matter
B. Energy
    1. Potential energy
    2. Kinetic energy
    3. Chemical energy
    4. Electrical energy
    5. Thermal energy
    6. Nuclear energy
    7. Electromagnetic energy
C. Radiation
    1. Natural environmental radiation
        a. Cosmic rays
        b. Terrestrial radiation
        c. Internally deposited radionuclides
    2. Man-made radiation
D. Discovery of X-rays
E. ALARA
    1. Ten commandments of Radiation Protection (pg. 11)
    2. Clinical skills required by ARRT (pg. 13)
    3. Personal Skills required by ARRT (pg. 13

XI. Solving Multiple Technique Problems

A. Density
B. Patient Skin Dose
C. Contrast
D. Sharpness of Recorded Detail

SYLLABI *(cont'd)*

COURSE TITLE: Clinical Education II

COURSE NUMBER: RAD 126

CREDIT HOURS: 9 **CLINICAL HOURS:** 297

QUARTER: Winter

INSTRUCTORS:

Debbie Miller
Office #: Rm. 7-137
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Cell phone #: 509-953-3843
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Kim Eikum
Office #: 7-138
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Helen Murphy
Office #: Rm. 7-139
Office phone #: 509-533-8616
Cell phone #: 509-991-1571
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

This course continues with the development of clinical skills introduced in RAD 116.

COURSE OBJECTIVES:

1. Actively participate in all examinations student is assigned to.
2. Attend clinical days.
3. Maintain & have with you own clinical logbook.
4. Create & update a "mini- book" for all positioning and set up of examinations & carry with you during clinical hours.
5. Complete required number of competency clearances for the quarter.

METHODS OF TEACHING:

Laboratory setting will enhance the demonstrations of the lecture material by discussing and presenting portions of the information with the ability to utilize the radiology equipment.

Practical application during clinical will enhance the information that has been taught in the classroom and from all the course information the student has successfully passed during previous quarters, and this quarter, while in the program.

CLINICAL REQUIREMENTS:

Students must successfully pass their DRUG SCREENING and BACKGROUND CHECK in order to be accepted at the clinical sites. NO EXCEPTIONS! All clinical sites have the option of refusing a student's admittance to their facility, if this occurs the student will not be allowed to start or continue the program. All students rotate through the 4 main hospitals in Spokane along with the Inland Imaging and Rockwood Clinic outpatient facilities.

LINES OF AUTHORITY:

In the classroom you are responsible to your instructor. During clinical responsibilities you are responsible to your instructor and personnel so designated. RESPONSIBILITY FOR PATIENT CARE RESTS WITH THE CLINICAL FACILITY. THE CLINICAL FACILITY HAS THE AUTHORITY TO GRANT OR REFUSE STUDENT ACCESS OF ANY STUDENT FOR JUST CAUSE. Remember, you are a guest and represent Spokane Community College and your program. *See additional information under the CONDUCT section in the SCC Radiology Technology Student Handbook.* If you are asked to leave a clinical site or if a site does not allow you to attend their facility (for any reason), you will not be allowed to transfer to another clinical site to finish your schooling. You will be terminated from the program.

CLINICAL BEHAVIOR:

Refer to the clinical behavior guidelines located in the SCC Radiology Technology Student Handbook.

CLINICAL ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

<u>GRADING METHOD</u>:

Evaluations…….. 100 points each
Competency clearances……... 100 points each

All of the evaluations and competency clearances completed during the quarter will be averaged together to create 90% of the final grade for the quarter.

Blue Log Books…… 100 points

The Blue log book will constitute 10% of the final grade for the quarter.

<u>COMPETENCY CLEARANCE GRADING POLICY</u>:

See SCC Radiology Technology Student Handbook for competency clearances required per quarter. A successful passing score on each clearance is 83% (which is equivalent to a 2.5). All competency clearances must be successfully completed by the end of the 6th quarter. Failure to complete the minimum required competency clearances for the quarter will result in a 0.25 reduction from your clinical grade for EACH clearance not completed, and you must complete the delinquent clearance(s) before the beginning of the next quarter. This includes those clearances that must be completed during specific quarters.

During a competency clearance, the clinical instructor may abort the clearance at his/her discretion. A student may receive an "automatic failure" on a clearance attempt for noncompliance of certain patient care/safety guidelines. (See SCC Radiology Technology Student Handbook for additional information.)

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.5 GPA (83%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:

Penalties for Deliberate Plagiarism or Cheating:

First Offense: Automatic failure of the paper or test and possible failure of the course.

Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student

will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

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Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in clinical.

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This syllabus may be subject to change.

SYLLABI *(cont'd)*

COURSE TITLE: Mobile/Surgical Procedures

COURSE NUMBER: RAD 127

CREDIT HOURS: 1

QUARTER: Winter

INSTRUCTOR: Kim Eikum, M.Ed., R.T.R, M
Office #: Rm. 7-138
Office phone #: 509-533-8613
Cell phone #: 509-280-0001
kimberly.eikum@scc.spokane.edu
Office hours are posted by office door

REQUIRED TEXT:

Merrill's Radiographic Positioning and Procedures Volume 3, Thirteenth addition.

Frank, E., Long, B., & Smith, B. (2014). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem.

COURSE DESCRIPTION:

This is a 1 credit course designed to provide the student with an overview of the common mobile/surgical procedures commonly used in a hospital setting. It emphasizes the positional techniques used to take appropriate radiographs of each body part based on the physician's request. The student will become acquainted with the correct alignment of radiographic equipment, exposure factors, patient apprehension, safety and comfort for the patient as well as trauma work and forensic procedures.

COURSE OBJECTIVES:

1. Identify the various surgical procedures that require radiology to assist.
2. Identify the different type of mobile equipment used and their capabilities.
3. Identify proper radiation safety and isolation guidelines.
4. Identify the different types and signs of fractures.
5. Describe various procedures used to perform trauma radiography and forensic radiography.

METHOD OF TEACHING:

This course will consist of lecture and class discussion.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

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Average Achievement	2.4	82
"C"	2.3	81
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Lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are not sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

This course's grade will be a combination grade that will be based on homework, quizzes, tests, a group project and a comprehensive final. All homework and assignments must be turned in on the date due in order to receive full credit. All homework or assignments turned in after the due date will receive half credit. If you are absent on a test day the test must be made up on the first day back to clinical or class depending on which comes first. For each day the quiz or test is not made up (after returning to school) a 5% deduction will be applied to final quiz or test grade. Quizzes will be available on Canvas Friday at 4pm until Sunday at 11:59 pm. Since the quizzes are not done in the computer lab at SCC it is your responsibility to find a computer that will allow you to take your quiz/test without any difficulty. Quizzes have a 20 minute limit. All Tests will be done at SCC in the computer lab with the exception of the **2-23-15 test**, this test will be done on your own. A comprehensive final will be given, if the student has a 95% going into the final this student can be excluded from taking the final. The following is a breakdown of the grading method:

Homework	7 assignments	20% of overall grade
Quiz's & Group Project	3 quiz's & 1 Project	20% of overall grade
Test's	3 tests & 1 final	35% of overall grade
Final	1 Final	25% of overall grade

Winter Quarter tentative assignment schedule

Name	**Date**
Manual Technique Chart homework	
Quiz #1-Intro to ports	
Positioning in Surgery homework	
Test#1-Intro to port and Performing exams	
Positioning trauma homework	
Portable worksheet homework	
Quiz #2-Proceudures	
Mobile worksheet homework	
Test #2-Procedures regarding chest, abdomen, extremity's, Neonatal and Surgical Procedures	
Fractures homework	
Quiz#3-Fractures	
Trauma homework	
Test #3-Fractures, Trauma and Forensic Radiology	
Group Project	
Comprehensive Final	

(Schedule is subject to change)

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
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- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
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CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

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Winter

The course meets weekly on Monday from 12:00-1:00pm.

Week 1	Go over Syllabus, Discuss Portable Experiences
Week 2	Intro to portables and Performing exams Lecture
Week 3	**OFF** 
	Quiz #1-Intro to Ports-Due on Canvas
Week 4	**(Make up lecture due to President's Holiday)** Post Exams and Isolation Lecture (Groups work on Projects)
Week 5	**TEST,** (*Positioning in Surgery homework due), OEC video*
Week 6	(*Positioning in Trauma homework due)*, Procedures regarding chest, abdomen and extremity's & Neonatal Lecture
	Quiz #2-Due on Canvas
	(Make up lecture due to President's Holiday) ***QUIZ,*** *(Portable Questions homework due)*, Surgical procedures Lecture
Week 7	**OFF** 
Week 8	***TEST****, (Mobile Worksheet homework due)* Fractures Lecture, (*Manual Technique chart homework due)*, **Group Projects due**
Week 9	**Quiz #3-Due on Canvas**
Week 10	(*Fractures homework due)*, Trauma radiography and Forensic Radiology Lecture
Week 11	***TEST*** *(Trauma homework due)*
Week 12	**Comprehensive Final**

SURGERY/MOBILE PRESENTATION

GROUP# _____ DATE: _____

NAMES: _____

_____

_____

Exam content:

	Not at all		Needs work		Excellent
Shows willingness to perform assigned tasks	1	2	3	4	5
Interacts well with the class (answers questions)	1	2	3	4	5
Covered the material appropriately	1	2	3	4	5
Information sheet provided	1	2	3	4	5
Visual aid provided	1	2	3	4	5
Works well with assigned group	1	2	3	4	5

GROUP TOTAL# _____

(30 points possible)

Instructors comments:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

GROUP	SUBJECT

One person for each group will pick a subject from the container. The subjects are numbered (which indicates the order they will be presented in class). The rubric the instructor will use to grade the group is included with syllabus.

Each group has one person from SHMC, HFH and DEAC/Valley so that information can be gathered from each site. You are responsible to get all information pertaining to your subject. You can use technologist, doctors, nurses, surgery personnel, the internet etc.

Each group must have a visual aid to use in their presentation and a one sheet (one sided) information hand out for each class member and the instructor.

NOTE: information from these presentations will be on your **March xxth TEST**.

This assignment is due: **March x.**

PEER EVALUATION

Please rate yourself and your team members on the relative contributions that were made in preparing and submitting your group presentation. *Your ratings will not be disclosed to other students.* Be honest in this evaluation!

In rating yourself and your peers, use a one to five point scale, where
5 = Superior;
4 = Above Average;
3 = Average;
2 = below average; and
1 = weak.

Insert **your name** in the first column and your peers' names in the remaining spaces. (One name at the top of each column).

Names					
Participated in group discussions or meetings					
Helped keep the group focused on the task					
Contributed useful ideas					
Quantity of work done					
Quality of work done					
Comments					
Enter total scores here					

RAD 127 Unit Objectives

Mobile/Surgical Procedures

INTRODUCTION TO PORTABLES AND PERFORMING EXAMS
(SWBAT-Student will be able to…)
Objective 1. Identify and describe the different type of Mobile Machines used
Objective 2. Describe the importance of technique charts for portable procedures
Objective 3. Identify and describe the procedures for performing a portable exam
Objective 4. Identify radiation protection procedures for mobile exams

POST EXAM PROCEUDRE AND ISOLATION GUIDELINES
(SWBAT-Student will be able to…)
Objective 1. List the steps for performing a portable procedure
Objective 2. Identify and describe the steps for assessing a patient
Objective 3. Identify and describe the different types of isolation procedures
Objective 4. Identify shielding guidelines

PROCEDURES REGARDING CHEST, ABDOMEN, EXTRIMITIES AND NEO-NATAL
(SWBAT-Student will be able to…)
Objective 1. Describe the procedure for performing a portable chest exam
Objective 2. Identify and describe the items that must be considered when performing a Portable chest exam
Objective 3. Identify film placement concerns
Objective 4. Describe the procedure for performing a portable abdomen exam
Objective 5. Describe the procedure for performing a portable extremities exam
Objective 6. Describe the procedure for performing portable neo-natal exams

SURGICAL PROCUDRUES
(SWBAT-Student will be able to…)
Objective 1. Identify the members of the Sterile Team
Objective 2. Identify the members of the Non-Sterile Team
Objective 3. Identify the attire required for surgery
Objective 4. Identify and describe the principles of aseptic technique
Objective 5. Identify and describe the principles of sterile technique
Objective 6. Identify the equipment need to do a radiology procedure in surgery
Objective 7. Describe the different type of radiographic procedures performed in surgery

FRACTURES
(SWBAT-Student will be able to…)
Objective 1. Identify and describe the different type of fractures
Objective 2. Discuss trauma terminology
Objective 3. Identify the signs of a fracture
Objective 4. Identify the indications of fracture or dislocation
Objective 5. Describe the healing process

TRAUMA AND FORENSIC RADIOLOGY
(SWBAT-Student will be able to…)
Objective 1. Describe the 5 basic principles of positioning for trauma radiography
Objective 2. Discuss trauma procedures
Objective 3. Identify and describe the different type of auto collisions
Objective 4. Describe industrial injuries and sport injuries
Objective 5. Discuss forensic radiology
Objective 6. Describe the medical legal system
Objective 7. Identify the uses of forensic radiology
Objective 8. Identify the types of fractures common in child abuse cases
Objective 9. Identify the areas of the morgue
Objective 10. Describe the types of exams performed in the morgue
Objective 11. Identify the different manors of death

RUBRIC FOR CRITICAL THINGING HOMEWORK ASSIGNMENTS

"Critical thinking" can mean many things. A radiology technologist will encounter different critical thinking situations daily. These assignments are designed to prepare you for these situations. I am interested in how you draw meaning from the information and I am looking for evidence that you can work effectively with each problem that is presented.

Scoring level	Interpretation	Analysis & Evaluation	Presentation
4-Accomplished	✓ Analyzes insightful questions or exam order. ✓ Critiques content ✓ Values information ✓ Applies appropriate technique adjustments. ✓ Adapts to trauma patient situation with ease	✓ Examines conclusions ✓ Uses reasonable judgment ✓ Discriminates rationally ✓ Synthesizes data ✓ Views information critically	✓ Discusses issues thoroughly ✓ Shows intellectual honesty ✓ Justifies decisions ✓ Assimilates information ✓ Argues succinctly
3-Competent	✓ Address's insightful questions or exam order. ✓ Categorizes content ✓ Recognizes content ✓ Makes attempt to apply appropriate technique adjustments ✓ Adapts to trauma patient situation	✓ Formulates conclusions ✓ Recognizes arguments ✓ Notices differences ✓ Evaluates data ✓ Seeks out information	✓ Argues clearly ✓ Identifies issues ✓ Attributes sources naturally ✓ Suggests solutions ✓ Incorporates information
2-Developing	✓ Identifies some questions ✓ Recognizes basic content ✓ Selects sources adequately ✓ Makes some attempts to apply appropriate technique adjustments	✓ Identifies some conclusions ✓ Sees some arguments ✓ Identifies some differences ✓ Paraphrases data ✓ Assumes information valid	✓ Misconstructs arguments ✓ Generalizes issues ✓ Cites sources ✓ Presents few options ✓ Overlooks some information
Developing (cont'd)	✓ Some adaption to trauma patient situation	✓	✓
1-Beginning	✓ Fails to question data ✓ Misses major content areas ✓ Chooses biased sources ✓ Makes no attempt to apply appropriate technique adjustments ✓ No adaption to trauma patient situation	✓ Fails to draw conclusions ✓ Sees no arguments ✓ Overlooks differences ✓ Repeats data ✓ Omits research	✓ Omits argument ✓ Misrepresents issues ✓ Excludes data ✓ Draws faulty conclusions ✓ Shows intellectual dishonesty

Total: _____ Student's name: _____

SYLLABI *(cont'd)*

COURSE TITLE: Radiographic Positioning III

COURSE NUMBER: RAD 131

CREDIT HOURS: 2

QUARTER: Spring

INSTRUCTOR: Debbie Miller
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiologic Procedures 13th edition Ballinger & Frank

COURSE DESCRIPTION:

This course reviews the anatomy of the skull and facial bones and, positional positional techniques utilized to take appropriate radiographs based on the physician's request. Correct alignment of image, anatomy and x-ray tube are emphasized. Student prepare for comprehensive tests.

COURSE OBJECTIVES:

1. Review the anatomy/physiology of the skull & facial bones
2. Describe patient safety including radiation protection
3. Present the necessary room set-up and supplies for each procedure
4. Discuss the appropriate patient care for each procedure
5. Discuss the requirements in assisting the radiologist for each procedure
6. Present the required radiographic positions for each procedure to include: position, central ray, and alignment of IR
7. Discuss the radiographic imaging techniques for each procedure to include: MAS (or AEC), kVp & respiration

METHOD OF TEACHING:

Lecture, demonstration and lab presentations, and practice

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the

guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

This course's grade will be a combination grade that will be based on homework, quizzes, tests and a comprehensive final. **You may have your lab prior to or following the test on that particular area.**

It is the "luck of the draw" as to who has lab before taking their test. You should be prepared for all information on the test regardless of when your lab is.

For exams/quizzes given in the class room, students will grade their own exam/quiz immediately following the completion of the exam/quiz. If a student fails to mark themselves wrong on a particular question/answer they will lose double the possible points for that question. If the exam/quiz is given via Canvas, the exam/quiz may be reviewed on Canvas, however, it will be set up so the student will not be able to print the exam/quiz. **Homework is due at the beginning of class. If it is not turned in at that time you will receive a "0". No Exceptions!!!**

Homework ----------	10%
Scheduled & pop quizzes----------	15%
Tests----------	40%
Comprehensive Final----------	35%
	100%

PERTINENT INFORMATION REGARDING TESTS/QUIZZES:

If you are absent on a quiz or test day the quiz or test must be made up on the first day back to clinical or class depending on which comes first. For each day the quiz or test is not made up (after returning to school) a 5% deduction will be applied to final quiz or test grade. Pop quizzes cannot be made up. You just have one less quiz score at the end of the quarter. A comprehensive final will be given which constitutes the remaining 35% of the final grade. Grades can be checked online on Canvas. Students will be **NOT** be allowed to drop their lowest quiz score. This includes pop quizzes.

If a student is caught cheating, they will receive a "0" for that exam score, which may result in failure of the course. The cheating shall be reported to the VP of Student Services as Academic Dishonesty. In addition, the program director will then follow the "Certification Eligibility Requirements" in the Radiography Certification Handbook & Application Materials for 2013, page 6; which states ***"The certification application also asks you to respond to a question about violations or sanctions related to the honor code. All candidates must sign a written consent under the Family Educational Rights and Privacy Act (FERPA). This consent allows ARRT to communicate freely and openly with program directors and to obtain specific parts of your educational records concerning violations of an honor code".*** This means the program director will not sign off for you to be eligible to take the ARRT National Exam.

Students will not be allowed to have any drinks, papers, books, etc. on their table while taking an exam. The student will be provided a calculator if there is any math involved. Students are not allowed to use their own phone or calculator when taking an exam.

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Identify and explain the diagnostic positions
- Demonstrate competence in performing diagnostic positioning
- Describe the anatomy of the skull and facial bones including paranasal sinuses
- Assign the central ray for the indicated projection

- Describe the correct field size, type & placement of the IR
- Utilize restrain, ancillary and protective devices applicable to each procedure

***COLLEGE WIDE ABILITIES**
The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility
Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.
Students will be able to demonstrate the following measurable behaviors/skills:
- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)
Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.
Students will be able to demonstrate the following measurable behaviors/skills:
- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving
Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.
Students will be able to demonstrate the following measurable behaviors/skills:
- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
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POSITIONING III
***TENTATIVE* CLASS SCHEDULE**

Week 1	Monday	Introduction / assignments
	Thursday	Study groups for Monday, 4/13, test
Week 2	Monday	**TEST: Skull, Facial Bones & Sinuses anatomy & baselines, landmarks**
	Thursday	*WSRT*
Week 3	Monday	Skull positions: PA Axial (Caldwell)—compares AP A& PA; AP Axial (Towne) & PA Axial (Haas)
	Thursday	Skull positions: Lateral (& x-table Lat) & Schuller (sub-v)
Week 4	Monday	**TEST: Skull**
-	Thursday	Facial bone positions: Parietoacanthial (Waters) & reverse Waters, x-lateral for facial bones
Week 5	Monday	Facial bone Positions: PA Axial Caldwell, Sub V for Zygomatic Arches & AP Axial Towne for facial bones
	Thursday	**TEST: Facial Bones & Zygomatic Arches**
Week 6	Monday	TMJ positions: Bilat. Axiolateral--open & closed mouth Mandible positions: PA & Towne with open mouth ***HOMEWORK #1 DUE @ beginning of class!!***
	Thursday	Axiolateral Obliques (several methods)
Week 7	Monday	**TEST: TMJ & Mandible**
	Thursday	Nasal bones positions: Waters & Bilateral laterals

Week 8	Monday	**NO CLASS – Memorial Day**
	Thursday	Orbit positions: Modified Waters, Rhese, & PA Caldwell
Week 9	Monday	**<u>TEST:</u> Nasal Bones & Orbits**
	Thursday	Positioning of Paranasal Sinuses: ***HOMEWORK #2 DUE at beginning of class!***
Week 10	Monday	**TEST: Paranasal Sinuses**
	Thursday	Review for Comprehensive Final
Week 11	TBA	**COMPREHENSIVE FINAL**

RADIOGRAPHIC POSITIONING III OUTLINE

I. Anatomy
   - A. Bones of the Cranium (8)
   - B. Bones of the Face (14)
   - C. Paranasal Sinuses
   - D. Sutures
   - E. Fontanels
   - F. Landmarks
   - G. Baselines

II. Radiographic Positions and Methods
   - A. Skull Radiology
   - B. Facial Bones
   - C. Nasal Bones
   - D. Mandible
   - E. TMJ
   - F. Eye (for Foreign Body)
   - G. Orbits
   - H. Optic Canals & Foramen
   - I. Paranasal Sinuses

COURSE TITLE: Radiographic Imaging Evaluation III **COURSE NUMBER**: RAD 134

CREDIT HOURS: 2 **QUARTER:** Spring

INSTRUCTOR: Kim Eikum, M.Ed., R.T.(R), (M)
Office #: 7-138
Office phone #: 509-533-8613
Cell phone #: 509-280-0001
kimberly.eikum@scc.spokane.edu
Office hours as posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

This course will review the essential technical factors used in evaluation of radiographic quality. The student will access such factors as what projection/view is shown, collimation, shielding, positioning, anatomical anomalies, density, contrast, film artifact, and central ray correctly centered in the developed radiograph.

COURSE OBJECTIVES:

1. Discuss the necessity of the radiographic examination as it relates to identifying disease processes, patient handicaps and degree of difficulty in obtaining appropriate anatomical views.
2. Explain the reasoning for selection of exposure combination factors based on age, atrophy, disease process, and contrast media considerations.
3. Discuss appropriate film size, field view, combinations of screens, film speed and grids and their combined response to radiation and body parts.
4. Discuss use of proper shielding and marker placement as presented on the radiograph.
5. Be able to list basic positioning procedures for each exam presented.
6. Be able to identify positioning landmarks and positional corrections necessary for each radiograph.
7. Identify the anatomy and anatomical anomalies on each radiograph.
8. State influencing factors of radiographic quality, i.e. density contrast resolution, fog distortion and magnification.

METHOD OF TEACHING:

During this course the students should be prepared to actively participate in classroom discussions and exercises. This course is one that discussion and exploring must be active.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
Lowest grade acceptable to progress	2.0	78

	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

<u>GRADING METHOD</u>:

Weekly quizzes, Canvas discussion questions, Clinical critique form and weekly class participation will represent 85% of the overall grade. A final test will be given and will worth 15% of the final grade. All students will take the final. Attendance policy is as stated in the SCC Radiology Technology Student Handbook. Grades can be checked online on Canvas. If you are absent for class you miss out on important discussions about films. ***The 10 points per class session for participation and attendance will be applied appropriately at the end of the course. If you miss a class you will not receive the 10 point awarded for that class.*** You will not make up the test for that day; you will simply have fewer score to average your grade. *If a mini class is missed you will be responsible for collecting the information you have missed.*

Approximate grade scale is as follows:

<u>Approximate grade scale is as follows:</u>

Weekly Quiz's	**65% of overall grade**
Participation points (10 points each class)	**5% of overall grade**
Canvas, Discussion questions (10 each week)	**5% of overall grade**
Clinical Critique Form	**10% of overall grade**
Final	**15% of overall grade**

<u>Clinical Critique Rubric: 10% of final grade, 100 points</u>
10-9 weeks=100% of the points
8-7 weeks=80% of the points
6-1 weeks=50% of the points

On the daily radiographic image evaluation given by the instructor the *<u>"All or Nothing Method"</u>*** will be utilized. If your answer is not correct for *Projection/View* you will receive a **zero** for the test! *Correct means*: correct position and body part (including such things as decub, upright, axial, RPO & LPO/RAO & LAO). *"Right"* and *"Left"* errors will be minus **5** points.

Anytime a student receives a *"ZERO"* (or any grade below *60)*, he or she can improve the grade by turning in an *ASSIGNMENT* within one week of receiving the assignment. **THE ASSIGNMENT** will be: a film of the same part/position that the student failed. He or she must use Merrill's (plus any other sources) to fill out a critique test form. He or she must cite the pages in Merrill's at the top of the page (and cite any other sources, as well). The assignment will be graded with *60%* being the top score. This score will replace the first score he or she received. <u>*No grades will be eliminated from the computation of the quarter grade.*</u>

<u>FINAL GRADE</u>:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Discuss the necessity of the radiographic examination as it relates to identifying disease processes, patient handicaps and degree of difficulty in obtaining appropriate anatomical views.
- Explain the reasoning for selection of exposure combination factors based on age, atrophy, disease process, and contrast media considerations.
- Discuss appropriate film size, field view, combinations of screens, film speed and grids and their combined response to radiation and body parts.
- Discuss use of proper shielding and marker placement as presented on the radiograph.
- Be able to list basic positioning procedures for each exam presented.
- Be able to identify positioning landmarks and positional corrections necessary for each radiograph.
- Identify the anatomy and anatomical anomalies on each radiograph.
- State influencing factors of radiographic quality, i.e. density contrast resolution, fog distortion and magnification.

***COLLEGE WIDE ABILITIES**
The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility
Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.
Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)
Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.
Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
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Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
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- Observe, listen and respond appropriately
- Make justifiable inferences
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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:

Penalties for Deliberate Plagiarism or Cheating:

First Offense: Automatic failure of the paper or test and possible failure of the course.

Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

DISCUSSION BOARD PARTICIPATION:

Students are responsible to participate each week in the discussion board questions posted on Canvas. You must post on each discussion board category at least twice: first by giving your answer to each of the questions posted and second by commenting on at least ***one junior classmate's*** (Please use the classmates first name when responding) posting under each of the categories per week. Comments must be at least 10 words in length and your comment must either add to the post or take the post in a different direction. This should work out to be 2 postings in a week. More is ok, less will cost you points. The idea of this assignment is to reinforce what you already know about film evaluation and to facilitate the learning of your fellow junior students. It is encouraged to ask and answer questions of each other.

It is better to post early in the week and check back later in the week to add your reply. Please remember to watch all language used and please do not use abbreviations (i.e. texting). I will be reading all posting and replies but will not directly reply back to you unless asked to. Remember there is a due date and time. **You will be locked out after 11:55 pm on the set due date.** Do not wait until the last minute, because computer issues do happen! For this reason there will be no exceptions to the due date/time. Plan accordingly, and take responsibility for your actions.

What you need to succeed:

1. Actively participate in all course activities. Ask question, and answer questions asked of you.
2. There will be **a quiz each Thursday** over material cover in the previous classes.
3. Apply information learned to gain knowledge from the clinical setting. Use what you learned. You need to look at a lot of images at your sites, the more the better!
4. Be prepared to actively participate in classroom discussions and exercises. **READ** your Merrill's before class!
5. Know the **Structures shown (Merrill's)** for every view we do for this class.
6. Complete the class with at least a 2.5 grade.

The due dates/times are as follows.

Week 1 – Monday
Week 2 – Monday
Week 3 – Monday
Week 4 – Monday
Week 5 – Monday
Week 6 – Monday
Week 7 – Monday
Week 8 – Monday
Week 9 – Monday
Week 10 – Monday

Criteria for evaluation of radiographic images:

1. **Density** (attenuation) is the overall "darkness" of a radiograph. For a pathological condition to require a technical adjustment, it must substantially alter the presence and amount of the five radiographically demonstrable materials. These five types of substances, in order of increasing attenuation are:
    - **Gas and air**
    - **Fat**
    - **Fluid or fluid like**: blood, generally, soft tissues such as connective tissues, muscles and visceral organs, are of "fluid like" density, equal to water radiographically.
    - **Bone**
    - **Metal**s: hardware for fixation, barium and iodine compounds are, chemically, metals

2. **Contrast** Gray scale-You want it to be long enough to visualize the different bony and soft tissue structures

3. **Correct position for demonstration of intended anatomy** Merrill's (Evaluation criteria)

4. **Collimation and markers-** As a rule, there should be sufficient collimation of the body part with the ***marker inside the collimated field.*** Marker placement as a rule is somewhat optional, as long as it is not in the anatomy that is to be demonstrated. However, I place my marker on the lateral aspect of the body.

5. **Shielding/ Radiation Protection-** will not always be present on the film. When doing infants and children, it is desirable to demonstrate shielding (i.e. hips should show gonadal shielding on one view, a chest x-ray should show shielding of the abdomen no chabdomen etc…) Try and keep your and other holders hands out of shot when holding pts.

6. **Sharpness of recorded detail** – This refers basically to the absence of motion in regards to this class. The exception to this is when utilizing a shallow breathing technique.

7. **Correct patient identification-** The patient identification should routinely be reviewed when looking at your radiographs. It is especially important when using conventional radiography, since you are using a flash card and films can easily be mislabeled and equally important with CR &DR as names are selected from a work list.

8. **Elimination of potential artifacts –**The finished radiograph should be absent of artifacts.

Artifacts

Undesirable densities or blemishes on a radiograph that can be removed by you are called artifacts.

***Processing Artifacts*:** Artifacts produced during processing. Some examples are roller markers, chemical fog, and dirt.

***Storage and Handling Artifacts*:** They are caused by improper storage or handling. Some examples are pressure marks, finger marks, static, stains, scratches, light fog and creases.

External Artifacts*:** Objects found on, near, or under the patients. Some examples are Jewelry, hair ornaments, objects in pockets, snaps, buttons, pins, zippers, hearing aids, dentures, ***REMOVABLE orthodontic devices, eyeglasses, blood/fluid soaked clothing/gowns, thick or folded clothing/blankets/ sheets, dressings, IV or monitoring lines, pillows, imprinted designs on clothing, thick or wet hair, etc.

NOTE: Internal objects that are found within the patient such as surgical pins/clips/suture, prostheses, central venous lines, pacemakers, nasogastric tubes, residual barium or contrast media are all examples of items which are not preventable; these must be accepted on the radiograph. They will NOT be considered "***ARTIFACTS***" for radiographic film evaluation classes.

*** Textbooks vary on the definition of artifacts. This is the criterion that is established by Spokane Community College School of Radiologic Technology. This is what we will go by for this class.

IMAGE EVALUATION BASICS

The idea of this class is to be able to notice the difference between a good and a bad radiograph.

Every time you look at a film to evaluate it you should ask yourself the same set of questions.

1. What anatomy are you looking at?
2. What projection is it?
3. Is it positioned correctly?
4. Is the part/anatomy on the film?
5. Is it too light? Too dark?
6. Is there motion or artifact?

These are the major questions to ask in order to decide if the film needs to be repeated. (When looking at a film in image evaluation class, the film is considered the first try at the projection, what will you do?)

Then you need to look at the little things like.

1. Is there a marker?
2. Is there coning/shielding?
3. Is it the correct field size used?

These are very important things to look for but are not necessarily reasons to repeat the film.

The ultimate question is: Are you proud to put your initials on this film?

IMAGE EVALUATION
FACTS FOR CLASS

1. Each site has various protocols; the films used in film Critique *are* protocol films. They just may be incorrectly positioned films.

2. I personally will hang the films correctly. With this in mind you can/will be able to distinguish right and left for each film.

3. Test films can be ***ANYTHING***. Be prepared! If we go over a certain exam it ***MAY*** appear as a test either in the spring or summer quarter.

4. You are responsible for knowing the size of film that is hung. If you have difficulty with this concept remember that a standard piece of paper is 8 ½ x 11 inches.

5. There is no set schedule for this course. We will be covering various exams and images each week.

6. It is your responsibility to review Merrill or the Image Analysis books regularly.

7. If you fall into the "All or Nothing Method" with a quiz, I will place a new test sheet with a film in your mailbox. You must reference on the test sheet your findings along with filling out the test sheet on the film. You have 1 week to complete and return the test to me. I will put the due date at the top of the test page. Any test's turned in after the stated due date will not be counted.

8. In regards to testing:
   - *Long Critique* images will be given a 8 min. time limit
   - *Quick Critique* images will be given 60 seconds per image
   - *Why or Why not* Quiz's will be given a 20 min. time limit to review all 10 images.

9. When doing a Long Critique you must indicate, at the bottom of the page, an *average technique* for the image.

10. If you are experiencing any problems, difficulties or you have questions with film critique you need to come see **me** about the issues. I am here to help you succeed in this course.

Name: _____

Radiographic Image Evaluation

Film #: _____ Area of Anatomy: _____

(20 points) Projection/View: _____
(Include right, left, upright, etc)

(10 points) What anatomical part(s) is/are required on this projection? _____
_____

(2 points) Is the correct field size used? Yes ☐ No ☐

(2 points) If incorrect field size, what is the correct size? _____

(2 points) Is there acceptable collimation? Yes ☐ No ☐

(2 points) Are there any artifacts? Yes ☐ No ☐

(2 points) If an artifact, what is it? _____

(10 points) Is the anatomical part correctly positioned? Yes ☐ No ☐

(10 points) If not correctly positioned, what corrections are necessary? _____
_____

(5 points) Evaluate the radiographic technique, as follows:

☐	☐	☐	☐	☐
too light	Light, but acceptable	near perfect	dark, but acceptable	too dark

(5 points) If not, near perfect, how should the radiographic technique be changed? _____
_____

(5 points) Is the central ray correctly centered to the anatomical part? Yes ☐ No ☐

(5 points) Is the central ray correctly directed to the anatomical part? Yes ☐ No ☐
(Perpendicular, or correct degree & direction of angle)

(10 points) Should this projection be repeated? Yes ☐ No ☐

(10 points) Why or why not? _____
_____

Average Technique for this view: _____

SYLLABI *(cont'd)*

COURSE TITLE: Clinical Education III

COURSE NUMBER: RAD 136

CREDIT HOURS: 9 **CLINICAL HOURS:** 297

QUARTER: Spring

INSTRUCTORS:

Debbie Miller
Office #: Rm. 7-137
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

Kim Eikum
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Helen Murphy
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Office phone #: 509-533-8616
Cell phone #: 509-991-1571
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

Students learn radiographic positioning, department and office procedures, patient management and critical analysis of radiographs in a clinical setting. Students develop psychomotor skills, cognitive domain and affective behavior in the science of radiographic technology.

COURSE OBJECTIVES:

1. Actively participate in all examinations student is assigned to in addition to the specific objectives for the assigned rotation.
2. Attend all clinical days.
3. Maintain clinical logbook.
4. Create & update a "mini- book" for all positioning and set up of examinations.
5. Complete the required number of competency clearances for the quarter.

METHODS OF TEACHING:

Laboratory setting will enhance the demonstrations of the lecture material by discussing and presenting portions of the information with the ability to utilize the radiology equipment.

Practical application during clinical will enhance the information that has been taught in the classroom and from all the course information the student has successfully passed during previous quarters, and this quarter, while in the program.

CLINICAL REQUIREMENTS:

Students must successfully pass their DRUG SCREENING and BACKGROUND CHECK in order to be accepted at the clinical sites. NO EXCEPTIONS! All clinical sites have the option of refusing a student's admittance to their facility, if this occurs the student will not be allowed to start or continue the program. All students rotate through the 4 main hospitals in Spokane along with the Inland Imaging and Rockwood Clinic outpatient facilities.

LINES OF AUTHORITY:

In the classroom you are responsible to your instructor. During clinical responsibilities you are responsible to your instructor and personnel so designated. RESPONSIBILITY FOR PATIENT CARE RESTS WITH THE CLINICAL FACILITY. THE CLINICAL FACILITY HAS THE AUTHORITY TO GRANT OR REFUSE STUDENT ACCESS OF ANY STUDENT FOR JUST CAUSE. Remember, you are a guest and represent Spokane Community College and your program. *See additional information under the CONDUCT section in the SCC Radiology Technology Student Handbook.* If you are asked to leave a clinical site or if a site does not allow you to attend their facility (for any reason), you will not be allowed to transfer to another clinical site to finish your schooling. You will be terminated from the program.

CLINICAL BEHAVIOR:

Refer to the clinical behavior guidelines located in the SCC Radiology Technology Student Handbook.

CLINICAL ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

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to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Evaluations and Competency Clearances…….. 90% of Final Grade
Blue Log Books……. 10 % of Final Grade

COMPETENCY CLEARANCE GRADING POLICY:

See SCC Radiology Technology Student Handbook for competency clearances required per quarter. A successful passing score on each clearance is 83% (which is equivalent to a 2.5). All competency clearances must be successfully completed by the end of the 6th quarter. Failure to complete the minimum required competency clearances for the quarter will result in a 0.25 reduction from your clinical grade for EACH clearance not completed, and you must complete the delinquent clearance(s) before the start of the next quarter. This includes those clearances that must be completed during specific quarters.

During a competency clearance, the clinical instructor may abort the clearance at his/her discretion. A student may receive an "automatic failure" on a clearance attempt for noncompliance of certain patient care/safety guidelines. (See SCC Radiology Technology Student Handbook for additional information.)

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.5 GPA (83%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

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- Recognize that accurate and complete information is the basis for effective decision-making

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(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:

Penalties for Deliberate Plagiarism or Cheating:

First Offense: Automatic failure of the paper or test and possible failure of the course.

Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested

accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

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SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

SYLLABI *(cont'd)*

COURSE TITLE: Fuch's Radiographic Principles III

COURSE NUMBER: RAD 145

CREDIT HOURS: 2

QUARTER: Spring

INSTRUCTOR: Helen Murphy, RT (R)
Office #: Rm 7-137
Office phone #: 509-533-8616
Cell phone #: 509-991-1571
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Digital Radiography and Pacs – 2nd edition by Christi Carter

COURSE DESCRIPTION:

This course will review the content needed in the understanding of the components, principles and operation of digital imaging systems found in diagnostic radiology. Factors that impact image acquisition, display, archiving and retrieval are discussed. Principles of digital system quality assurance and maintenance are presented.

Special Note:
Digital imaging is a rapidly evolving technology. Every effort has been made to provide a curriculum outline that reflects, as accurately as possible, the state of the art of this discipline as of publication. I have tried to update with up-to-date information as it becomes available from vendors, clinical sites, textbooks, and technical representatives.

COURSE OBJECTIVES:

Chapter 1: Introduction to Digital Radiography and Pacs

1. The student will be able to (TSWBAT) define the term digital imaging.
2. TSWBAT to explain latent image formation for conventional radiography.
3. TSWBAT describe the latent image formation process for computed radiography.
4. TSWBAT compare and contrast the latent image formation process for indirect capture digital radiography and direct capture digital radiography.
5. TSWBAT explain what a picture archiving and communication system (PACS) is and how it is used.
6. TSWBAT define digital imaging and communications in medicine.

Chapter 2: Basic Computer Principles

1. TSWBA describe the common components of a computer.
2. TSWBAT define binary code, bit, and byte, and discuss their relation.
3. TSWBAT list and define the various pieces of computer hardware.
4. TSWBAT list the three types of monitors commonly used.
5. TSWBAT explain the measurements used to classify monitors.

6. TSWBAT compare and contrast an operating system and application software.
7. TSWBAT compare and contrast an operating system and application software.
8. TSWBAT discuss the uses of computers in a radiology department.

Chapter 3: Networking and Communication Basics

1. TSWBAT distinguish between different types of networks (geographic and component roles)
2. TSWBAT identify common network hardware components.
3. TSWBAT describe different types of network cabling and their uses.
4. TSWBAT define network communication protocol.
5. TSWBAT differentiate between the common network topologies.
6. TSWBAT discuss the use of digital imaging and communications in medicine (DICOM) in medical imaging.
7. TSWBAT define health level 7 (HL-7), and describe its use in health care information systems.

Chapters 4: Cassette-Based Equipment: The Computed Radiography Dassett, Imagaging Plate, and Reader

1. TSWBAT describe the basic construction of a computed radiography cassette.
2. TSWBAT describe the construction of a computed radiography imaging plate.
3. TSWBAT identify the various layers of the imaging plate.
4. TSWBAT describe the purpose of each layer of the imaging plate.
5. TSWBAT explain the process of photostimulation in the imaging plate.
6. TSWBAT describe the process of laser beam formation.
7. TSWBAT explain the process of reading the imaging plate.
8. TSWBAT compare conventional radiographic screen and film speed to computed radiography systems.
9. TSWBAT discuss how an image is erased from the imaging plate.

Chapter 5: Cassette-Based Image Acquisition

1. TSWBAT discuss the importance of matching the body part being examined to the exam menu.
2. TSWBAT discuss the selection of technical factors for density, contrast, and penetration.
3. TSWBAT relate imaging plate size selection to radiographic exams.
4. TSWBAT describe the grid selection process.
5. TSWBAT relate the importance of preprocessing collimation.
6. TSWBAT discuss the importance of patient side markers.
7. TSWBAT compare exposure indicators for the major computed radiography (CR) manufacturers and vendors.

Chapter 6: Cassetteless Equipment and Image Acquisition

1. TSWBAT describe the construction of direct and indirect cassetteless systems.
2. TSWBAT differentiate between direct and indirect image capture.
3. TSWBAT list the steps for x-ray–to –digital conversion with an amorphous silicon detectors.
4. TSWBAT discuss the function of a charged-coupled device.
5. TSWBAT compare detector detective quantum efficiency to cassette-based systems.
6. TSWBAT explain the importance of detector size and orientation.
7. TSWBAT discuss factors that affect spatial resolution in cassetteless systems.

Chapter 7: Digital Radiographic Image Processing and Manipulation

1. TSWBAT describe formation of an image histogram.
2. TSWBAT discuss automatic rescaling.
3. TSWBAT compare image latitude in digital imaging with film/screen radiography.
4. TSWBAT list the functions of contrast enhancement parameters.
5. TSWBAT state the Nyquist theorem.

6. TSWBAT describe the effects of improper algorithm application.
7. TSWBAT explain modulation transfer function.
8. TSWBAT discuss the purpose and function of image manipulation factors.
9. TSWBAT describe the major factors in image management.

Chapter 8: Pacs Fundamentals

1. TSWBAT define picture archiving and communication systems (PACS).
2. TSWBAT compare and contrast the various types of PACS display workstations.
3. TSWBAT differentiate between the different types of digital imaging workflow.
4. TSWBAT define system architecture and recognize the three major models.
5. TSWBAT summarize the common functions found on a PACS workstation.
6. TSWBAT describe the situations and users that might use advanced PACS workstation.

Chapter 9: Pacs Archiving

1. TSWBAT Describe the use of an image archive.
2. TSWBAT Explain the function of the image manager.
3. TSWBAT Discuss the uses of short-term archive storage.
4. TSWBAT Describe the levels 0, 1, 3, and 5 of RAID (redundant arrays of independent disks).
5. TSWBAT Compare and contrast the various long-term archive technologies used in current picture archival and communication systems (PACSs).
6. TSWBAT Define the concept of an application service provider.

Chapter 10: Pacs Archiving

1. TSWBAT explain the differences between laser film digitizers and charged-coupled device (CCD) film digitizers.
2. TSWBAT describe the uses of a film digitizer.
3. TSWBAT compare and contrast dry laser imager technology to wet laser imager technology.
4. TSWBAT discuss the common uses for imagers in a picture archival and communication system (PACS).
5. TSWBAT identify common uses for CD/DVD burners in a PACS environment.

Chapter 11: Ensuring Quality An Pacs

1. TSWBAT describe the differences between quality control and quality assurance activities.
2. TSWBAT define continuous quality improvement and its uses in a radiology department.
3. TSWBAT Describe the daily and monthly/quarterly monitor quality control activities.
4. TSWBAT Discuss the process of daily/weekly quality control on laser imagers.
5. TSWBAT State the common quality control activities used to measure system speed and data integrity.
6. TSWBAT Describe several quality assurance activities used in a digital radiology department.

Chapter 12: Total Quality Management Of Cr And Dr Systems

1. TSWBAT discuss total quality management and its uses in digital imaging.
2. TSWBAT describe the daily, weekly, and monthly quality control activities assigned
3. TSWBAT to a radiologic technologist.
4. TSWBAT Explain the importance of establishing a repeat analysis database with digital imaging.
5. TSWBAT State the common quality control activities performed by a service engineer on digital radiographic equipment.
6. TSWBAT Become familiar with problem reporting responsibilities.
7. TSWBAT Recognize the total quality management/quality control activities to performed by the radiation physicist.
8. TSWBAT acknowledge personal responsibilities for correctly marking images, maintaining personal repeat rates, and preventing artifacts.

What You Need To Succeed:

1. Actively participate in all course activities. Ask questions and answer questions ask of you.
2. There will be 11 **quizzes** over ODIA videos on Canvas.
3. Apply information learned to gain knowledge from the clinical setting. Use what you learned; you need to look at images at your sites the more the better!
4. Be prepared to actively participate in classroom discussions and exercises. **READ** your chapters before class!
5. Successfully accomplish the stated student objectives for this class.
6. Successfully complete the class with at least a 2.5 grade,

ASRT OBJECTIVES:

By the end of this course a student should be able to:

- Define terminology associated with digital imaging systems.
- Describe the various types of digital receptors.
- Describe the response of digital detectors to exposure variations.
- Evaluate the spatial resolution and dose effectiveness for digital radiography detectors.
- Describe the histogram and the process or histogram analysis as it relates to automatic rescaling and determining an exposure indicator.
- Compare the advantages and limits of each receptor type.
- Relate the receptor exposure indicator values to technical factors, system calibration, part/beam/plate alignment and patient exposure.
- Describe the response of Photostimulable phosphor (PSP) system to background and scatter radiation.
- Use appropriate means of scatter control.
- Avoid grid use errors associated with grid cutoff and Moiré effect.
- Identify common limitations and technical problems encountered when using PSP systems.
- Employ appropriate beam/part/receptor alignment to avoid histogram analysis errors.
- Associate impact of image processing parameters to image appearance.
- Apply the fundamental principles to digital detectors.
- Evaluate the effects of a given exposure change on histogram shape, data width and image appearance.
- Describe the conditions that cause quantum mottle in a digital image.
- Formulate a procedure or process to minimize histogram analysis and rescaling errors.
- Examine the potential impact of digital radiographic systems on patient exposure and methods of practicing the as low as reasonably achievable (ALARA) concept with digital systems.
- Describe picture archival and communications system (PACS) and its function.
- Identify components of a PACS.
- Define digital imaging and communications in medicine (DICOM).
- Describe Health Insurance Portability and Accountability Act (HIPAA) concerns with electronic information.
- Identify common problems associated with retrieving/viewing images within a PACS

METHOD OF TEACHING:

Power Points and the ODIA videos are under each week on Canvas. Labs will be on Thursdays.

CLASSROOM BEHAVIOR:

The values we have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that we will follow. You are responsible for your

learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Discussion Questions…….20 points each
Tests & quizzes ……...100 points each
Labs…….……100 points each
Final …….300 points

*Check grades online on the Virtual Grade book or Canvas
**Quizzes and test are all done on Canvas online.

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

***COLLEGE WIDE ABILITIES**
The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility
Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.
Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)
Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.
Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

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This syllabus may be subject to change.

DISCUSSION BOARD PARTICIPATION:

Students are responsible to participate in the discussion board questions posted on Canvas. You must post on each discussion board category at least twice: first by giving your answer to each of the questions posted and second by commenting on at least one of your classmate's posting under each of the categories. Comments must be at least 10 words in length and your comment must either add to the post or take the post in a different direction. This should work out to be 2 postings per discussion. More is ok, less will cost you points. The idea of this assignment is to reinforce what you already know about film evaluation and to facilitate the learning of your fellow junior or senior students.

It is better to post early in the week and check back later in the week to add your reply. Please remember to watch all language used and please do not use abbreviations (i.e. texting). I will be reading all posting and replies but will not directly reply back to you unless asked to. Remember there is a due date and time. You will be locked out after 11:55pm. Do not wait until the last minute, because computer issues do happen! For this reason there will be no exceptions to the due date/time. Plan accordingly, and take responsibility for your actions.

THE DUE DATES/TIMES ARE AS FOLLOWS:

Week 2 – Lab # 1 @ 11:55 pm
Week 5 – Lab # 2 @ 11:55 pm
Week 7- Lab # 3 @ 11:55 pm
Week 9 – Lab # 4 @ 11:55 pm
Week 11 – Lab # 5 @ 11:55 pm

SYLLABI *(cont'd)*

COURSE TITLE: Radiation Physics **COURSE NUMBER:** RAD 132

CREDIT HOURS: 2 **QUARTER:** Summer

INSTRUCTOR: Debbie Miller
Office#: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu

REQUIRED TEXT:

Radiologic Science for Technologists: Physics, Biology & Protection. 11th Ed. by Stewart C. Bushong

COURSE DESCRIPTION:

This course reviews principles and concepts of scientific measurement, molecular theory, matter and energy, and electricity, magnetism and circuitry. Particular emphasis is placed on imaging modalities, x-ray circuitry, and the principles and production of x-rays.

COURSE OBJECTIVES:

1. Actively participate in all course activities.
2. Attend all lectures and demonstration.
3. Read all the required reading assigned.
6. Do the required homework assignments.
7. Take all quarter tests.

METHOD OF TEACHING:

Lectures are created to present the principles of producing a top quality radiograph, making the appropriate corrections and problem solving as it relates to radiography in the clinical setting.

Lectures will be supplemented by demonstrations, video tapes, radiographic images, white board and guest speakers.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the

guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

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	3.4	92
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	2.5	83
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	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

This course's grade will be a combination grade that will be based on homework, quizzes, tests & comprehensive final.

All homework must be turned in on the date due. If a student turns in their homework late, they will receive ½ credit. But if they are more than 2 days late turning in their homework they will not receive any credit for their homework.

The following is a breakdown of the grading method:

Homework---------- 15%
Tests---------- 30%
Comprehensive Final---------- 45%

Disruptive behavior includes, talking out of turn, extraneous conversations, loud outbursts, sleeping and texting or using personal computers for non-class related classwork.

Tests will be done on Canvas and they will have a designated due date (no exception). Tests are allowed to be done away from SCC, for this reason it is the students responsibility to find a computer that will allow them to take the quiz without any difficulty. This includes the Lockdown Brower. You will only be able to see the correct answers at 12.01am the day after the test is due!

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- list the major sources of natural and manmade radiation
- define terms: exposure, absorbed dose, and dose equivalent
- name the unit of radiation (i.e. R, rad, rem) for each given quantity
- describe the interrelationship of the units of radiation
- demonstrate proficiency by working examples of unit calculations selected by the instructor
- define and explain the inverse square law & square law
- explain how x-ray-rays were discovered and who is credited with their discovery
- describe the basic components of a x-ray tube and their function
- define electromagnetic radiation (EM) and give examples of EM
- recognize the wave formula and what it means
- recognize the EM energy formulas
- know the general types of EM in the EM spectrum
- describe the production of x-rays
- explain the interaction x-rays with matter in classical Photoelectric and Compton processes
- list the two primary means of interaction of radiation with matter
- define the quality and quantity of the x-ray beam
- define the half-value layer

COLLEGE WIDE ABILITIES
The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility
Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.
Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
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Students will be able to demonstrate the following measurable behaviors/skills:

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- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving
Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.
Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
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- Identify available technologies and analytical methods
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Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

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(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

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ADDITIONAL REFERENCES:

The Fundamentals of X-Ray and Radium Physics by Selman

Medical Imaging Physics; 4th ed. Hendee & Ritenour

Physics of Radiology by Wolbarkst

http://www.uic.com.au/ral.htm

http://hps.org/publicinformation/radterms/

TENTATIVE PHYSICS CLASS SCHEDULE

Week 1	Tues.	Introduction, review of syllabus & class schedule Lecture on:	Chapter 2 "The Structure of Matter"
Week 2	***Mon.***	***Online TEST: Chapter 2 & homework due by 11:55pm***	
	Tues.	Lecture on:	Chapter 3 "Electromagnetic Energy" Chapter 4 "Electricity, Magnetism and EM
Week 3	***Mon.***	***Online TEST: Chapters 3 & 4 and homework due by 11:55pm***	
	Tues.	Lecture on:	Chapter 5 "The X-ray Imaging System" Chapter 6 "The X-ray Tube"
Week 4	***Mon.***	***Online TEST: Chapters 5 & 6 and homework due by 11:55pm***	
	Tues.	Lecture on:	Chapter 7 "X-ray Production" Chapter 8 "X-ray Emission"
Week 5	Tues.	Lecture on:	Chapter 9 "X-ray Interaction with Matter"
Week 6	***Mon.***	***Online TEST: Chapters 7, 8 & 9 and homework due by 11:55pm***	
	Tues.	Review for Comprehensive Final	
Week 7	**Tues.**	***COMPREHENSIVE FINAL (in computer lab)***	

RADIATION PHYSICS OUTLINE

I. Concepts of Radiologic Science
   - A. Matter
   - B. Energy
     1. Potential energy
     2. Kinetic energy
     3. Chemical energy
     4. Electrical energy
     5. Thermal energy
     6. Nuclear energy
     7. Electromagnetic energy
   - C. Radiation
     1. Natural environmental radiation
        - a. Cosmic rays
        - b. Terrestrial radiation
        - c. Internally deposited radionuclides
     2. Man-made radiation
   - D. Discovery of X-rays
   - E. ALARA
     1. Ten commandments of Radiation Protection (pg. 11)
     2. Clinical skills required by ARRT (pg. 13)
     3. Personal Skills required by ARRT (pg. 13)

II. Fundamentals of Physics (You should have gotten A – O in Math 99 & Physics 100)
   - A. Standard Units of Measurement
     1. Length
     2. Mass
     3. Time
     4. Units
   - B. Velocity
     1. Velocity
     2. Average Velocity
     3. Acceleration
   - C. Newton's Laws of Motion

1. Force

D. Weight

E. Momentum

F. Work

G. Power

H. Energy

1. Mechanical

a. Kinetic energy formula

b. Potential energy formula

I. Temperature Scales

1. Celsius

2. Fahrenheit

J. Fractions

K. Significant Figures

L. Algebra

M. Number systems

N. Rules for Exponents

O. Graphing

P. Radiology Units (New info that you will be tested on!!)

1. Rad / Gray

2. Rem / Sievert

3. Roentgen / Air Kerma

4. Curie / Becquerel

III. The structure of matter

A. Centuries of Discovery

1. Greek Atom

2. Dalton Atom

3. Thomson Atom

4. Bohr Atom

B. Fundamental Particles

1. Electron

2. Nucleons

a. Neutron

b. Proton

C. Atomic Structure

D. Electron Arrangement & Binding Energy

E. Atomic Nomenclature

1. Atomic Mass
2. Atomic Numbers
3. Isotopes
4. Isobars
5. Isotones
6. Isomers

F. Combinations of Atoms

1. Molecules
2. Chemical Compound

G. Radioactivity

1. Radioisotopes
2. Radioactive Half-Life
3. Types of Ionizing Radiation
   a. Alpha Particle
   b. Beta Particle
   c. Gamma Particle

IV. Electromagnetic Energy

A. Photons

1. Electromagnetic Energy

B. Amplitude

C. Frequency

D. Wavelength

E. Electromagnetic Spectrum

1. Visible-light
2. Radiofrequency
3. Ionizing Radiation

F. Wave-Particle Duality – define

1. Wave Model: Visible light
   a. Transmission
   b. Absorption
   c. Attenuation
   d. Transparent

e. Translucent

f. Opaque

G. Inverse Square Law

H. Particle Model: Quantum Theory

1. Planck's Quantum Equation

I. Matter & Energy

1. Law of Conservation of Matter

2. Law of Conservation of Energy

V. Electricity, Magnetism & Electromagnetism

A. Electricity

1. Electrostatics

2. Electrification

3. Electric ground

4. Electrostatic Laws

a. Attract/Repel

b. Coulomb's law

5. Electric Potential

B. Electrodynamics

1. Conductors

2. Insulators

3. Semiconductors

C. Electrodynamics

1. Electric Circuits

2. Ohm's Law (V = IR)

3. Parallel Circuits

4. Series Circuits

5. AC & DC Currents

6. Electric Power

B. Magnetism

1. Magnetic Dipole

2. Bipolar

3. Electron Spin

4. Natural magnets

5. Permanent magnets

6. Electromagnets

7. Diamagnetic materials
8. Ferromagnetic materials
9. Paramagnetic materials

D. Magnetic Laws

E. Magnetic Induction

F. Electromagnetism

1. Solenoid
2. Faraday's Law
3. Lenz's Law
4. Self-induction
5. Mutual Induction

G. Electromechanical Devices

1. Electric Generator
2. Electric Motor

H. Transformers

1. Closed-core
2. Autotransformer
    a. Step-up transformer
    b. Step-down transformer
3. Shell-type

VI. The X-ray Imaging System

A. Equipment

1. X-ray Tube
2. Moving/Floating Tabletop
3. Bucky slot cover

B. Operating Console

1. Line compensators
2. High Voltage generator

C. Autotransformer

1. kVp
2. mAs
3. Filament transformer

D. Exposure Timers

1. Synchronous
2. Electronic

3. mAs timers
4. AEC

C. High-Voltage Generator
1. High Voltage transformer
2. Voltage Rectification
a. Unrectified
b. Half-wave rectification
c. Full-rectification
3. Single-Phase Generators
4. Three-Phase Generators
5. High-Frequency Generators
6. Capacitor Discharge Generators
7. Voltage Ripple
8. Power Rating
9. X-ray Circuit

VII. The X-ray Tube

A. External Components
1. X-ray tube support
2. Protective Housing
3. Glass or Metal Exposure

B. Internal Components
1. Cathode
a. Filament
b. Focusing cup
c. Filament current
d. Dual-focus tubes
2. Anode
a. Target
b. Rotating/Stationary Anodes
c. Line-Focus Principle
d. Anode Heel Effect

C. X-ray Tube Failures

D. Rating Charts
1. Radiographic Rating Charts
2. Anode Cooling Charts

VIII. X-ray Production
- A. Electron Target Interactions
  1. Anode Heat
  2. Characteristic Radiation
  3. Bremsstrahlung Radiation
- B. X-ray Emission Spectrum
  1. Characteristic X-ray Spectrum
  2. Bremsstrahlung X-ray Spectrum
- C. Factors Affecting the X-ray Emission Spectrum
  1. Effect of mA & mAs
  2. Effect of kVp
  3. Effect of Added Filtration
  4. Effect of Target Material
  5. Effect on Voltage Waveform

IX. X-ray Emission
- A. X-ray Quantity
  1. X-ray Intensity
  2. Factors that affect x-ray quantity
- B. X-ray Quality
  1. Penetratability
  2. Half-value Layer
  3. Factors that affect x-ray quality
  4. Types of Filtration
     a. inherent
     b. added
     c. compensating
     d. total

X. X-ray Interaction with Matter
- A. Five interactions with matter
  1. Coherent Scattering
  2. Compton Effect
  3. Photoelectric Effect
  4. Pair Production
  5. Photodisintegration
- B. Differential Absorption
  1. Dependence on Atomic Number
  2. Dependence on Mass Density
- C. Contrast Examination
- D. Exponential Attenuation

SYLLABI *(cont'd)*

COURSE TITLE: Radiographic Positioning IV **COURSE NUMBER:** RAD 141

CREDIT HOURS: 2 **QUARTER:** Summer

INSTRUCTOR:
Debbie Miller
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiologic Procedures13th Ed., Ballinger & Frank

COURSE DESCRIPTION:

This course reviews the bony positioning that was taught first quarter. This will include techniquing, supine and upright positioning.

COURSE OBJECTIVES:

1. Actively participate in all course activities.
2. Attend all lectures and demonstration.
3. Read all the required reading assigned.
4. Do the required homework assignments.
5. Take all quarter tests.

METHOD OF TEACHING:

Presentations: The students will be presenting a review of the bony positioning that they learned during the first two quarters in the program. Their review should constitute a presentation and an assessment.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

This course's grade will be a combination grade that will be based on participation, student presentations & assessments and tests. The combined grades will account for the final grade. Grades can be checked online on Canvas. If you are absent for class you miss out on important discussions. The 60 extra points (10 for each class day, 6 class days in all) for participation will be applied appropriately at the end of the course. If you disruptive or disrespectful to classmates during their presentation(s) you will not receive the 10 points awarded for that class.

If you are absent any class day, you will not make up the assessments for that day. You will simply have fewer scores to average into your grade. The four tests must be completed by 11:55pm the day on the specified Monday.

The following is a breakdown of the grading method:

Participation----------10%
Student Presentations----------30%
Student Assessments----------20%
Tests----------40%

Disruptive behavior is not allowed. This includes, talking out of turn, extraneous conversations, loud outbursts, sleeping and texting or using personal computers for non-class related classwork.

Tests will be done on Canvas and they will have a designated due date (no exception). Tests will not be reopened for any reason. Tests are allowed to be done away from SCC, for this reason it is the students responsibility to find a computer that will allow them to take the quiz without any difficulty. This includes the Lockdown Brower. The tests will be available for review at 12:01am the day after the test is due.

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Define terminology pertinent to the bony anatomy
- Demonstrate the protocol radiographic positions for the upper limb, lower limb, shoulder girdle, pelvic girdle, bony thorax, vertebral column & abdomen.
- Discriminate between correct and incorrect images of the upper limb, lower limb, shoulder girdle, pelvic girdle, bony thorax, vertebral column & abdomen.
- Describe the various image criteria required for the upper limb, lower limb, shoulder girdle, pelvic girdle, bony thorax, vertebral column & abdomen.

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

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POSITIONING IV – RAD 141
TENTATIVE CLASS SCHEDULE

Week 1	Tues.	Review syllabus & introduction to Positioning IV
Week 2	Tues.	Presentations & Assessments on: Digit/Thumb/Hand, Wrist/Forearm, & Elbow/Humerus
Week 3	Tues.	Presentations & Assessments on: Shoulder/Scapula, AC Joints/Clavicle, Toes/Foot/Ankle, Calcaneus/Tib/Fib,
Week 4	**Mon.**	**Online TEST on Upper Limb & Shoulder Girdle due 11:55pm**
	Tues.	Presentations & Assessments on: Knee/Femur, Pelvis//Hip AP/Supine/Decubitus Abdomen/Ribs, Chests & SC Joints/Sternum
Week 5	**Mon.**	**Online TEST on Lower Limb & Pelvic Girdle due 11:55pm**
	Tues.	Presentations & Assessments on: Cervical Spine/Thoracic Spine Thoracolumbar/ Lumbar Spine, & Sacrum/Coccyx/SI Joints
Week 6	**Mon.**	**Online TEST on Bony Thorax, Chest, Vertebral Column & Abdomens due 11:55pm**
	Tues.	Presentations & Assessments on: Pediatrics, Elderly/Obese, Trauma & Mobiles
Week 7	**Mon.**	**Online TEST on Pediatrics, Elderly, Obese, Trauma & Mobiles due 11:55pm**

NO Comprehensive Final in this course.

PRESENTATIONS: Short oral presentation (15-20 minutes) to the class and a handout for each classmate and the instructor that includes (please do not go over 20 minutes):

- The correct radiographic positioning of the exam and the anatomical parts demonstrated.

- Please use any or all of: power point, lecture, ask questions, show films and or use the PACS on the projector. Please have a handout (i.e. copy of power point) for your classmates and me (22 copies) ready before the start of class. Your handout should contain the exam, what should be on the images, how you tell if it is a good image (evaluation criteria), pictures of how to position the patient and picture of the image and or the actual x-rays

- Resources must be cited in APA format if you choose to use drawing or pictures from a particular source. The following link has helpful information if you need help with this: http://www.liu.edu/CWIS/CWP/library/workshop/citapa.htm. You may also go to the SCC website and click on "Library" on the left. From there under "Help with Reference" click "Citation Guides." I am also available to help you during office hours or by appointment.

- You must have some way to assess the class knowledge over the material you just covered (test, quiz…) and I will also need a copy of assessment and key. The assessment **cannot** be handed out until you have completed your presentation. You will then grade the assessment & turn in graded assessments so that I can record the scores.

The student should use images from positioning textbook, images of phantoms or copies of images on actual patients from the sites to demonstrate correct positioning of the anatomical part. Please be cautious when using images off the internet.

POSITIONING IV PRESENTATION RUBRIC

CATEGORY	8-7	6-5	4-3	2-1
VERBAL PRESENTATION	Speaks clearly with appropriate volume and enthusiasm and maintains eye contact all or most of the time.	Speaks clearly with appropriate volume all the time occasionally lacks enthusiasm or occasionally does not maintain eye contact.	Speaks clearly with appropriate volume most of the time but enthusiasm seems somewhat faked and only sometimes establishes eye contact.	Often mumbles or cannot be understood or lacks enthusiasm or does not maintain eye contact.
WORKS WELL WITH GROUP	Worked well as a team. Strived to do well on a consistent basis, excellent quality of work.	Average camaraderie was displayed as a team. One person was clearly in charge. Generally conscientious regarding quality of work.	Had difficulty working as a team. Did not show full potential of the team.	Inability to work as a team was clearly evident. Quality of work was questionable.
HANDOUT (OR COPY OF POWEPOINT)	Excellent knowledge of exams with excellent explanation of contents. Clear layout. Grammar and spelling correct.	Average knowledge of exams with average explanation of contents. Layout somewhat clear. Grammar and spelling mostly correct.	Had some knowledge of exams or gave partial explanation of what was on exam. Layout difficult to follow. Grammatical and/or spelling errors.	Had no knowledge of exams or did not explain what was on handout.
IMAGES	Picture of x-ray easy to identify, labeled if appropriate. Content cited correctly.	Picture of x-ray somewhat easy to identify. Content cited with 1-2 mistakes.	Picture of x-ray not easily identifiable. Content cited with 3-4 mistakes.	No picture of x-ray or picture of x-ray incorrect or not cited.
CONSTRUCTIVE CRITICISM	Responded well to giving and receiving criticism to peers. Listened to, shared willingly and supported the efforts of the students.	Average response to giving and or receiving constructive criticism, usually listened to and shared with and supported the efforts of the students.	Difficulty in giving or receiving constructive criticism, was hesitant to listen to, share with and support the efforts of the students.	Argumentative at times, did not receive or give constructive criticism to peers. Did not listen to, share with and support the efforts of the students.
CLASS INTERACTION	Interacts well with the class, excellent communication. Used allotted amount of time.	Interaction with class was acceptable but communication improvement was needed. Went over or under on allotted time slightly.	Needed to improve on class interactions and communication. Went over or under on allotted time slightly.	Interaction and communication was not accomplished. Was much shorter or longer than allotted time.
QUIZ AND APPROPRIATE GRADING	Appropriate grading of quizzes was accomplished with less than 2 mistakes noted.	Grading of quizzes was acceptable with 2-4 mistakes noted	Improvement of grading of quizzes needed 4-6 mistakes noted	No quiz, or inappropriate grading of the quizzes 7 or mistakes noted

COMMENTS:

Student's Names:
_____

Total Points: _____

Possible Points: 56 pts

PEER EVALUATION

Please rate yourself and your team members on the relative contributions that were made in preparing and submitting your group presentation. *Your ratings will not be disclosed to other students.* Be honest in this evaluation!

In rating yourself and your peers, use a one to five point scale, where

5 = Superior;
4 = Above Average;
3 = Average;
2 = below average; and
1 = weak.

Insert **your name** in the first column and your peers' names in the remaining spaces. (One name at the top of each column).

NAMES:				
Participated in discussions or meetings				
Helped keep each other focused on the task				
Contributed useful ideas				
Quantity of work done				
Quality of work done				
Comments:				

POSITIONING IV OUTLINE

I. Review on Anatomy, Image Criteria & Bony Positioning

1. **Upper Limbs**
2. **Lower Limbs**
3. **Shoulder Girdle**
4. **Pelvis Girdle**
5. **Bony Thorax**
6. **Vertebral Column**
7. **Abdomen**
8. **Pediatrics**
9. **Mobiles**
10. **Traumas**
11. **Elderly & Obese Patients**

SYLLABI *(cont'd)*

COURSE TITLE: Radiographic Image Evaluation IV **COURSE NUMBER**: RAD 144

CREDIT HOURS: 1 **QUARTER:** Summer

INSTRUCTOR: Kim Eikum, M.Ed., R.T.(R), (M)
Office #: Rm. 7-138
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Cell phone #: 509-280-0001
kimberly.eikum@scc.spokane.edu
Office hours as posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

This course will review the essential technical factors used in evaluation of radiographic quality. The student will access such factors as what projection/view is shown, collimation, shielding, positioning, anatomical anomalies, density, contrast, film artifact, and central ray correctly centered in the developed radiograph. The student will interact through classroom discussions and discussion board communications through Canvas.

COURSE OBJECTIVES:

1 Discuss the necessity of the radiographic examination as it relates to identifying disease processes, patient handicaps and degree of difficulty in obtaining appropriate anatomical views.
2 Explain the reasoning for selection of exposure combination factors based on age, atrophy, disease process, and contrast media considerations.
3 Discuss appropriate film size, field view, combinations of screens, film speed and grids and their combined response to radiation and body parts.
4. Discuss use of proper shielding and marker placement as presented on the radiograph.
5. Be able to list basic positioning procedures for each exam presented.
6. Be able to identify positioning landmarks and positional corrections necessary for each radiograph.
7. Identify the anatomy and anatomical anomalies on each radiograph.
8. State influencing factors of radiographic quality, i.e. density contrast resolution, fog distortion and magnification.

METHOD OF TEACHING:

During this course the students should be prepared to actively participate in classroom discussions and exercises. This course is one that discussion and exploring must be active. The student will also participate in weekly discussion board topics.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
Lowest grade acceptable to progress	2.0	78

	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

<u>GRADING METHOD</u>:

Weekly quizzes, Canvas discussion questions, Clinical critique form and weekly class participation will represent 85% of the overall grade. A final test will be given and will worth 15% of the final grade. All students will take the final. Attendance policy is as stated in the SCC Radiology Technology Student Handbook. Grades can be checked online on Canvas. If you are absent for class you miss out on important discussions about films. ***The 35 points per class session for participation and attendance will be applied appropriately at the end of the course (5 for each class day, 7 class days in all). If you miss a class you will not receive the 5 points awarded for that class.*** You will not make up the test for that day; you will simply have fewer score to average your grade. *If a mini class is missed you will be responsible for collecting the information you have missed.*

Approximate grade scale is as follows:

<u>Approximate grade scale is as Follows:</u>

Weekly Quiz's	**55% of overall grade**
Participation points (5 points each class)	**5% of overall grade**
Canvas, Discussion questions (30 each week)	**10% of overall grade**
Clinical Critique Form	**10% of overall grade**
Homework	**5% of overall grade**
Final	**15% of overall grade**

<u>Clinical Critique Rubric: 10% of final grade, 100 points</u>

7-6 weeks = 100% of the points

5-4 weeks = 80% of the points

3-1 weeks = 50% of the points

Grades can be checked online, on Canvas.

On the daily radiographic image evaluation given by the instructor the *<u>"All or Nothing Method"</u>*** will be utilized. If your answer is not correct for *Projection/View* you will receive a **zero** for the test! *Correct means*: correct position and body part (including such things as decub, upright, axial, RPO & LPO/RAO & LAO). *"Right"* and *"Left"* errors will be minus **5** points.

Anytime a student receives a *"ZERO"* (or any grade below *60)*, he or she can improve the grade by turning in an *ASSIGNMENT* within one week of receiving the assignment. **THE ASSIGNMENT** will be: a film of the same part/position that the student failed. He or she must use Merrill's (plus any other sources) to fill out a critique test form. He or she must cite the pages in Merrill's at the top of the page (and cite any other sources, as well). The assignment will be graded with *60%* being the top score. This score will replace the first score he or she received.

<u>No grades will be eliminated from the computation of the quarter grade.</u>

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making

- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:

Penalties for Deliberate Plagiarism or Cheating:

First Offense: Automatic failure of the paper or test and possible failure of the course.

Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested

accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

DISCUSSION BOARD PARTICIPATION:

Students are responsible to participate each week in the discussion board questions posted on Canvas. You must post on each discussion board category at least twice: first by giving your answer to each of the questions posted and second by commenting on at least ***one junior classmate's*** (Please use the classmates first name when responding) posting under each of the categories per week. Comments must be at least 10 words in length and your comment must either add to the post or take the post in a different direction. This should work out to be 2 postings in a week. More is ok, less will cost you points. The idea of this assignment is to reinforce what you already know about film evaluation and to facilitate the learning of your fellow junior students. It is encouraged to ask and answer questions of each other.

It is better to post early in the week and check back later in the week to add your reply. Please remember to watch all language used and please do not use abbreviations (i.e. texting). I will be reading all posting and replies but will not directly reply back to you unless asked to. Remember there is a due date and time. **You will be locked out after 11:55 pm on the set due date.** Do not wait until the last minute, because computer issues do happen! For this reason there will be no exceptions to the due date/time. Plan accordingly, and take responsibility for your actions.

What you need to succeed:

1. Actively participate in all course activities. Ask question, and answer questions asked of you.
2. There will be **a quiz each Thursday** over material cover in the previous classes.
3. Apply information learned to gain knowledge from the clinical setting. Use what you learned. You need to look at a lot of images at your sites, the more the better!
4. Be prepared to actively participate in classroom discussions and exercises. **READ** your Merrill's before class!
5. Know the **Structures shown (Merrill's)** for every view we do for this class.
6. Complete the class with at least a 2.5 grade.

The due dates/times are as follows.

Week 1 – Monday
Week 2 – Monday
Week 3 – Monday
Week 4 – Monday
Week 5 – Monday
Week 6 – Monday
Week 7 – Monday
Week 8 – Monday
Week 9 – Monday
Week 10 – Monday

Criteria for evaluation of radiographic images:

1. **Density** (attenuation) is the overall "darkness" of a radiograph. For a pathological condition to require a technical adjustment, it must substantially alter the presence and amount of the five radiographically demonstrable materials. These five types of substances, in order of increasing attenuation are:
    - **Gas and air**
    - **Fat**
    - **Fluid or fluid like**: blood, generally, soft tissues such as connective tissues, muscles and visceral organs, are of "fluid like" density, equal to water radiographically.
    - **Bone**
    - **Metal**s: hardware for fixation, barium and iodine compounds are, chemically, metals

2. **Contrast** Gray scale-You want it to be long enough to visualize the different bony and soft tissue structures

3. **Correct position for demonstration of intended anatomy** Merrill's (Evaluation criteria)

4. **Collimation and markers-** As a rule, there should be sufficient collimation of the body part with the ***marker inside the collimated field.*** Marker placement as a rule is somewhat optional, as long as it is not in the anatomy that is to be demonstrated. However, I place my marker on the lateral aspect of the body.

5. **Shielding/ Radiation Protection-** will not always be present on the film. When doing infants and children, it is desirable to demonstrate shielding (i.e. hips should show gonadal shielding on one view, a chest x-ray should show shielding of the abdomen no chabdomen etc…) Try and keep your and other holders hands out of shot when holding pts.

6. **Sharpness of recorded detail** – This refers basically to the absence of motion in regards to this class. The exception to this is when utilizing a shallow breathing technique.

7. **Correct patient identification-** The patient identification should routinely be reviewed when looking at your radiographs. It is especially important when using conventional radiography, since you are using a flash card and films can easily be mislabeled and equally important with CR &DR as names are selected from a work list.

8. **Elimination of potential artifacts –**The finished radiograph should be absent of artifacts.

Artifacts

Undesirable densities or blemishes on a radiograph that can be removed by you are called artifacts.

***Processing Artifacts*:** Artifacts produced during processing. Some examples are roller markers, chemical fog, and dirt.

***Storage and Handling Artifacts*:** They are caused by improper storage or handling. Some examples are pressure marks, finger marks, static, stains, scratches, light fog and creases.

External Artifacts*:** Objects found on, near, or under the patients. Some examples are Jewelry, hair ornaments, objects in pockets, snaps, buttons, pins, zippers, hearing aids, dentures, ***REMOVABLE orthodontic devices, eyeglasses, blood/fluid soaked clothing/gowns, thick or folded clothing/blankets/ sheets, dressings, IV or monitoring lines, pillows, imprinted designs on clothing, thick or wet hair, etc.

NOTE: Internal objects that are found within the patient such as surgical pins/clips/suture, prostheses, central venous lines, pacemakers, nasogastric tubes, residual barium or contrast media are all examples of items which are not preventable; these must be accepted on the radiograph. They will NOT be considered "***ARTIFACTS***" for radiographic film evaluation classes.

*** Textbooks vary on the definition of artifacts. This is the criterion that is established by Spokane Community College School of Radiologic Technology. This is what we will go by for this class.

IMAGE EVALUATION BASICS

The idea of this class is to be able to notice the difference between a good and a bad radiograph.

Every time you look at a film to evaluate it you should ask yourself the same set of questions.

1. What anatomy are you looking at?
2. What projection is it?
3. Is it positioned correctly?
4. Is the part/anatomy on the film?
5. Is it too light? Too dark?
6. Is there motion or artifact?

These are the major questions to ask in order to decide if the film needs to be repeated. (When looking at a film in image evaluation class, the film is considered the first try at the projection, what will you do?)

Then you need to look at the little things like.

1. Is there a marker?
2. Is there coning/shielding?
3. Is it the correct field size used?

These are very important things to look for but are not necessarily reasons to repeat the film.

The ultimate question is: Are you proud to put your initials on this film?

IMAGE EVALUATION
FACTS FOR CLASS

1. Each site has various protocols; the films used in film Critique *are* protocol films. They just may be incorrectly positioned films.

2. I personally will hang the films correctly. With this in mind you can/will be able to distinguish right and left for each film.

3. Test films can be ***ANYTHING***. Be prepared! If we go over a certain exam it ***MAY*** appear as a test either in the spring or summer quarter.

4. You are responsible for knowing the size of film that is hung. If you have difficulty with this concept remember that a standard piece of paper is 8 ½ x 11 inches.

5. There is no set schedule for this course. We will be covering various exams and images each week.

6. It is your responsibility to review Merrill or the Image Analysis books regularly.

7. If you fall into the "All or Nothing Method" with a quiz, I will place a new test sheet with a film in your mailbox. You must reference on the test sheet your findings along with filling out the test sheet on the film. You have 1 week to complete and return the test to me. I will put the due date at the top of the test page. Any test's turned in after the stated due date will not be counted.

8. In regards to testing:
   - *Long Critique* images will be given a 8 min. time limit
   - *Quick Critique* images will be given 60 seconds per image
   - *Why or Why not* Quiz's will be given a 20 min. time limit to review all 10 images.

9. When doing a Long Critique you must indicate, at the bottom of the page, an *average technique* for the image.

10. If you are experiencing any problems, difficulties or you have questions with film critique you need to come see **me** about the issues. I am here to help you succeed in this course.

Name: _____

Radiographic Image Evaluation

Film #: _____ Area of Anatomy: _____

(20 points) Projection/View: _____
(Include right, left, upright, etc)

(10 points) What anatomical part(s) is/are required on this projection? _____
_____

(2 points) Is the correct field size used? Yes ☐ No ☐

(2 points) If incorrect field size, what is the correct size? _____

(2 points) Is there acceptable collimation? Yes ☐ No ☐

(2 points) Are there any artifacts? Yes ☐ No ☐

(2 points) If an artifact, what is it? _____

(10 points) Is the anatomical part correctly positioned? Yes ☐ No ☐

(10 points) If not correctly positioned, what corrections are necessary? _____
_____

(5 points) Evaluate the radiographic technique, as follows:

☐	☐	☐	☐	☐
too light	Light, but acceptable	near perfect	dark, but acceptable	too dark

(5 points) If not, near perfect, how should the radiographic technique be changed? _____
_____

(5 points) Is the central ray correctly centered to the anatomical part? Yes ☐ No ☐

(5 points) Is the central ray correctly directed to the anatomical part? Yes ☐ No ☐
(Perpendicular, or correct degree & direction of angle)

(10 points) Should this projection be repeated? Yes ☐ No ☐

(10 points) Why or why not? _____
_____

Average Technique for this view: _____

COURSE TITLE: Clinical Education IV **COURSE NUMBER:** RAD 146

CREDIT HOURS: 9 **CLINICAL HOURS:** 231 **QUARTER:** Summer

INSTRUCTORS:

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Office hours posted by office door

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Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

Students learn radiographic positioning, department and office procedures, patient management and critical analysis of radiographs in a clinical setting. Students develop psychomotor skills, cognitive domain and affective behavior in the science of radiographic technology.

COURSE OBJECTIVES:

1. Actively participate in all examinations student is assigned to in addition to the specific objectives for the assigned rotation.
2. Attend all clinical days.
3. Maintain clinical logbook.
4. Create & update a "mini- book" for all positioning and set up of examinations.
5. Complete the required number of competency clearances for the quarter.

METHODS OF TEACHING:

Laboratory setting will enhance the demonstrations of the lecture material by discussing and presenting portions of the information with the ability to utilize the radiology equipment.

Practical application during clinical will enhance the information that has been taught in the classroom and from all the course information the student has successfully passed during previous quarters, and this quarter, while in the program.

CLINICAL REQUIREMENTS:

Students must successfully pass their DRUG SCREENING and BACKGROUND CHECK in order to be accepted at the clinical sites. NO EXCEPTIONS! All clinical sites have the option of refusing a student's admittance to their facility, if this occurs the student will not be allowed to start or continue the program. All students rotate through the 4 main hospitals in Spokane along with the Inland Imaging and Rockwood Clinic outpatient facilities.

LINES OF AUTHORITY:

In the classroom you are responsible to your instructor. During clinical responsibilities you are responsible to your instructor and personnel so designated. RESPONSIBILITY FOR PATIENT CARE RESTS WITH THE CLINICAL FACILITY. THE CLINICAL FACILITY HAS THE AUTHORITY TO GRANT OR REFUSE STUDENT ACCESS OF ANY STUDENT FOR JUST CAUSE. Remember, you are a guest and represent Spokane Community College and your program. *See additional information under the CONDUCT section in the SCC Radiology Technology Student Handbook.* If you are asked to leave a clinical site or if a site does not allow you to attend their facility (for any reason), you will not be allowed to transfer to another clinical site to finish your schooling. You will be terminated from the program.

CLINICAL BEHAVIOR:

Refer to the clinical behavior guidelines located in the SCC Radiology Technology Student Handbook.

CLINICAL ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
Lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Evaluations and Competency Clearances…… 90% of Final Grade

Blue Log Books…… 10 % of Final Grade

COMPETENCY CLEARANCE GRADING POLICY:

See SCC Radiology Technology Student Handbook for competency clearances required per quarter. A successful passing score on each clearance is 83% (which is equivalent to a 2.5). All competency clearances must be successfully completed by the end of the 6th quarter. Failure to complete the minimum required competency clearances for the quarter will result in a 0.25 reduction from your clinical grade for EACH clearance not completed, and you must complete the delinquent clearance(s) before the start of the next quarter. This includes those clearances that must be completed during specific quarters.

During a competency clearance, the clinical instructor may abort the clearance at his/her discretion. A student may receive an "automatic failure" on a clearance attempt for noncompliance of certain patient care/safety guidelines. (See SCC Radiology Technology Student Handbook for additional information.)

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.5 GPA (83%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
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- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making

- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:

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First Offense: Automatic failure of the paper or test and possible failure of the course.

Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested

accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

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All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

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Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

SYLLABI *(cont'd)*

COURSE TITLE: Quality Management

COURSE NUMBER: RAD 212

CREDIT HOURS: 1

QUARTER: Fall

INSTRUCTOR: Kim Eikum, BS, R.T. (R), (M)
Office #: Rm. 7-138
Office phone #: 509-533-8613
Cell phone #: 509-280-0001
kimberly.eikum@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Quality Management in the Imaging Sciences, Third Edition Papp, J. (2006). In Wilke J. (Ed.), *Quality management in the imaging sciences* (Third ed.). St. Louis, Missouri: Mosby Elsevier.

This text is a complete guide to Quality Management for all imaging modalities.

COURSE DESCRIPTION:

This course will provide the student with an overview of the existing quality management, quality control and quality assurance procedures related to a radiology department. This course will introduce the student to the various test tools and procedures, preventative maintenance measures as well as the effect that these measures have on exposure control and image characteristics necessary to operate a radiology department.

COURSE OBJECTIVES:

1. Identify and describe the different type of quality control tests.
2. Identify and describe the different type of quality control for radiology equipment.
3. Identify and describe the outcomes assessments of radiology imaging.
4. Identify and describe artifacts.
5. Demonstrate the understanding of the definition of quality management, quality control and quality assurance.
6. Explain the importance of a quality control program to both a patient and a fellow staff associate.
7. Demonstrate the basic control testing procedures and their results.
8. Identify the various quality control test tools and methods in use and explain the reason for each.

METHOD OF TEACHING:

This course will consist of lecture, class discussion, homework assignments and experiments.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the

guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
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Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

This course's grade will be a combination grade that will be based on homework, quizzes, labs and tests which will account for 75% of the final grade. All homework must be turned in on the date due in order to receive full credit. Any homework turned in after the due date will receive half credit. If you are absent on a quiz or test day the quiz or test must be made up on the first day back to clinical or class depending on which comes first. For each day the quiz or test is not made up (after returning to school) a 5% deduction will be applied to final quiz or test grade. A LAB final will be given which constitutes the other 25% of the final grade. Attendance policy is as stated in the SCC Radiology Technology Handbook.

Assignment	***# of assignments***	***Points***	***Total possible***
TESTS	3	100	300
HOMEWORK	4	75	300
QUIZ'S	2	25	50
LABS	1	100	100
FINAL	1	250	250
		TOTAL	**1000**

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

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- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
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This syllabus may be subject to change.

COURSE OUTLINE:

Week 1	Tues.	CPR Review
Week 2	Tues.	Go over Syllabi, Lab Packet
Week 3	Tues.	Chapter 4, Film Processing and Chapter 5, Processor Quality Control
Week 4	Tues.	**Quiz,** Chapter 4 and 5 *Processor Q.C. Packet Due*, **(YELLOW)** Chapter 1, Intro to Quality Management Chapter 3, Darkrooms
Week 5	Tues.	*Darkroom worksheet due*,**(GREEN)** **TEST, Chapter 1, 3, 4, and 5**
Week 6	Tues.	Chapter 6, Silver Recovery, Chapter 7, QC of Rad. Equipment, Chapter 8, QC of Fluoro Equip
Week 7	Tues.	*Silver recovery/Q.C. Worksheet due*,**(PINK)** **TEST, Chapter 6, 7, and 8**
Week 8	Tues.	Chapter 9, Advanced imaging equipment Chapter 10, Outcomes assessment of Rad. Imaging
Week 9	Tues.	*Q.C. test packets (COSMIC GREEN) & Extra credit (TAN) are due!* **QUIZ,** Chapter 9 and 10 *C.R. and Artifact Worksheet due*,**(BLUE)** , Repeat Analysis Project
Week 10	Tues.	**TEST, Chapter 9 and 10**
Week 11	Tues.	**FINAL IN THE LAB**

RAD 212 Unit Objectives

Quality Management in the Imaging Sciences

Film Processing and Processor Quality Control

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the different type of equipment needed for processor Q.C.

Objective 2. Describe Manual and Automatic Processing.

Objective 3. Identify the acceptable parameters for processor Q.C.

Objective 4. Identify and describe the importance of developer and fixer.

Quality Management and Darkrooms

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the guidelines for a Quality Management program

Objective 2. Describe the guidelines needed for a darkroom.

Objective 3. Identify the different state, federal and local regulations for Radiology.

Objective 4. Identify and describe the differences between Quality Management, Quality Control and Quality Assurance.

Silver Recovery, QC of Radiology Equipment.

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the different types of Silver recovery equipment.

Objective 2. Describe visual, performance and environmental inspections.

Objective 3. Identify the different type of Q.C tests for Radiology and Fluoroscopy equipment.

Advanced Imaging Equipment and Outcomes Assessments

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the different type C.R and DR equipment and their tests.

Objective 2. Describe PACS and IMACS.

Objective 3. Identify the acceptable parameters for a Repeat Analysis.

Objective 4. Identify and describe the different artifacts.

SYLLABI *(cont'd)*

COURSE TITLE: Various Modalities

COURSE NUMBER: RAD 213

CREDIT HOURS: 2

QUARTER: Fall

INSTRUCTOR: Kim Eikum, BS, R.T(R), (M)
Office #: Rm. 7-138
Office phone #: 509-533-8613
Cell phone #: 509-280-0001
kimberly.eikum@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2014). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th Ed.). St. Louis, Missouri: Mosby Elsevier.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem.

COURSE DESCRIPTION:

This course will introduce the student to the various modalities associated with radiology. The specific modalities that will be covered will be MRI, US, Radiation Therapy, Nuclear Medicine, Interventional and Cardiac Angiograms, Mammography and DXA. A review of Geriatric and Pediatric patients will also be done.

COURSE OBJECTIVES:

1. Identify the various modalities in radiology
2. Identify the different exams performed in the specified modalities along with the different machines related to the specific modality.
3. Identify the different indications for using a specified modality.

METHOD OF TEACHING:

This course will be conducted with lecture, discussion and guest lecturers. Weekly discussion will be done in class to review the previous weeks lecture. All members of the class are expected to participate.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the

guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

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these grades are not sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Weekly quizzes and/or written assignments will be given. The tests, quizzes and written assignments will be counted as stated below. All homework must be turned in on the date due in order to receive full credit. Any homework turned in after the due date will receive half credit. If you are absent on a quiz or test day

the quiz or test must be made up on the first day back to clinical or class depending on which comes first. For each day the quiz or test is not made up (after returning to school) a 5% deduction will be applied to final quiz or test grade. A comprehensive final will be given at the end of the course. It will count as 500 points. If the student has a 95% or higher average at the end of the course they will be excluded from taking the comprehensive final. Attendance requirements and the relation to the grading of this course are stated in the student hand book and as follows.

3 TESTS ----------200 points each

9 Assignments----------100 points each

TOTAL POINTS: 1500 POINTS

COMPREHENSIVE FINAL: 500 POINTS

2000 POINTS TOTAL (approx.)

Fall Quarter tentative assignment schedules (may change with guest speaker's schedule)

Name	Date	Points possible	Points received
DXA homework		100	
Nuclear Medicine homework		100	
Ultrasound Homework		100	
TEST		200	
Pediatric homework		100	
Geriatric homework		100	
Radiation Therapy homework		100	
Mammography homework		100	
TEST		200	
MRI homework		100	
Interventional homework		100	
TEST		200	
Comprehensive Final		500	
Total points possible		2000	

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

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The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

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- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)

- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

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533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

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Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

RAD 213 Unit Objectives

Various Modalities

Nuclear Medicine

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the different type of Nuclear Medicine exams.

Objective 2. Describe the importance of Radiation Protection in Nuclear Medicine.

Objective 3. Identify and describe the indications for a Nuclear Medicine exam.

Objective 4. Identify and describe the different type of radioisotopes.

Ultrasound

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the different type of Ultrasound exams.

Objective 2. Describe the importance of the benefits and risks of Ultrasound.

Objective 3. Identify and describe the indications for a Ultrasound exam.

Objective 4. Identify and describe the different type of Ultrasound probes.

Bone Density Studies DXA

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the different type of DXA machines.

Objective 2. Describe the importance of Radiation Protection in DXA.

Objective 3. Identify and describe the indications for a DXA exam.

Objective 4. Identify and describe the difference between Osteoporosis and Osteopenia.

Mammography

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the different type of Mammography exams.

Objective 2. Describe the importance of Radiation Protection in Mammography.

Objective 3. Identify and describe the indications for additional views.

Objective 4. Identify and describe the patient care issues in mammography.

Radiation Therapy

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the Key players in Radiation Therapy.

Objective 2. Describe the importance of Radiation Protection in Radiation Therapy.

Objective 3. Identify and describe the patients experience in Radiation Therapy.

Magnetic Resonance Imaging MRI

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the different type of MRI exams.

Objective 2. Describe the importance of safety in MRI.

Objective 3. Identify and describe the indications for a MRI exam.

Interventional Radiology and Cardiac Cath Lab

(SWBAT-Student will be able to…)

Objective 1. Identify and describe the different type of Interventional and Cardiac lab exams.

Objective 2. Describe the importance of Radiation Protection in the Specials lab.

Objective 3. Identify and describe the equipment and supplies.

Outline:

I. Introduction to Medical imaging

II. Interventional and Special Procedures

A. History of catheterization
B. Medical legal implications and Medications
C. Room Equipment
D. Contrast agents
E. Accessories
   Guide wires
   Catheter
F. Method of approach
G. Angiographies
   Abdominal
   Extremities
   Coronaries
   Cerebral
   Non-vascular

III. Magnetic Resonance Imaging

A. Components, operation and Process
   Data acquisition
   Data acquisition process
   Factors controlling image appearance
   Anatomical structures
   Post processing
B. Radiation Protection
   Methods for reducing safety issues

IV. Radiation Therapy

A. History of Radiation Therapy
B. Patient experiences
C. Key players
   Physicist
   Dosimetrist
   Radiation oncologist
   Radiation therapy technologist

V. Nuclear Medicine

A. History of Nuclear Medicine
B. Radioisotopes
C. Various types of exams

VI. Bone Density Studies

A. History of DXA
B. Methods used to determine Bone Density
C. Single-photon absorptiometry
D. Dual-photon absorptiometry
E. Dual-energy x-ray absorptiometry
F. Quantitative CT scanning

VII. Ultrasound

A. History of Ultrasound
B. Benefits and risks
C. Application of ultrasound
   Lithotripsy
   Obstetrics
   Cardiology
   Orthopedics

VIII. Mammography

A. Anatomy
B. Summary of mammography projections
C. Significant mammographic findings
D. Localization of nonpalpable lesions
E. Ductography

SYLLABI *(cont'd)*

COURSE TITLE: Radiographic Image Evaluation V **COURSE NUMBER:** RAD 214

CREDIT HOURS: 2 **QUARTER:** Fall

INSTRUCTOR: Debbie Miller
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

This course will review the essential technical factors used in evaluation of radiographic quality. The student will use such evaluation factors as: what projection/view is shown, what anatomical part(s) are required, is the correct field size used, is there acceptable collimation shown, are there any artifacts present, is it correctly position, is the technique (density& contrast) near perfect, & is the central ray correctly centered. They will use these factors to evaluate test images (developed, CR and DR images).

METHOD OF TEACHING:

During this course the students should be prepared to actively participate in classroom discussions and exercises. This course is one that discussion and exploring must be active.

COURSE OBJECTIVES:

1. Discuss the elements of a radiographic image.
2. Identify anatomy on radiographic images
3. Apply the problem-solving process used for image analysis.
4. Describe an effective image analysis method.
5. Describe the role of the radiographer in image analysis.
6. Apply the process for evaluating images for adequate density / brightness, contrast, recorded detail/spatial resolution and acceptable limits of distortion.
7. Explain how the radiographer determines that an adequate level of penetration has been applied to produce the desired level of contrast.
8. Summarize the importance of proper positioning.
9. Discuss the impact of patient preparation on the resulting radiographic image.

10. Analyze images to determine the appropriate use of beam restriction.
11. Identify common equipment and patient malfunctions that affect image quality, and corrective action needed to fix them.
12. Differentiate between technical factor problems, procedural factor problems and equipment malfunctions.
13. Critique images for appropriate technical, procedural and pathologic factors, and explain corrective actions needed.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78

	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

<u>GRADING METHOD</u>:

This course's grade will be a combination grade that will be based on participation, debates, one-on-one critique, quizzes, tests and a comprehensive final. ***The 60 extra points (2 for each class time, 30 class times in all) for participation will be applied appropriately at the end of the course.*** Each day that the student is not disruptive in class and participating they will continue to keep their participation points. However, each time a student is disruptive in class, he/she will receive a 5 point deduction in their participation points. Disruptive behavior includes, talking out of turn, extraneous conversations, loud outbursts, sleeping and texting or using personal computers for non-class related classwork. In addition, each day a student is absent from class 5 points will be deducted from their participation grade. You will not make up the test for that day; you will simply have fewer score to average your grade. If a mini class is missed you will be responsible for collecting the information you have missed.

Discussion Questions……...……..	= 10%
Participation Points…….	= 10%
Classroom Debate……	= 10%
One-on-One Critique……..…….	= 10%
Weekly Quizzes……...	= 35%
<u>Final……..</u>	= <u>25%</u>
	100%

*Quizzes can't be taken early or made up after a missed class, due to the nature of the class. The student will not be penalized or lose points, all quizzes will be average for the quiz over grade.

**Disruptive behavior includes, talking out of turn, extraneous conversations, loud outbursts, sleeping and texting or using personal computers for non-class related classwork.

***Grades can be checked online on Canvas.

On the daily radiographic image evaluation given by the instructor the *<u>"All or Nothing Method"</u>*** will be utilized. If your answer is not correct for *Projection/View* you will receive a **zero** for the test! *Correct means*: correct position and body part (including such things as decub, upright, axial, RPO & LPO/RAO & LAO). *"Right"* and *"Left"* errors will be minus **5** points.

Anytime a student receives a *"ZERO"* (or any grade below *60)*, he or she can improve the grade by turning in an *ASSIGNMENT* within one week of receiving the assignment. **THE ASSIGNMENT** will be: a film of the same part/position that the student failed. He or she must use Merrill's (plus any other sources) to fill out a critique test form. He or she must cite the pages in Merrill's at the top of the page (and cite any other sources, as well). The assignment will be graded with *60%* being the top score. This score will replace the first score he or she received.

<u>No grades will be eliminated from the computation of the quarter grade.</u>

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Actively participate in all course activities. Ask questions & answer questions asked of you.
- There will be **daily quizzes** over material cover in the previous classes.
- Apply information learned to gain knowledge from the clinical setting. Use what you learned; you need to look at images at your sites the more the better!
- Be prepared to actively participate in classroom discussions and exercises. **READ** your Merrill's before class!
- Successfully accomplish the stated student objectives for this class.
- Successfully complete the class with at least a 2.0 (78%) grade.

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
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DISCUSSION BOARD PARTICIPATION:

Students are responsible to participate each week in the discussion board questions posted on Canvas. You must post on each discussion board category at least twice: first by giving your answer to each of the questions posted and second by commenting on at least one classmate's (Snrs or Jnrs) posting under each of the categories per week. Please use the classmates name when responding, comments must be at least 10 words in length and your comment must either add to the post or take the post in a different direction. This should work out to be 2 postings in a week. More is ok, less will cost you points.

It is better to post early in the week and check back later in the week to add your reply. Please remember to watch all language used and please do not use abbreviations ("u" use you). I will read all posting and replies but will not directly reply back to you unless asked to. Remember there is a due date and time. You will be locked out after that. Do not wait until the last minute because computer issues do happen!

What you need to succeed:

1. Actively participate in all course activities. Ask question, and answer questions asked of you.
2. There will be **a quiz each Thursday** over material cover in the previous classes.
3. Apply information learned to gain knowledge from the clinical setting. Use what you learned. You need to look at a lot of images at your sites, the more the better!
4. Be prepared to actively participate in classroom discussions and exercises. **READ** your Merrill's before class!
5. Know the **Structures shown (Merrill's)** for every view we do for this class.
6. Complete the class with at least a 2.5 grade.

Criteria for evaluation of radiographic images:

1. **Density** (attenuation) is the overall "darkness" of a radiograph. For a pathological condition to require a technical adjustment, it must substantially alter the presence and amount of the five radiographically demonstrable materials. These five types of substances, in order of increasing attenuation are:
    - **Gas and air**
    - **Fat**
    - **Fluid or fluid like**: blood, generally, soft tissues such as connective tissues, muscles and visceral organs, are of "fluid like" density, equal to water radiographically.
    - **Bone**
    - **Metal**s: hardware for fixation, barium and iodine compounds are, chemically, metals

2. **Contrast** Gray scale-You want it to be long enough to visualize the different bony and soft tissue structures

3. **Correct position for demonstration of intended anatomy** Merrill's (Evaluation criteria)

4. **Collimation and markers-** As a rule, there should be sufficient collimation of the body part with the ***marker inside the collimated field.*** Marker placement as a rule is somewhat optional, as long as it is not in the anatomy that is to be demonstrated. However, I place my marker on the lateral aspect of the body.

5. **Shielding/ Radiation Protection-** will not always be present on the film. When doing infants and children, it is desirable to demonstrate shielding (i.e. hips should show gonadal shielding on one view, a chest x-ray should show shielding of the abdomen no chabdomen etc…) Try and keep your and other holders hands out of shot when holding pts.

6. **Sharpness of recorded detail** – This refers basically to the absence of motion in regards to this class. The exception to this is when utilizing a shallow breathing technique.

7. **Correct patient identification-** The patient identification should routinely be reviewed when looking at your radiographs. It is especially important when using conventional radiography, since you are using a flash card and films can easily be mislabeled and equally important with CR &DR as names are selected from a work list.

8. **Elimination of potential artifacts –**The finished radiograph should be absent of artifacts.

Artifacts

Undesirable densities or blemishes on a radiograph that can be removed by you are called artifacts.

***Processing Artifacts*:** Artifacts produced during processing. Some examples are roller markers, chemical fog, and dirt.

***Storage and Handling Artifacts*:** They are caused by improper storage or handling. Some examples are pressure marks, finger marks, static, stains, scratches, light fog and creases.

External Artifacts*:** Objects found on, near, or under the patients. Some examples are Jewelry, hair ornaments, objects in pockets, snaps, buttons, pins, zippers, hearing aids, dentures, ***REMOVABLE orthodontic devices, eyeglasses, blood/fluid soaked clothing/gowns, thick or folded clothing/blankets/ sheets, dressings, IV or monitoring lines, pillows, imprinted designs on clothing, thick or wet hair, etc.

NOTE: Internal objects that are found within the patient such as surgical pins/clips/suture, prostheses, central venous lines, pacemakers, nasogastric tubes, residual barium or contrast media are all examples of items which are not preventable; these must be accepted on the radiograph. They will NOT be considered "***ARTIFACTS***" for radiographic film evaluation classes.

*** Textbooks vary on the definition of artifacts. This is the criterion that is established by Spokane Community College School of Radiologic Technology. This is what we will go by for this class.

IMAGE EVALUATION BASICS

The idea of this class is to be able to notice the difference between a good and a bad radiograph.

Every time you look at a film to evaluate it you should ask yourself the same set of questions.

1. What anatomy are you looking at?
2. What projection is it?
3. Is it positioned correctly?
4. Is the part/anatomy on the film?
5. Is it too light? Too dark?
6. Is there motion or artifact?

These are the major questions to ask in order to decide if the film needs to be repeated. (When looking at a film in image evaluation class, the film is considered the first try at the projection, what will you do?)

Then you need to look at the little things like.

1. Is there a marker?
2. Is there coning/shielding?
3. Is it the correct field size used?

These are very important things to look for but are not necessarily reasons to repeat the film.

The ultimate question is: Are you proud to put your initials on this film?

IMAGE EVALUATION
FACTS FOR CLASS

1. Each site has various protocols; the films used in film Critique *are* protocol films. They just may be incorrectly positioned films.

2. I personally will hang the films correctly. With this in mind you can/will be able to distinguish right and left for each film.

3. Test films can be ***ANYTHING***. Be prepared! If we go over a certain exam it ***MAY*** appear as a test either in the spring or summer quarter.

4. You are responsible for knowing the size of film that is hung. If you have difficulty with this concept remember that a standard piece of paper is 8 ½ x 11 inches.

5. There is no set schedule for this course. We will be covering various exams and images each week.

6. It is your responsibility to review Merrill or the Image Analysis books regularly.

7. If you fall into the "All or Nothing Method" with a quiz, I will place a new test sheet with a film in your mailbox. You must reference on the test sheet your findings along with filling out the test sheet on the film. You have 1 week to complete and return the test to me. I will put the due date at the top of the test page. Any test's turned in after the stated due date will not be counted.

8. In regards to testing:
   - *Long Critique* images will be given a 8 min. time limit
   - *Quick Critique* images will be given 60 seconds per image
   - *Why or Why not* Quiz's will be given a 20 min. time limit to review all 10 images.

9. When doing a Long Critique you must indicate, at the bottom of the page, an *average technique* for the image.

10. If you are experiencing any problems, difficulties or you have questions with film critique you need to come see **me** about the issues. I am here to help you succeed in this course.

Name: _____

Radiographic Image Evaluation

Film #: _____ Area of Anatomy: _____

(20 points) Projection/View: _____
(Include right, left, upright, etc)

(10 points) What anatomical part(s) is/are required on this projection? _____
_____

(2 points) Is the correct field size used? Yes ☐ No ☐

(2 points) If incorrect field size, what is the correct size? _____

(2 points) Is there acceptable collimation? Yes ☐ No ☐

(2 points) Are there any artifacts? Yes ☐ No ☐

(2 points) If an artifact, what is it? _____

(10 points) Is the anatomical part correctly positioned? Yes ☐ No ☐

(10 points) If not correctly positioned, what corrections are necessary? _____
_____

(5 points) Evaluate the radiographic technique, as follows:

☐	☐	☐	☐	☐
too light	Light, but acceptable	near perfect	dark, but acceptable	too dark

(5 points) If not, near perfect, how should the radiographic technique be changed? _____
_____

(5 points) Is the central ray correctly centered to the anatomical part? Yes ☐ No ☐

(5 points) Is the central ray correctly directed to the anatomical part? Yes ☐ No ☐
(Perpendicular, or correct degree & direction of angle)

(10 points) Should this projection be repeated? Yes ☐ No ☐

(10 points) Why or why not? _____
_____

Average Technique for this view: _____

<u>One-on-One Critique Requirements</u>:
For the first half of the quarter you will keep track of any and all exams that you complete during clinical. During the second half of the quarter I will randomly review your logbook and pick out four exams from your logbook for you to critique. The exams will have been completed during summer and/or this (the 5th) quarter.

I will be conducting the one-on-one image review with you. We will discuss the following areas: labeling, techniquing, positioning, collimating and artifacts. This is considered as an individual critique with the instructor. The areas that I will be taking exams from are:

Upper or Lower Limb;
Shoulder Girdle;
Pelvic Girdle;
Vertebral Column;
GI System;
Head exams;
Pediatrics; etc.

IMAGE EVALUATION V
***TENTATIVE* CLASS SCHEDULE**

Week 1	Tuesday	**CPR Review**
Week 2	Tuesday	Introduction to class, review syllabus & classroom expectations. Conduct practice long & quick critiques.
Week 3	Tuesday	SC Joints Mini Class **& weekly quizzes**
Week 4	Tuesday	"Free for All" **& weekly quizzes**
		& weekly quizzes
Week 6	Tuesday	Sternum mini class **& weekly quizzes**
Week 7	Tuesday	"Free for all" **& weekly quizzes**
Week 8	Tuesday	Debate #6: (Shoulder w/ transthoracic) **Pro:** **Con:** Debate #7: (Skull) **Pro:** **Con:**

Week 9	Tuesday	Debate #8: Knee)	**Pro:** **Con:**
		Debate #9: (Sinuses)	**Pro:** **Con:**
		Debate #10: (Elbow)	**Pro:** **Con:**
		& weekly quizzes	
Week 10	Tuesday	SI Joints **& weekly quizzes**	
Week 11	Tuesday	**One-on-One's**	
Week 12	TBA	***COMPREHENSIVE FINAL***	

DEBATE TEAMS: (Round 1)

	PRO	***CON***
Week 4 Tuesday, (Mandible)		
DEBATE #1	1. 2.	1. 2.
Week 4 Tuesday, (C spine)		
DEBATE #2	1. 2.	1. 2.
Week 5 Tuesday, (Orbits)		
DEBATE #3	1. 2.	1. 2.
Week 5 Tuesday, (T spine)		
DEBATE #4	1. 2.	1. 2.
Week 5 Tuesday, (Facial Bones w/ zygoma) (Skull)		
DEBATE #5	1. 2.	1. 2. 3.

You may only sign up ONCE for round 1

DEBATE TEAMS: (Round 2)

	PRO	***CON***
Week 8 Tuesday, (Shoulder w/ transthoracic)		
DEBATE #6	1. 2. 3.	1. 2.
Week 8 Tuesday, (Skull)		
DEBATE #7	1. 2.	1. 2.
Week 9 Tuesday, (Knee)		
DEBATE #8	1. 2.	1. 2.
Week 9 Tuesday, (Sinuses)		
DEBATE #9	1. 2.	1. 2.
Week 9 Tuesday, (Elbow)		
DEBATE #10	1. 2.	1. 2.

You may only sign up ONCE for round 2

SYLLABI *(cont'd)*

COURSE TITLE: Radiation Biology & Protection **COURSE NUMBER:** RAD 215

CREDIT HOURS: 2 **QUARTER:** Fall

INSTRUCTOR:
Debbie Miller
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Radiologic Science for Technologists: Physics, Biology & Protection. 11th Ed. by Stewart C. Bushong

COURSE DESCRIPTION:

This course is designed to study the effects of ionizing radiation of biological tissue and its interaction with cellular components at various developmental stages. The student will be introduced to pertinent pathological diseases created and treated with ionizing radiation. Somatic and genetic effects of ionizing radiation will be discussed. Concepts of radiation protection will be explored.

COURSE OBJECTIVES:

1. Be prepared to actively participate in classroom discussions& exercises.
2. Attend all lectures and lab sessions
3. Practice learned procedures to develop proficiency.
4. Apply course information & techniques in the clinical setting.
5. Successfully complete the class with at least a 2.0 (78%) grade.

METHOD OF TEACHING:

Lectures are created to present the principles of producing a top quality radiograph, making the appropriate corrections and problem solving as it relates to radiography in the clinical setting.

Lectures will be supplemented by demonstrations, video tapes, radiographic images, white board and guest speakers.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

This course's grade will be a combination grade that will be based on homework, quizzes, tests and a comprehensive final.

All homework must be turned in on the date due in order to receive full credit. Homework turned in after the due date will receive a "0" grade. If you are absent on a quiz or test day the quiz or test must be made up on the first day back to clinical or class depending on which comes first. For each day the quiz or test is not made up (after returning to school) a 5% deduction will be applied to final quiz or test grade. A comprehensive final will be given which constitutes the remaining 25% of the final grade. Grades can be checked online on Canvas. *No grades will be eliminated from the computation of the quarter grade.* The following is a breakdown of the grading method:

Homework----------	=	15%
Tests----------	=	50%
Comprehensive Final----------	=	35%
		100%

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Review the major subdivisions of a cell
- Review the nucleus and cytoplasm of a cell when given a diagram.
- Review the term chromosome.
- Review the primary constituents of chromosomes.
- Review the importance of DNA in the cell.
- Review the importance of linkage of the ladder arrangement of DNA.
- Review the structures of a DNA molecule.
- Review the differences between genetic and somatic cells.
- Differentiate between the direct and indirect interactions.
- Describe an ion and a free radical.
- Describe relative biological effect (RBE), linear energy transfer (LET), and the quality factor (QF).
- Name the general effects of radiation on other cellular constituents.
- State the difference between a differentiated and undifferentiated cell.
- List factors contributing to the radiosensitivity of tissues.
- Describe the mechanisms of radiation damage to radioresistant and radiosensitive tissue.
- Select the most radiosensitive and radioresistant organs and tissues when given a list of organs and tissues.
- State the effects of radiation on the male and female reproductive systems.
- Provide reasons why the embryonic period of life is so radiosensitive.
- Describe the risk involved in irradiation of a female during stages of pregnancy.
- List possible symptoms of an individual exposed to increasing doses of radiation.
- Define LD 50/30.
- Explain the relationship between ionizing radiation and cancer.
- State the name assigned to the time period between radiation exposure and the appearance of cancer.

- Discriminate between acute radiation effects and late radiation effects.
- Define health physics.
- List the cardinal principles of radiation protection.
- Describe the ALARA concept.
- Give the dose limits for occupational and nonoccupational workers for whole-body, skin and extremities.
- Describe the recommended procedures for the pregnant radiographer and pregnant patient.
- Name the leakage radiation limits for x-ray tubes.
- List the nine radiation protection features of radiographic equipment.
- List the nine radiation protection features of fluoroscopic equipment.
- Compare the design of primary and secondary radiation barriers.
- Compare the units and concepts of occupational exposure.
- Describe ways of reducing occupational exposure.
- Describe the importance of personnel monitoring and the three types of personnel monitors.

***COLLEGE WIDE ABILITIES**
The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility
Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.
Students will be able to demonstrate the following measurable behaviors/skills:
- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)
Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.
Students will be able to demonstrate the following measurable behaviors/skills:
- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:

Penalties for Deliberate Plagiarism or Cheating:

First Offense: Automatic failure of the paper or test and possible failure of the course.

Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:
In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc.: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

RADIATION BIOLOGY & PROTECTION
***TENTATIVE* CLASS SCHEDULE**

Week 1	Tuesday	**CPR Review**
Week 2	Tuesday	Introduction to class, discuss expectations & assignments.
Week 3	Tuesday	Lecture on: Chapter 30 "Fundamental Principles of Radiology" Chapter 31 "Molecular Radiobiology"
Week 3	Monday	***Homework due for Chapters 29 – 31 by 11:59pm***
	Tuesday	**TEST:** Chapters 30 - 31
Week 4	Tuesday	Lecture on: Chapter 32 "Cellular Radiobiology" Chapter 33 "Deterministic Effects of Radiation" Chapter 34 "Stochastic Effects of Radiation"
Week 5	Monday	***Homework due for Chapters 32 – 34 by 11:59pm***
	Tuesday	**TEST:** Chapters 32 - 34
Week 6	Tuesday	Lecture on: Chapter 35 "Health Physics" & Chapter 36 "Designing for Radiation Protection"
Week 7	Monday	***Homework due for Chapters 35 - 36 by 11:59pm***
	Tuesday	**TEST: Chapter 35 – 36** ***(homework due for 35 -36)***

Week 8	Tuesday	Lecture on: Chapter 37 "Patient Radiation Dose Management" Chapter 38 "Occupational Radiation Dose Management"
Week 9	Monday	*Homework due for Chapters 37 - 38 by 11:59pm*
	Tuesday	**TEST: Chapter 37 – 38** ***(homework due for 37 - 38)***
Tuesday	***Dec. 9th***	***COMPREHENSIVE FINAL***

RADIATION BIOLOGY & PROTECTION – RAD 215
COURSE OUTLINE

I. Human Biology (review from A&P 240 & 241)
- A. Human response to ionizing radiation
- B. Composition of the body
  - 1. Human Radiation Response
  - 2. Composition of the body
  - 3. Cell theory
    - a. Molecular Composition
      - 1. Proteins
      - 2. Lipids
      - 3. Carbohydrates
      - 4. Nucleic acids
  - 4. Human Cell
    - a. Cell function
      - 1. Protein synthesis
    - b. Cell proliferation
      - 1. Genetic cells
      - 2. Somatic cells
      - 3. Mitosis
      - 4. Meiosis
    - c. Tissues & organs

II. Fundamental Principles of Radiobiology
- A. Law of Berbonie and Tribondeau
- B. Physical Factors Affecting Radiosensitivity
  - 1. LET
  - 2. RBE
  - 3. Fractionation and Protraction
- C. Biologic Factors Affecting Radiosensitivity
  - 1. Oxygen Effect
  - 2. Age
  - 3. Recovery
  - 4. Chemical Agents
  - 5. Hormesis
- D. Radiation Dose-Response Relationships
  - 1. Linear Dose-Response relationships
  - 2. Nonlinear Dose-Response relationships
  - 3. Constructing a Dose-Responses Relationship

III. Molecular Radiobiology
- A. Irradiation of Macromolecules
  - 1. Main-Chain Scission
  - 2. Cross-Linking
  - 3. Point Lesions

4. Macromolecular synthesis
    a. Catabolism
    b. Anabolism
5. Radiation Effects on DNA
6. Radiolysis of Water

B. Direct & Indirect Effect

IV. Cellular Radiobiology

A. Target Theory
B. Cell Survival Kinetics
    1. Single-target, single-hit
    2. Multitarget, single-hit
    3. Recovery
C. Cell-Cycle Effects
D. LET, RBS & Oxygen Enhancement Ratio

IV. Deterministic Effects of Radiation

A. Acute Radiation Lethality
    1. Prodromal Period
    2. Latent Period
    3. Manifest Illness
    4. LD 50/60
    5. Mean survival time
    6. Acute Radiation Syndrome
        a. Hematologic Syndrome
        b. GI Syndrome
        c. CNS Syndrome
    7. Local Tissue Damage
        a. Effects on Skin
        b. Effects on Gonads
            1. Ovaries
            2. Testes
B. Hematologic Effects
    1. Hemopoietic System
        a. Hemopoietic Cell Survial
C. Cytogenetic Effects
    1. Normal Karyotype
    2. Single-hit chromosome aberrations
    3. Multi-hit chromosome aberrations
D. Kinetics of Chromosome Aberration

V. Stochastic Effects of Radiation

A. Local Tissue Effects
    1. Skin
    2. Chromosomes
    3. Cataracts
B. Life-Span Shortening
    1. Risks to radiographers
    2. Risks to radiologists

C. Risk Estimates
    1. Relative Risk
    2. Excess Risk
    3. Absolute Risk
D. Radiation-induced Malignancy
    1. Leukemia
    2. Cancer
        a. Thyroid Cancer
        b. Bone Cancer
        c. Skin Cancer
        d. Breast Cancer
        e. Lung Cancer
        f. Liver Cancer
    3. Total Risk of Malignancy
        a. Nuclear Reactor Incidents
        b. BEIR Committee
    4. Radiation & Pregnancy
        a. Effects on Fertility
        b. Irradiation in Utero
        c. Genetic Effect

VI. Health Physics
A. Cardinal Principles of Radiation Protection
    1. Minimize Time
    2. Maximize Distance
    3. Use Shielding
B. Effective Dose
    1. Patient Effective Dose
    2. Radiologic Technologist Effective Dose
C. Radiologic Terrorism
    1. Radiologic Device
    2. Radiation Protection Guidance
    3. Radiation Detection & Measurement Equipment

VII. Designing for Radiation Protection
A. Radiographic Protection Features
    1. Protective x-ray tube housing
    2. Control panel
    3. SID receptor distance indicator
    4. Collimation
    5. PBL
    6. Beam Alignment
    7. Filtration
    8. Reproducibility
    9. Linearity
    10. Operator shield
    11. Mobile X-rays
B. Fluoroscopic Protection Features
    1. Source-to-skin distance
    2. Primary Protective Barrier
    3. Filtration

4. Collimation
5. Exposure Control
6. Bucky Slot Cover
7. Protective Curtain
8. Cumulative Time
9. Dose Area Product

C. Design of Protective Barriers
1. Types of Radiation
   a. Primary
   b. Secondary
   c. Leakage
2. Factors Affecting Barrier Thickness
   a. Distance
   b. Occupancy
   c. Control
   d. Workload
   e. Use factor
   f. kVp

D. Radiation Detection & Measurement
1. Gas-filled detectors
   a. ionization chambers
   b. proportional counters
   c. Geiger-Muller detectors
2. Scintillation Detectors
3. Thermo luminescence Dosimetry
4. Optically Stimulated Luminescence Dosimetry

VIII. Patient Radiation Dose Management

A. Patient Dose Descriptions
1. Estimation of Patient Dose
   a. Entrance Skin Exposure (ESE)
   b. Gonadal
   c. Mean Marrow
   d. Glandular
2. Patient Dose in Special Examinations

B. Reduction of Unnecessary Patient dose
1. Unnecessary examinations
   a. mass screening for TB
   b. Hospital admission
   c. Pre-employment physicals
   d. Periodic health examinations
   e. Whole-body multi slice spiral CT screening
2. Repeat Examinations
3. Radiographic Technique
4. Image Receptor
5. Patient Positioning
6. Specific Area Shielding

C. Pregnant patient
1. Radiobiologic Considerations
2. Patient Information

IX. OCCUPATIONAL RADIATION DOSE MANAGEMENT

A. Occupational Radiation Exposure
   1. Fluoroscopy
   2. Interventional Radiology
   3. Mammography
   4. CT
   5. Surgery
   6. Mobile Radiography

B. Radiation Dose Limits
   1. Whole body dose limits
   2. Dose Limits for Tissues & Organs
      a. Effective dose
      b. Skin
      c. Extremities
      d. Lens
   3. Educational Considerations

C. Reduction of Occupational Exposure
   1. Occupational Radiation monitoring
      a. Film badges
      b. TLD
      c. Pocket Ionization chambers
   2. Occupational Radiation Monitoring Report
      a. ID number
      b. Type of monitor
      c. Employee's name
      d. SS#
      e. DOB
      f. Gender
      g. Current exposure
      h. Cumulative Exposure
      i. Annual exposure
      j. Cumulative Lifetime exposure
   3. Protective Apparel
   4. Position
   5. Patient holding
   6. Pregnant Technologist/Radiologist
   7. Management Principles
      a. New employee training
      b. In-service training
      c. Counseling during pregnancy

SYLLABI *(cont'd)*

COURSE TITLE: Clinical Education V **COURSE NUMBER:** RAD 216

CREDIT HOURS: 9 **CLINICAL HOURS:** 297 **QUARTER:** Fall

INSTRUCTORS:

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Helen Murphy
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Cell phone #: 509-991-1571
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Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

Students learn radiographic positioning, department and office procedures, patient management and critical analysis of radiographs in a clinical setting. Students develop psychomotor skills, cognitive domain and affective behavior in the science of radiographic technology.

COURSE OBJECTIVES:

1. Actively participate in all examinations student is assigned to in addition to the specific objectives for the assigned rotation.
2. Attend all clinical days.
3. Maintain clinical logbook.
4. Create & update a "mini- book" for all positioning and set up of examinations.
5. Complete the required number of competency clearances for the quarter.

METHODS OF TEACHING:

Laboratory setting will enhance the demonstrations of the lecture material by discussing and presenting portions of the information with the ability to utilize the radiology equipment.

Practical application during clinical will enhance the information that has been taught in the classroom and from all the course information the student has successfully passed during previous quarters, and this quarter, while in the program.

CLINICAL REQUIREMENTS:

Students must successfully pass their DRUG SCREENING and BACKGROUND CHECK in order to be accepted at the clinical sites. NO EXCEPTIONS! All clinical sites have the option of refusing a student's admittance to their facility, if this occurs the student will not be allowed to start or continue the program. All students rotate through the 4 main hospitals in Spokane along with the Inland Imaging and Rockwood Clinic outpatient facilities.

LINES OF AUTHORITY:

In the classroom you are responsible to your instructor. During clinical responsibilities you are responsible to your instructor and personnel so designated. RESPONSIBILITY FOR PATIENT CARE RESTS WITH THE CLINICAL FACILITY. THE CLINICAL FACILITY HAS THE AUTHORITY TO GRANT OR REFUSE STUDENT ACCESS OF ANY STUDENT FOR JUST CAUSE. Remember, you are a guest and represent Spokane Community College and your program. *See additional information under the CONDUCT section in SCC Radiology Technology Student Handbook.* If you are asked to leave a clinical site or if a site does not allow you to attend their facility (for any reason), you will not be allowed to transfer to another clinical site to finish your schooling. You will be terminated from the program.

CLINICAL BEHAVIOR:

Refer to the clinical behavior guidelines located in the SCC Radiology Technology Student Handbook.

CLINICAL ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

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RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
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	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
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lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Evaluations and Competency Clearances…… 90% of Final Grade
Blue Log Books……... 10 % of Final Grade

COMPETENCY CLEARANCE GRADING POLICY:

See SCC Radiology Technology Student Handbook for competency clearances required per quarter. A successful passing score on each clearance is 83% (which is equivalent to a 2.5). All competency clearances must be successfully completed by the end of the 6th quarter. Failure to complete the minimum required competency clearances for the quarter will result in a 0.25 reduction from your clinical grade for EACH clearance not completed, and you must complete the delinquent clearance(s) before the start of the next quarter. This includes those clearances that must be completed during specific quarters.

During a competency clearance, the clinical instructor may abort the clearance at his/her discretion. A student may receive an "automatic failure" on a clearance attempt for noncompliance of certain patient care/safety guidelines. (See SCC Radiology Technology Student Handbook for additional information.)

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.5 GPA (83%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods

- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:

Penalties for Deliberate Plagiarism or Cheating:

First Offense: Automatic failure of the paper or test and possible failure of the course.

Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student

denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

SYLLABI *(cont'd)*

COURSE TITLE: Radiographic Positioning V **COURSE NUMBER:** RAD 211

CREDIT HOURS: 1 **QUARTER:** Winter

INSTRUCTOR: Helen Murphy
Office #: Rm. 7-139
Office phone #: 509-533-8616
Cell phone #: 509-991-1571
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiologic Procedure 12th edition

*Other references will be necessary to accomplish assigned projects; instructor has books which may be borrowed, also the school library and on-line sources can be used.

COURSE DESCRIPTION:

This course teaches the positioning techniques for "special" projections of the upper & lower limbs, pelvic & shoulder girdles, vertebral column, and the bony thorax. Correct alignment of the image receptor, body part and x-ray tube is emphasized in addition to radiation protection and collimation. Situations in which the "special" projection may aid the radiologist in diagnosis will be discussed as well as situations in which the "special" method may be necessary due to patient condition. The students present the material; the instructor will facilitate.

COURSE OBJECTIVES:

The instructor will:

- Assign each student to research three "special" projections
- Facilitate the discussion of each projection after the student
- has presented (orally and with hand-outs) and demonstrated the "special" projection to the class on his/her assigned day

The student will:

- Research the assigned "special" projection
- Prepare an illustrated hand-out of the projection with a copy for each classmate
- Give an oral presentation and demonstration to the class on his/her assigned day

METHOD OF TEACHING: Laboratory & demonstration.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the

guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook Policy Manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

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RADIOLOGY TECHNOLOGY GRADING POLICY

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these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
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GRADING METHOD:

Each presentation: 200 points (4 of them)
Notebook: 200 points
Tests: 50 points (3 of them)
Final: 150 points

Note: presentations and notebook are the *majority of the grade*!!

COURSE REQUIREMENTS:

1. Research the assignment
2. Prepare an illustrated hand-out (8.5 x 11 inches) for classmates
3. Images or drawing showing the correct position
4. Presentation and demonstration to the class
5. Compilation of an organized notebook of the hand-outs

PRESENTATIONS & DEMINSTRATIONS:

Short oral presentation and demonstration to the class and a handout for each classmate that includes: the correct radiographic positioning of the part, the anatomical parts demonstrated and how this position may be used to enhance the routine protocol or how it may be used as a alternate method. Is there an advantage or disadvantage of this position as compared to the routine protocol images?? The handout should include a picture of the position and a drawing or copy of the image. Labels are very important!

The student should use images from the instructor's teaching file; images of phantoms or copies of images on actual patient's from the sites to demonstrate correct positioning of the anatomical part.

NOTEBOOKS:

Compilation of the handouts in an 8.5 x 11 inch loose leaf notebook (may be any type of notebook cover)

Table of contents

Neatly organized for Helen to review

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Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

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In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

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All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If

deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

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This syllabus may be subject to change.

EMPLOYABILITY SKILLS PROFILE: The Critical Skills Required of the American Workforce

Academic Skills

Those skills, which provide the basic foundation to get, keep, and progress on a job and to achieve the best results. American employers need a person who can:

- **Communicate**
  Understand and speak the languages in which business is conducted
  Listen to, understand, and learn
  Read, comprehend, and use written materials, including graphs, charts, and displays
  Write effectively in the languages in which business is conducted
- **Think**
  Think critically and act logically to evaluate situations, solve problems, and make decisions
  Understand and solve problems involving mathematics, and use the results
  Use technology, instruments, tools, and information systems effectively. Access and apply specialized knowledge from various fields (e.g., skilled trades, technology, physical sciences, arts, and social sciences)
- **Learn**
  Continue to learn for life

Personal Management Skills

The combination of skills, attitudes, and behaviors required to get, keep, and progress on a job and to achieve the best results. American employers need a person who can demonstrate:

- **Positive Attitudes and Behaviors**
  Self-esteem and confidence
  Honesty, integrity, and personal ethics
  A positive attitude toward learning, growth, and personal health
  Initiative, energy, and persistence to get the job done
- **Responsibility**
  The ability to set goals and priorities in work and personal life
  The ability to plan and manage time, money, and other resources to achieve goals
  Accountability for actions taken
- **Adaptability**
  A positive attitude toward change
  Recognition of and respect for people's diversity and individual differences
  The ability to identify and suggest new ideas to get the job done – creativity

Teamwork Skills

Those skills are needed to work with others on a job and to achieve best results. American employers need a person who can:

- **Work with Others**
  Understand and contribute to the organization's goals
  Understand and work within the culture of the group
  Plan and make decisions with others and support the outcomes
  Respect the thoughts and opinions of others in the group
  Exercise "give and take" to achieve group results
  Seek a team approach as appropriate
  Lead when appropriate, mobilizing the group for high performance

Based on this information, the following policies for grading, testing and evaluation have been established for this class:

SYLLABI *(cont'd)*

COURSE TITLE: Radiation Pathology **COURSE NUMBER:** RAD 223

CREDIT HOURS: 1 **QUARTER:** Winter

INSTRUCTOR: Helen Murphy
Office #: Rm. 7:137
Office phone #: 509-533-8616
Cell phone #: 509-991-1571
helen.murphy@scc.spokane.edu
Office hours posted by office door

Note: Various Radiologists will lecture on each of the body systems

REQUIRED TEXT:

Comprehensive Radiographic Pathology by Ronald L. Eisenberg & Nancy M. Johnson- fourth edition, and the online class site: Canvas.

COURSE DESCRIPTION:

This course will provide the student with a basic working knowledge of pathology as it pertains to diagnostic medical radiography. It will present the pathologic conditions that are most commonly encountered by radiology personnel.

COURSE OBJECTIVES:

The student will be able identify various disease processes as they are presented on the radiograph and other imaging modality visuals. The students will have a basic understanding of the disease definitions and the principle conditions and symptoms of illness.

What you need to succeed:

1. Actively participate in all course activities. Ask question and answer questions ask of you.
2. There will be **weekly tests** over material assigned to you before the lecture is given
   a. Apply information learned to gain knowledge from the clinical setting. Use what you learned; you need to look at images at your sites the more the better!
3. Be prepared to actively participate in classroom discussions and exercises. **READ** your book before class!
4. Successfully accomplish the stated student objectives for this class.
5. Successfully complete the class with at least a 2.5 grade.

METHOD OF TEACHING:

Lecture, discussion, online class room and case presentations.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

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Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

***Chapter test will be put online for students to complete. It is very important that you check the dates and times of the exams. They must be completed by the time and date stated (east coast time). If the exam is not completed on time the student will receive a "0" for the exam!

GRADING METHOD:		
	Pretest	0 points per test
	Chapter test	100 points per test
	Final	300 points

*all test may be taking early but must be completed by day and time posted or you will receive a "0" for this test. You may opt out of the final by having a score 95% (3.7) or better for all pre and posttest.

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- To be able to classify the more common diseases in terms of their attenuation of x-rays.
- To be familiar with the changes in technical factors required for obtaining optimal quality radiographs in patients with various underlying pathologic conditions.
- To understand and be able to define or describe all bold-faced terms in the book.
- To be able to describe inflammation, edema, infarction, hemorrhage, and neoplasia.
- To be able to describe the various alterations of cell growth.
- To be able to describe the various immune reactions of the body.
- To be able to describe the physiology of the respiratory system.
- To be able to identify anatomic structures on both diagrams and radiographs of the respiratory system.
- To be able to describe the common pathologic conditions affecting the respiratory system, as well as their radiographic manifestations.
- To be able to describe the various pathologic conditions affecting the skeletal system, and there radiographic manifestations.
- To be able to describe the physiology of the skeletal system.
- To be able to identify anatomic structures on both diagrams and radiographs of the skeletal system.
- To be able to describe the physiology of the gastrointestinal system.
- To be able to identify anatomic structures on both diagrams and radiographs of the gastrointestinal system.
- To be able to describe the various pathologic conditions affecting the gastrointestinal system as well as their radiographic manifestations.
- To be able to describe the physiology of the urinary system.
- To be able to identify anatomic structures on both diagrams and radiographs of the urinary system.
- To be able to describe the various pathologic conditions affecting the urinary system as well as their radiographic manifestations.
- To be able to describe the physiology of the cardiovascular system.

- To be able to identify anatomic structures on both diagrams and radiographs of the cardiovascular system.
- To be able to describe the various pathologic conditions affecting the cardiovascular system and there radiographic manifestations.
- To be familiar with the special procedures that are used when imaging particular pathologic conditions.
- To be able to describe the physiology of the nervous system.
- To be able to identify anatomic structures on both diagrams and radiographs of the skull and nervous system.
- To be able to describe the various pathologic conditions affecting the skull and nervous system as well as their radiographic manifestations.
- To be able to describe the physiology of the hematopoietic system.
- To be able to identify the basic blood structures on diagrams.
- To be able to describe the various pathologic conditions affecting the hematopoietic system as well as their radiographic manifestations.
- To be able to describe the physiology of the endocrine system.
- To be able to identify anatomic structures on both diagrams and images of the endocrine system.
- To be able to describe the various pathologic conditions affecting the endocrine system as well as their radiographic manifestations.

***COLLEGE WIDE ABILITIES:**
The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

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- Set and recognize priorities
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- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)
Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.
Students will be able to demonstrate the following measurable behaviors/skills:
- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field

- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
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CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:
Penalties for Deliberate Plagiarism or Cheating:
First Offense: Automatic failure of the paper or test and possible failure of the course.
Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

SYLLABI *(cont'd)*

COURSE TITLE: Radiographic Imaging Evaluation **COURSE NUMBER**: RAD 224

CREDIT HOURS: 2 Credits **QUARTER:** Winter

INSTRUCTOR: Kim Eikum, BS, R.T(R), (M)
Office #: Rm. 7-138
Office phone #: 509-533-8613
Cell phone #: 509-280-0001
kimberly.eikum@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

This course will review the essential technical factors used in evaluation of radiographic quality. The student will access such factors as what projection/view is shown, collimation, shielding, positioning, anatomical anomalies, density, contrast, film artifact, and central ray correctly centered in the developed radiograph.

COURSE OBJECTIVES:

1. Discuss the necessity of the radiographic examination as it relates to identifying disease processes, patient handicaps and degree of difficulty in obtaining appropriate anatomical views.
2. Explain the reasoning for selection of exposure combination factors based on age, atrophy, disease process, and contrast media considerations.
3. Discuss appropriate film size, field view, combinations of screens, film speed and grids and their combined response to radiation and body parts.
4. Discuss use of proper shielding and marker placement as presented on the radiograph.
5. Be able to list basic positioning procedures for each exam presented.
6. Be able to identify positioning landmarks and positional corrections necessary for each radiograph.
7. Identify the anatomy and anatomical anomalies on each radiograph.
8. State influencing factors of radiographic quality, i.e. density contrast resolution, fog distortion and magnification.

METHOD OF TEACHING:

During this course the students should be prepared to actively participate in classroom discussions and exercises. This course is one that discussion and exploring must be active.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78

	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Weekly quizzes and the assigned group presentation will represent approximately 60% of the final grade. Quizzes given by the group presentations will be approximately 5% of the final grade. A final test will be given and will be approximately 15% of the final grade. Attendance policy is as stated in the SCC Radiology Technology Student Handbook and as follows.

Quiz's (student presentations)	5% of overall grade
Weekly quiz's	50% of overall grade
Group Presentation	10% of overall grade
Participation in class points (10 points each class)	5% of overall grade
Canvas (discussion Questions)	5% of overall grade
Final	15% of overall grade
Clinical Critique Form	10% of overall grade

Grades can be checked online on Canvas. If you are absent for class you miss out on important discussions about films. ***The 10 extra points for participation and attendance will be applied appropriately at the end of the course. If you miss a class you will not receive the 10 point awarded for that class.*** You will not make up the test for that day; you will simply have fewer score to average your grade. *If a mini class is missed you will be responsible for collecting the information you have missed.*

Approximate grade scale is as follows:

Clinical Critique Rubric: 200 points total
10-9 weeks=100% of the points
8-7 weeks=80% of the points
6-1 weeks=50% of the points

On the daily radiographic image evaluation given by the instructor the *"All or Nothing Method"*** will be utilized. If your answer is not correct for *Projection/View* you will receive a **zero** for the test! *Correct means*: correct position and body part (including such things as decub, upright, axial, RPO & LPO/RAO & LAO). *"Right"* and *"Left"* errors will be minus **5** points.

Anytime a student receives a *"ZERO"* (or any grade below *60)*, he or she can improve the grade by turning in an *ASSIGNMENT* within one week of receiving the assignment. **THE ASSIGNMENT** will be: a film of the same part/position that the student failed. He or she must use Merrill's (plus any other sources) to fill out a critique test form. He or she must cite the pages in Merrill's at the top of the page (and cite any other sources, as well). The assignment will be graded with *60%* being the top score. This score will replace the first score he or she received.

<u>No grades will be eliminated from the computation of the quarter grade.</u>

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

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This syllabus may be subject to change.

DISCUSSION BOARD PARTICIPATION:

Students are responsible to participate each week in the discussion board questions posted on Canvas. You must post on each discussion board category at least twice: first by giving your answer to each of the questions posted and second by commenting on at least one classmate's (Snrs or Jnrs) posting under each of the categories per week. Please use the classmates name when responding, comments must be at least 10 words in length and your comment must either add to the post or take the post in a different direction. This should work out to be 2 postings in a week. More is ok, less will cost you points.

It is better to post early in the week and check back later in the week to add your reply. Please remember to watch all language used and please do not use abbreviations ("u" use you). I will read all posting and replies but will not directly reply back to you unless asked to. Remember there is a due date and time. You will be locked out after that. Do not wait until the last minute because computer issues do happen!

What you need to succeed:

1. Actively participate in all course activities. Ask question, and answer questions asked of you.
2. There will be **a quiz each Thursday** over material cover in the previous classes.
3. Apply information learned to gain knowledge from the clinical setting. Use what you learned. You need to look at a lot of images at your sites, the more the better!
4. Be prepared to actively participate in classroom discussions and exercises. **READ** your Merrill's before class!
5. Know the **Structures shown (Merrill's)** for every view we do for this class.
6. Complete the class with at least a 2.5 grade.

Criteria for evaluation of radiographic images:

1. **Density** (attenuation) is the overall "darkness" of a radiograph. For a pathological condition to require a technical adjustment, it must substantially alter the presence and amount of the five radiographically demonstrable materials. These five types of substances, in order of increasing attenuation are:
    - **Gas and air**
    - **Fat**
    - **Fluid or fluid like**: blood, generally, soft tissues such as connective tissues, muscles and visceral organs, are of "fluid like" density, equal to water radiographically.
    - **Bone**
    - **Metal**s: hardware for fixation, barium and iodine compounds are, chemically, metals

2. **Contrast** Gray scale-You want it to be long enough to visualize the different bony and soft tissue structures

3. **Correct position for demonstration of intended anatomy** Merrill's (Evaluation criteria)

4. **Collimation and markers-** As a rule, there should be sufficient collimation of the body part with the ***marker inside the collimated field.*** Marker placement as a rule is somewhat optional, as long as it is not in the anatomy that is to be demonstrated. However, I place my marker on the lateral aspect of the body.

5. **Shielding/ Radiation Protection-** will not always be present on the film. When doing infants and children, it is desirable to demonstrate shielding (i.e. hips should show gonadal shielding on one view, a chest x-ray should show shielding of the abdomen no chabdomen etc…) Try and keep your and other holders hands out of shot when holding pts.

6. **Sharpness of recorded detail** – This refers basically to the absence of motion in regards to this class. The exception to this is when utilizing a shallow breathing technique.

7. **Correct patient identification-** The patient identification should routinely be reviewed when looking at your radiographs. It is especially important when using conventional radiography, since you are using a flash card and films can easily be mislabeled and equally important with CR &DR as names are selected from a work list.

8. **Elimination of potential artifacts –**The finished radiograph should be absent of artifacts.

Artifacts

Undesirable densities or blemishes on a radiograph that can be removed by you are called artifacts.

***Processing Artifacts*:** Artifacts produced during processing. Some examples are roller markers, chemical fog, and dirt.

***Storage and Handling Artifacts*:** They are caused by improper storage or handling. Some examples are pressure marks, finger marks, static, stains, scratches, light fog and creases.

External Artifacts*:** Objects found on, near, or under the patients. Some examples are Jewelry, hair ornaments, objects in pockets, snaps, buttons, pins, zippers, hearing aids, dentures, ***REMOVABLE orthodontic devices, eyeglasses, blood/fluid soaked clothing/gowns, thick or folded clothing/blankets/ sheets, dressings, IV or monitoring lines, pillows, imprinted designs on clothing, thick or wet hair, etc.

NOTE: Internal objects that are found within the patient such as surgical pins/clips/suture, prostheses, central venous lines, pacemakers, nasogastric tubes, residual barium or contrast media are all examples of items which are not preventable; these must be accepted on the radiograph. They will NOT be considered "***ARTIFACTS***" for radiographic film evaluation classes.

*** Textbooks vary on the definition of artifacts. This is the criterion that is established by Spokane Community College School of Radiologic Technology. This is what we will go by for this class.

IMAGE EVALUATION BASICS

The idea of this class is to be able to notice the difference between a good and a bad radiograph.

Every time you look at a film to evaluate it you should ask yourself the same set of questions.

1. What anatomy are you looking at?
2. What projection is it?
3. Is it positioned correctly?
4. Is the part/anatomy on the film?
5. Is it too light? Too dark?
6. Is there motion or artifact?

These are the major questions to ask in order to decide if the film needs to be repeated. (When looking at a film in image evaluation class, the film is considered the first try at the projection, what will you do?)

Then you need to look at the little things like.

1. Is there a marker?
2. Is there coning/shielding?
3. Is it the correct field size used?

These are very important things to look for but are not necessarily reasons to repeat the film.

The ultimate question is: Are you proud to put your initials on this film?

IMAGE EVALUATION
FACTS FOR CLASS

1. Each site has various protocols; the films used in film Critique *are* protocol films. They just may be incorrectly positioned films.

2. I personally will hang the films correctly. With this in mind you can/will be able to distinguish right and left for each film.

3. Test films can be ***ANYTHING***. Be prepared! If we go over a certain exam it ***MAY*** appear as a test either in the spring or summer quarter.

4. You are responsible for knowing the size of film that is hung. If you have difficulty with this concept remember that a standard piece of paper is 8 ½ x 11 inches.

5. There is no set schedule for this course. We will be covering various exams and images each week.

6. It is your responsibility to review Merrill or the Image Analysis books regularly.

7. If you fall into the "All or Nothing Method" with a quiz, I will place a new test sheet with a film in your mailbox. You must reference on the test sheet your findings along with filling out the test sheet on the film. You have 1 week to complete and return the test to me. I will put the due date at the top of the test page. Any test's turned in after the stated due date will not be counted.

8. In regards to testing:
   - *Long Critique* images will be given a 8 min. time limit
   - *Quick Critique* images will be given 60 seconds per image
   - *Why or Why not* Quiz's will be given a 20 min. time limit to review all 10 images.

9. When doing a Long Critique you must indicate, at the bottom of the page, an *average technique* for the image.

10. If you are experiencing any problems, difficulties or you have questions with film critique you need to come see **me** about the issues. I am here to help you succeed in this course.

Name: _____

Radiographic Image Evaluation

Film #: _____ Area of Anatomy: _____

(20 points) Projection/View: _____
(Include right, left, upright, etc)

(10 points) What anatomical part(s) is/are required on this projection? _____
_____

(2 points) Is the correct field size used? Yes ☐ No ☐

(2 points) If incorrect field size, what is the correct size? _____

(2 points) Is there acceptable collimation? Yes ☐ No ☐

(2 points) Are there any artifacts? Yes ☐ No ☐

(2 points) If an artifact, what is it? _____

(10 points) Is the anatomical part correctly positioned? Yes ☐ No ☐

(10 points) If not correctly positioned, what corrections are necessary? _____
_____

(5 points) Evaluate the radiographic technique, as follows:

☐	☐	☐	☐	☐
too light	Light, but acceptable	near perfect	dark, but acceptable	too dark

(5 points) If not, near perfect, how should the radiographic technique be changed? _____
_____

(5 points) Is the central ray correctly centered to the anatomical part? Yes ☐ No ☐

(5 points) Is the central ray correctly directed to the anatomical part? Yes ☐ No ☐
(Perpendicular, or correct degree & direction of angle)

(10 points) Should this projection be repeated? Yes ☐ No ☐

(10 points) Why or why not? _____
_____

Average Technique for this view: _____

Group Presentations

The assigned groups will be responsible for conducting the class for 1 hour.

Each group will pick a test film(s) from the stack of films provided or find their own film that is approved by the instructor prior to class time. The group will not be taking the test, instead they will be graded on how they conduct the class and the grading of the test (grade sheet for the group is on the next page).

The group will grade the test together and return the test to the instructor by the assigned date. You must give the instructor a blank test and a key. The group can go over the test film(s) with the class at the beginning of the next scheduled class. The quiz form can be found on Canvas.

Use your imagination, teach the class the way you want to. You may do whatever you want as long as it is educational (with image critique guidelines in mind) and the class gets something out of it.
If you decide to do a "mini class" on a subject, you need to get the subject approved by the instructor. If you decide to create a "game", you must get this approved by the instructor also. A copy of any PowerPoint, game or handouts must be turned in to the instructor.

Class time is 60 minutes which means you must plan at least 10 minutes to administer the test and 45-50 minutes to teach/conduct class.

Test can be Long Critiques, Quick Critiques, written question tests or a new type of critique test you come up with. You cannot give "Group Tests"! Each student must take their own test. You can give extra credit points for games done during class.

Assigned groups have been predetermined.

IMAGE EVALUATION

GROUP# _____ DATE: _____

NAMES: _____

_____

TEST FILM(s):

NAME: _____

Shows willingness to perform assigned tasks	1	2	3	4
Interacts well with the class	1	2	3	4
Gives constructive criticism	1	2	3	4
Is able to critique radiographs for quality	1	2	3	4
Works well with assigned group	1	2	3	4

NAME: _____

Shows willingness to perform assigned tasks	1	2	3	4
Interacts well with the class	1	2	3	4
Gives constructive criticism	1	2	3	4
Is able to critique radiographs for quality	1	2	3	4
Works well with assigned group	1	2	3	4

GROUP TOTAL# _____

Time Started _____ Time ended _____ points _____

Items to be turned in:

PowerPoint	Y	N	Received: _____
Game	Y	N	Received: _____
Handouts	Y	N	Received: _____
Test	Y	N	Received: _____
Misc.	Y	N	_____
Peer Evals	Y	N	

THIS FORM WILL NOT BE SHARED WITH ANYONE IN THE GROUP!

IMAGE EVALUATION

GROUP# _____ DATE: _____

NAMES: _____

_____

TEST FILM(s):

Shows willingness to perform assigned tasks	_____
Interacts well with the class	_____
Gives constructive criticism	_____
Is able to critique radiographs for quality	_____
Works well with assigned group	_____
Appropriate grading of quizzes for errors without being Overly lenient or critical	_____
Time started _____ Time Ended _____	_____

Group total _____

[64 total possible]

COMMENTS:

THIS FORM WILL BE HANDED BACK TO EACH OF YOU!

PEER EVALUATION

Please rate yourself and your team members on the relative contributions that were made in preparing and submitting your group presentation. *Your ratings will not be disclosed to other students.* Be honest in this evaluation!

In rating yourself and your peers, use a one to five point scale, where
5 = Superior; 4 = Above Average; 3 = Average; 2 = below average; and 1 = weak.

Insert **your name** in the first column and your peers' names in the remaining spaces. (One name at the top of each column).

Names					
Participated in group discussions or meetings					
Helped keep the group focused on the task					
Contributed useful ideas					
Quantity of work done					
Quality of work done					
Comments					
Enter total scores here					

THIS FORM WILL BE FILLED OUT BY EACH PERSON IN THE GROUP. IT WILL BE SEEN BY THE INSTRUCTOR ONLY!

COURSE TITLE: Skull & GI Review **COURSE NUMBER:** RAD 225

CREDIT HOURS: 3 **QUARTER:** Winter

INSTRUCTOR: Debbie Miller
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiologic Procedures, 13th edition Ballinger & Frank.

COURSE DESCRIPTION:

This course reviews the positional techniques utilized when taking radiographs of the skull based on the physician's request. Students review the positional techniques utilized when taking radiographs of the GI system based on the physician's request

COURSE OBJECTIVES:

1. Review terminology pertinent to the alimentary tract
2. Review anatomy of the alimentary tract
3. Review supplies & equipment required for imaging of alimentary the tract
4. Review radiographic positions for imaging the esophagus, stomach, small bowel and colon
5. Review landmarks and radiographic baselines of the skull/facial bones/paranasal sinuses
6. Review anatomy of the skull/facial bones/paranasal sinuses
7. Review radiographic positions of the skull/facial bones/paranasal sinuses

METHOD OF TEACHING:

The students will be presenting a review of the GI & Skull exams that they learned during the second & third quarters in the program. Their review should constitute a presentation and an assessment.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

This course's grade will be a combination grade that will be based on attendance, student presentations & assessments and tests. The combined grades will account for the final grade. Grades can be checked online on Canvas. If you are absent for class you miss out on important discussions. The 50 extra points (10 for each class day, 5 class days in all) for participation and attendance will be applied appropriately at the end of the course. If you miss a class you will not receive the 10 points awarded for that class**.** If you are absent any class day, you will not make up the test for that day. You will simply have fewer scores to average into your grade.

The Registry Review test scores and Senior Portfolio will be held and added to the scores for the Registry Review course during 7th quarter. This just lightens the load a little bit for spring quarter.

The following is a breakdown of the grading method:

Participation ----------	10%
Student Presentations----------	30%
Student Assessments----------	10%
Tests----------	50%
	100%

Students will begin the quarter with a given 10 points each day for participation. Each day that the student is not disruptive in class and participating they will continue to keep the total participation percentage. However, each time a student is disruptive in class, he/she will receive a 10 point deduction in their participation grade.

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Define terminology pertinent to the alimentary tract
- Prepare the fluoroscopy room with required supplies/equipment
- Demonstrate the protocol radiographic positions for the alimentary tract
- Discriminate between correct and incorrect images of the alimentary tract
- Recite landmarks/baselines for imaging of the skull/facial bones/sinuses
- Demonstrate the protocol radiographic positions for skull/facial bones/sinuses
- Discriminate between correct and incorrect images of the skull/facial bones/sinuses

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:
Penalties for Deliberate Plagiarism or Cheating:
First Offense: Automatic failure of the paper or test and possible failure of the course.
Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

SKULL & GI REVIEW – RAD 225
***TENTATIVE* CLASS SCHEDULE**

Week 1 Tuesday Introduction, assignments & schedule & Cover Letters, Resume & Interview class

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Week 2 Monday ***Online Registry Review Test: Principles Exam #1 (DUE by 11:55pm) (Primarily Darkrooms, Processing & Some Grids/Screens/ IR systems)***

Week 3 Monday ***Online Registry Review Test: Fuchs #2 (DUE by 11:55pm) (Primarily Ch. 1 – 24)***

Tuesday PRESENTATIONS ON:
1) GI Anatomy & Feeding Tubes
2) Esophagus & UGI

SENIOR PROJECTS/ESSAYS DUE!!!

Week 4 Tuesday *PRESENTATION ON:*
1) Small Bowel studies & Defecos
2) All types of Barium Enemas

Week 5 Monday ***ONLINE GI COMPREHENSIVE TEST***: **(DUE by 11:55pm)** on all of the above protocols to include classroom discussions, routine positions, including CR & anatomical parts demonstrated & the critique of images

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Tuesday *PRESENTATIONS ON:*
1) Skull & Facial Bones Anatomy
2) Skull
3) Paranasal Sinuses

Week 6 Tuesday *PRESENTATIONS ON:*
1) Facial Bones (& Zygomatic Arches)
2) TMJ & Mandible
3) Nasal Bones & Orbits

Week 7	Monday	***ONLINE SKULL COMPREHENSIVE TEST*** **(DUE by 11:55pm)** on all of the above protocols to include classroom discussions, routine positions, including CR & anatomical parts demonstrated & the critique of images ***Online***
Week 8	Monday	***Online Registry Review Test: Principles #3 (DUE by 11:55pm) (CR/DR & remainder of Fuchs)***
Week 9	Monday	***Online Registry Review Test: Physics Exam #1 (DUE by 11:55pm) (Primarily Ch. 1 – 6)***
Week 10	Monday	***Online Registry Review Test: Physics Exam #2 (DUE by 11:55pm) (Primarily Ch. 6 - 10)***
Week 11	Monday	***Online Registry Review Test: Rad. Biology Exam #1 (DUE by 11:55pm) (Primarily Ch. 32 - 36)***
	Tuesday	**SENIOR PORTFOLIO Due!!!**
Week 12	TBA	***Online Registry Review Test: Rad. Biology Exam #2 (DUE by 11:55pm) (Primarily Ch. 37 – 40)***
	TBA	***Registry Review Test: Medical Terminology (DUE by 11:55pm)***

PRESENTATIONS: Short oral presentation & assessment (15-20 minutes) to the class and a handout for each classmate and the instructor that includes (please do not go over 20 minutes):

- The correct radiographic positioning of the exam and the anatomical parts demonstrated.
- Please use any or all of: power point, lecture, ask questions, show films and or use the PACS on the projector. Please have a handout (i.e. copy of power point) for your classmates and me (15 copies) ready before the start of class. Your handout should contain the exam, correct positioning, correct CR, correct kVp, correct respiration, & what should be on the images.
- Resources must be cited in APA format if you choose to use drawing or pictures from a particular source. The following link has helpful information if you need help with this: http://www.liu.edu/CWIS/CWP/library/workshop/citapa.htm. You may also go to the SCC website and click on "Library" on the left. From there under "Help with Reference" click "Citation Guides." I am also available to help you during office hours or by appointment.
- You must have some way to assess the class knowledge over the material you just covered (test, quiz…) and I will also need a copy of assessment and key.
- If using a PPT, submit copy of it prior to the start of class!!

The student should use images from positioning textbook, images of phantoms or copies of images on actual patients from the sites to demonstrate correct positioning of the anatomical part. Please be cautious when using images off the internet.

Week 3 GI Anatomy & Feeding Tubes
Sinus/Fistula Tracts & Colon Transit Studies
Esophagrams/UGIs

Week 4 Small Bowel Studies & Defecograms
Barium Enemas (all types)

Week 5 Facial Anatomy
Skull (include Sub-V)
Paranasal Sinuses (include Sub-V & Open Mouth Waters)

Week 6 Facial Bones w/ Zygoma
Mandible & TMJs
Nasal Bones & Orbits

Revised: 3/15/2015

POSITIONING IV PRESENTATION RUBRIC

CATEGORY	10.0 – 8.5	8.4 – 5.0	4.9 – 2.5	2.4-0
VERBAL PRESENTATION	Speaks clearly with appropriate volume and enthusiasm and maintains eye contact all or most of the time.	Speaks clearly with appropriate volume all the time occasionally lacks enthusiasm or occasionally does not maintain eye contact.	Speaks clearly with appropriate volume most of the time but enthusiasm seems somewhat faked and only sometimes establishes eye contact.	Often mumbles or cannot be understood or lacks enthusiasm or does not maintain eye contact.
WORKS WELL WITH GROUP	Worked well as a team. Strived to do well on a consistent basis, excellent quality of work.	Average camaraderie was displayed as a team. One person was clearly in charge. Generally conscientious regarding quality of work.	Had difficulty working as a team. Did not show full potential of the team.	Inability to work as a team was clearly evident. Quality of work was questionable.
HANDOUT (OR COPY OF POWEPOINT)	Excellent knowledge of exams with excellent explanation of contents. Clear layout. Grammar and spelling correct.	Average knowledge of exams with average explanation of contents. Layout somewhat clear. Grammar and spelling mostly correct.	Had some knowledge of exams or gave partial explanation of what was on exam. Layout difficult to follow. Grammatical and/or spelling errors.	Had no knowledge of exams or did not explain what was on handout.
IMAGES	Picture of x-ray easy to identify, labeled if appropriate.	Picture of x-ray somewhat easy to identify.	Picture of x-ray not easily identifiable.	No picture of x-ray or picture of x-ray incorrect or not cited
CONSTRUCTIVE CRITICISM	Responded well to giving and receiving criticism to peers. Listened to, shared willingly and supported the efforts of the students.	Average response to giving and or receiving constructive criticism, usually listened to and shared with and supported the efforts of the students.	Difficulty in giving or receiving constructive criticism, was hesitant to listen to, share with and support the efforts of the students.	Argumentive at times, did not receive or give constructive criticism to peers. Did not listen to, share with and support the efforts of the students.
CLASS INTERACTION	Interacts well with the class, excellent communication.	Interaction with class was acceptable but communication improvement was needed.	Needed to improve on class interactions and communication.	Interaction and communication was not accomplished.
QUIZ AND APPROPRIATE GRADING	Appropriate grading of quizzes was accomplished with less than 2 mistakes noted.	Grading of quizzes was acceptable with 2-4 mistakes noted	Improvement of grading of quizzes needed 4-6 mistakes noted	No quiz, or inappropriate grading of the quizzes 7 or mistakes noted

COMMENTS:

Student's Names:

_____

Total Points: _____

Possible Points: 70 pts

POSITIONING IV PRESENTATION RUBRIC

CATEGORY	8-7	6-5	4-3	2-1
VERBAL PRESENTATION	Speaks clearly with appropriate volume and enthusiasm and maintains eye contact all or most of the time.	Speaks clearly with appropriate volume all the time occasionally lacks enthusiasm or occasionally does not maintain eye contact.	Speaks clearly with appropriate volume most of the time but enthusiasm seems somewhat faked and only sometimes establishes eye contact.	Often mumbles or cannot be understood or lacks enthusiasm or does not maintain eye contact.
WORKS WELL WITH GROUP	Worked well as a team. Strived to do well on a consistent basis, excellent quality of work.	Average camaraderie was displayed as a team. One person was clearly in charge. Generally conscientious regarding quality of work.	Had difficulty working as a team. Did not show full potential of the team.	Inability to work as a team was clearly evident. Quality of work was questionable.
HANDOUT (OR COPY OF POWEPOINT)	Excellent knowledge of exams with excellent explanation of contents. Clear layout. Grammar and spelling correct.	Average knowledge of exams with average explanation of contents. Layout somewhat clear. Grammar and spelling mostly correct.	Had some knowledge of exams or gave partial explanation of what was on exam. Layout difficult to follow. Grammatical and/or spelling errors.	Had no knowledge of exams or did not explain what was on handout.
IMAGES	Picture of x-ray easy to identify, labeled if appropriate. Content cited correctly.	Picture of x-ray somewhat easy to identify. Content cited with 1-2 mistakes.	Picture of x-ray not easily identifiable. Content cited with 3-4 mistakes.	No picture of x-ray or picture of x-ray incorrect or not cited.
CONSTRUCTIVE CRITICISM	Responded well to giving and receiving criticism to peers. Listened to, shared willingly and supported the efforts of the students.	Average response to giving and or receiving constructive criticism, usually listened to and shared with and supported the efforts of the students.	Difficulty in giving or receiving constructive criticism, was hesitant to listen to, share with and support the efforts of the students.	Argumentative at times, did not receive or give constructive criticism to peers. Did not listen to, share with and support the efforts of the students.
CLASS INTERACTION	Interacts well with the class, excellent communication. Used allotted amount of time.	Interaction with class was acceptable but communication improvement was needed. Went over or under on allotted time slightly.	Needed to improve on class interactions and communication. Went over or under on allotted time slightly.	Interaction and communication was not accomplished. Was much shorter or longer than allotted time.
QUIZ AND APPROPRIATE GRADING	Appropriate grading of quizzes was accomplished with less than 2 mistakes noted.	Grading of quizzes was acceptable with 2-4 mistakes noted	Improvement of grading of quizzes needed 4-6 mistakes noted	No quiz, or inappropriate grading of the quizzes 7 or mistakes noted

COMMENTS:

Student's Names:
_____

Total Points: _____

Possible Points: 56 pts

COURSE OUTLINE: SKULL & GI REVIEW – RAD 225

I. Gastrointestinal System
- A. GI Anatomy
- B. Upper GI Tract
  - 1. Fluoro procedures
    - a. Defecograms
    - b. Feeding Tubes
  - 2. Upper GI Series
    - a. Single contrast
    - b. Air contrast
  - 3. Esophagram
  - 4. Small Bowel Exams
    - a. SB follow through
    - b. SB entervue study
    - c. SB enterclysis
- C. Lower GI Tract
  - 1. Fluoro procedures
  - 2. Barium Enemas
    - a. Single Contrast
    - b. Air contrast

II. Skull & Facial Bones
- A. Review of baselines & landmarks & Anatomy
- B. Skull Series
  - a. AP Axial Towne / Haas
  - b. PA Axial Caldwell
  - c. Lateral
- C. Facial Bones
  - a. AP Axial Towne / Haas
  - b. PA Axial Caldwell
  - c. Waters / Reverse Waters
  - d. Lateral (upright & crosstable)
- D. Mandible
  - a. Open Mouth AP Axial Towne
  - b. Straight PA
  - c. Axiolateral Obliques
- E. Nasal Bones
  - a. Waters / Modified Waters
  - b. Lateral
- F. TMJs
  - a. Lateral: open mouth
  - b. Lateral: closed mouth
- G. Orbits/Optic Foramen
  - a. Rhese
  - b. Waters
  - c. PA Caldwell: 22 degree
- H. Paranasal Sinuses
  - a. Waters
  - b. Open mouth Waters & SubV
  - c. Lateral
  - d. PA Axial Caldwell

SYLLABI *(cont'd)*

COURSE TITLE: Clinical Education VI **COURSE NUMBER:** RAD 226

CREDIT HOURS: 9 **CLINICAL HOURS:** 297 **QUARTER:** Winter

INSTRUCTORS:

Debbie Miller
Office #: Rm. 7-137
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
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Office hours posted by office door

Kim Eikum
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Helen Murphy
Office #: Rm. 7-139
Office phone #: 509-533-8616
Cell phone #: 509-991-1571
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

Students learn radiographic positioning, department and office procedures, patient management and critical analysis of radiographs in a clinical setting. Students develop psychomotor skills, cognitive domain and affective behavior in the science of radiographic technology.

COURSE OBJECTIVES:

1. Actively participate in all examinations student is assigned to in addition to the specific objectives for the assigned rotation.
2. Attend all clinical days.
3. Maintain clinical logbook.
4. Create & update a "mini- book" for all positioning and set up of examinations.
5. Complete the required number of competency clearances for the quarter.

METHODS OF TEACHING:

Laboratory setting will enhance the demonstrations of the lecture material by discussing and presenting portions of the information with the ability to utilize the radiology equipment.
Practical application during clinical will enhance the information that has been taught in the classroom and from all the course information the student has successfully passed during previous quarters, and this quarter, while in the program.

CLINICAL REQUIREMENTS:

Students must successfully pass their DRUG SCREENING and BACKGROUND CHECK in order to be accepted at the clinical sites. NO EXCEPTIONS! All clinical sites have the option of refusing a student's admittance to their facility, if this occurs the student will not be allowed to start or continue the program. All students rotate through the 4 main hospitals in Spokane along with the Inland Imaging and Rockwood Clinic outpatient facilities.

LINES OF AUTHORITY:

In the classroom you are responsible to your instructor. During clinical responsibilities you are responsible to your instructor and personnel so designated. RESPONSIBILITY FOR PATIENT CARE RESTS WITH THE CLINICAL FACILITY. THE CLINICAL FACILITY HAS THE AUTHORITY TO GRANT OR REFUSE STUDENT ACCESS OF ANY STUDENT FOR JUST CAUSE. Remember, you are a guest and represent Spokane Community College and your program. *See additional information under the CONDUCT section in the SCC Radiology Technology Student Handbook.* If you are asked to leave a clinical site or if a site does not allow you to attend their facility (for any reason), you will not be allowed to transfer to another clinical site to finish your schooling. You will be terminated from the program.

CLINICAL BEHAVIOR:

Refer to the clinical behavior guidelines located in the SCC Radiology Technology Student Handbook.

CLINICAL ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

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RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Evaluations and Competency Clearances…… 90% of Final Grade
Blue Log Books…… 10% of Final Grade

COMPETENCY CLEARANCE GRADING POLICY:

See Student Radiology Handbook for competency clearances required per quarter. A successful passing score on each clearance is 83% (which is equivalent to a 2.5). All competency clearances must be successfully completed by the end of the 6th quarter. Failure to complete the minimum required competency clearances for the quarter will result in a 0.25 reduction from your clinical grade for EACH clearance not completed, and you must complete the delinquent clearance(s) before the start of the next quarter. This includes those clearances that must be completed during specific quarters.

During a competency clearance, the clinical instructor may abort the clearance at his/her discretion. A student may receive an "automatic failure" on a clearance attempt for noncompliance of certain patient care/safety guidelines. (See Student Radiology Handbook for additional information.)

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.5 GPA (83%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information

- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
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Plagiarism Policy: WAC 132Q-04-061

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CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

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PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of

disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

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All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

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PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

SYLLABI *(cont'd)*

COURSE TITLE: Pharmacology/Venipuncture **COURSE NUMBER:** RAD 235

CREDIT HOURS: 1 **QUARTER:** Spring

INSTRUCTOR: Helen Murphy
Office #: Rm. 7-137
Office phone #: 509-533-8616
Cell phone #: 509-991-1571
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Pharmacology and Drug Administration for Imaging Technologists This textbook is a new text designed for radiology technologist on a level of pharmacology need for inpatients and outpatients procedures. It contains "key terms" interesting "did you know?" and important "alert!" that are easy to see. The authors have done a great job of detailing the necessary information needed to learn the key components of pharmacology and venipuncture.

Steven C. Jensen and Michael P. Peppers Second Edition and http://evolve.elsevier.com. Canvas for syllabus, schedule, power points, homework, discussion questions, tests and grades

eLearning Support: Phone: (509) 533-7400 or (800) 353-8135
Email: support@communitycollegesofspokane.zendesk.com

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

Content is designed to provide basic concepts of pharmacology. The theory and practice of basic techniques of venipuncture and the administration of diagnostic contrast agents and/or intravenous medications is included. The appropriate delivery of patient care during these procedures is emphasized.

COURSE OBJECTIVES:

1. Actively participate in all course activities.
2. Successfully complete the course with at least a 2.0 grade.
3. Practice learned procedures to develop proficiency.

4. Apply course information and techniques in the clinical setting.
5. Be prepared to actively participate in classroom discussions and exercises.
6. Successfully accomplish the stated objectives for this class.
7. Attend all lectures and lab sessions.

CLASSROOM ABSENTEEISM AND TARDINESS:

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these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Online quizzes….....	100 points
Discussion questions……..	20points
Homework……..	20points
Lab Practical……...	300 points
Final……	300 points

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Display knowledge and recognition of important pharmacological principles.
- Demonstrate appropriate patient care during an emergency situation.
- Display knowledge of the five rights of drug administration.
- Differentiate between the various methods of administering medications.
- Display understanding of why a medication may be given in a particular situation.
- Demonstrates proficiency in venipuncture procedures based on the 13 steps in Pharmacology & Drug Administration By Jensen and Peppers
- Demonstrates their knowledge of medications and contrast medias administered in a radiology department.
- Effectively converse with medical personnel using various pharmacological terminology.
- Demonstrates the various types of medications that may be used during an emergency situation.

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This syllabus may be subject to change.

DISCUSSION BOARD PARTICIPATION:

Students are responsible to participate each week in the discussion board questions posted on Canvas. You must post on each discussion board category at least twice: first by giving your answer to each of the questions posted and second by commenting on at least one other classmate's posting under each of the categories per week. Please use the classmates name when responding, comments must be at least 10 words in length and your comment must either add to the post or take the post in a different direction. This should work out to be 2 postings in a week. More is ok, less will cost you points. The idea of this assignment is to reinforce what you already know and to facilitate the learning of your fellow students.

It is better to post early in the week and check back later in the week to add your reply. Please remember to watch all language used and please do not use abbreviations (i.e. Like you do when texting). We will be reading all posting and replies but will not directly reply back to you unless asked to. Remember there is a due date and time. **You will be locked out after 11:55pm.** Do not wait until the last minute, because computer issues do happen! For this reason there will be no exceptions to the due date/time. Plan accordingly, and take responsibility for your actions.
Due Mondays @ 11:55pm

What you need to succeed:

1. Actively participate in all course activities. Ask question, and answer questions asked of you.
2. There will be **a quiz each Thursday** over material cover in the previous classes.
3. Apply information learned to gain knowledge from the clinical setting. Use what you learned. You need to look at a lot of images at your sites, the more the better!
4. Be prepared to actively participate in classroom discussions and exercises. **READ** your Merrill's before class!
5. Know the **Structures shown (Merrill's)** for every view we do for this class.
6. Complete the class with at least a 2.5 grade.

Week 1 – Due xxx Handout
Week 2 – Help!? Due @ 11:55 pm
Week 3 – Professional!? Due @ 11:55 pm
Week 4 – Ouch!? Due @ 11:55 pm
Week 5 – Oops!? Due @11:55 pm
Week 6 – Bugs!? Due @ 11:55 pm
Week 7 – Drugs!? Due @ 11:55 pm
Week 8 – Meds!? Due @ 11:55 pm
Week 9 – Now What!? @ 11:55 pm

Criteria for evaluation of radiographic images:

1. **Density** (attenuation) is the overall "darkness" of a radiograph. For a pathological condition to require a technical adjustment, it must substantially alter the presence and amount of the five radiographically demonstrable materials. These five types of substances, in order of increasing attenuation are:
    - **Gas and air**
    - **Fat**
    - **Fluid or fluid like**: blood, generally, soft tissues such as connective tissues, muscles and visceral organs, are of "fluid like" density, equal to water radiographically.
    - **Bone**
    - **Metal**s: hardware for fixation, barium and iodine compounds are, chemically, metals

2. **Contrast** Gray scale-You want it to be long enough to visualize the different bony and soft tissue structures

3. **Correct position for demonstration of intended anatomy** Merrill's (Evaluation criteria)

4. **Collimation and markers-** As a rule, there should be sufficient collimation of the body part with the ***marker inside the collimated field.*** Marker placement as a rule is somewhat optional, as long as it is not in the anatomy that is to be demonstrated. However, I place my marker on the lateral aspect of the body.

5. **Shielding/ Radiation Protection-** will not always be present on the film. When doing infants and children, it is desirable to demonstrate shielding (i.e. hips should show gonadal shielding on one view, a chest x-ray should show shielding of the abdomen no chabdomen etc…) Try and keep your and other holders hands out of shot when holding pts.

6. **Sharpness of recorded detail** – This refers basically to the absence of motion in regards to this class. The exception to this is when utilizing a shallow breathing technique.

7. **Correct patient identification-** The patient identification should routinely be reviewed when looking at your radiographs. It is especially important when using conventional radiography, since you are using a flash card and films can easily be mislabeled and equally important with CR &DR as names are selected from a work list.

8. **Elimination of potential artifacts –**The finished radiograph should be absent of artifacts.

Artifacts

Undesirable densities or blemishes on a radiograph that can be removed by you are called artifacts.

***Processing Artifacts*:** Artifacts produced during processing. Some examples are roller markers, chemical fog, and dirt.

***Storage and Handling Artifacts*:** They are caused by improper storage or handling. Some examples are pressure marks, finger marks, static, stains, scratches, light fog and creases.

External Artifacts*:** Objects found on, near, or under the patients. Some examples are Jewelry, hair ornaments, objects in pockets, snaps, buttons, pins, zippers, hearing aids, dentures, ***REMOVABLE orthodontic devices, eyeglasses, blood/fluid soaked clothing/gowns, thick or folded clothing/blankets/ sheets, dressings, IV or monitoring lines, pillows, imprinted designs on clothing, thick or wet hair, etc.

NOTE: Internal objects that are found within the patient such as surgical pins/clips/suture, prostheses, central venous lines, pacemakers, nasogastric tubes, residual barium or contrast media are all examples of items which are not preventable; these must be accepted on the radiograph. They will NOT be considered "***ARTIFACTS***" for radiographic film evaluation classes.

*** Textbooks vary on the definition of artifacts. This is the criterion that is established by Spokane Community College School of Radiologic Technology. This is what we will go by for this class.

IMAGE EVALUATION BASICS

The idea of this class is to be able to notice the difference between a good and a bad radiograph.

Every time you look at a film to evaluate it you should ask yourself the same set of questions.

1. What anatomy are you looking at?
2. What projection is it?
3. Is it positioned correctly?
4. Is the part/anatomy on the film?
5. Is it too light? Too dark?
6. Is there motion or artifact?

These are the major questions to ask in order to decide if the film needs to be repeated. (When looking at a film in image evaluation class, the film is considered the first try at the projection, what will you do?)

Then you need to look at the little things like.

1. Is there a marker?
2. Is there coning/shielding?
3. Is it the correct field size used?

These are very important things to look for but are not necessarily reasons to repeat the film.

The ultimate question is: Are you proud to put your initials on this film?

IMAGE EVALUATION
FACTS FOR CLASS

1. Each site has various protocols; the films used in film Critique *are* protocol films. They just may be incorrectly positioned films.

2. I personally will hang the films correctly. With this in mind you can/will be able to distinguish right and left for each film.

3. Test films can be ***ANYTHING***. Be prepared! If we go over a certain exam it ***MAY*** appear as a test either in the spring or summer quarter.

4. You are responsible for knowing the size of film that is hung. If you have difficulty with this concept remember that a standard piece of paper is 8 ½ x 11 inches.

5. There is no set schedule for this course. We will be covering various exams and images each week.

6. It is your responsibility to review Merrill or the Image Analysis books regularly.

7. If you fall into the "All or Nothing Method" with a quiz, I will place a new test sheet with a film in your mailbox. You must reference on the test sheet your findings along with filling out the test sheet on the film. You have 1 week to complete and return the test to me. I will put the due date at the top of the test page. Any test's turned in after the stated due date will not be counted.

8. In regards to testing:
   - *Long Critique* images will be given a 8 min. time limit
   - *Quick Critique* images will be given 60 seconds per image
   - *Why or Why not* Quiz's will be given a 20 min. time limit to review all 10 images.

9. When doing a Long Critique you must indicate, at the bottom of the page, an *average technique* for the image.

10. If you are experiencing any problems, difficulties or you have questions with film critique you need to come see **me** about the issues. I am here to help you succeed in this course.

Name: _____

Radiographic Image Evaluation

Film #: _____ Area of Anatomy: _____

(20 points) Projection/View: _____
(Include right, left, upright, etc)

(10 points) What anatomical part(s) is/are required on this projection? _____
_____

(2 points) Is the correct field size used? Yes ☐ No ☐

(2 points) If incorrect field size, what is the correct size? _____

(2 points) Is there acceptable collimation? Yes ☐ No ☐

(2 points) Are there any artifacts? Yes ☐ No ☐

(2 points) If an artifact, what is it? _____

(10 points) Is the anatomical part correctly positioned? Yes ☐ No ☐

(10 points) If not correctly positioned, what corrections are necessary? _____
_____

(5 points) Evaluate the radiographic technique, as follows:

☐	☐	☐	☐	☐
too light	Light, but acceptable	near perfect	dark, but acceptable	too dark

(5 points) If not, near perfect, how should the radiographic technique be changed? _____
_____

(5 points) Is the central ray correctly centered to the anatomical part? Yes ☐ No ☐

(5 points) Is the central ray correctly directed to the anatomical part? Yes ☐ No ☐
(Perpendicular, or correct degree & direction of angle)

(10 points) Should this projection be repeated? Yes ☐ No ☐

(10 points) Why or why not? _____
_____

Average Technique for this view: _____

SYLLABI *(cont'd)*

COURSE TITLE: Clinical Education VII

COURSE NUMBER: RAD 236

CREDIT HOURS: 9 **CLINICAL HOURS:** 297

QUARTER: Spring

INSTRUCTORS:

Debbie Miller
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Kim Eikum
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Helen Murphy
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Office phone #: 509-533-8616
Cell phone #: 509-991-1571
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Frank, E., Long, B., & Smith, B. (2013). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (13th ed.). St. Louis, Missouri: Mosby Elsevier.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Thirteenth addition.

This textbook has an established tradition of helping students learn and perfect their positioning skills. The student learns to position the patient properly so that the resulting radiograph provides the information the physician needs to correctly diagnose the patient's problem."

COURSE DESCRIPTION:

Students learn radiographic positioning, department and office procedures, patient management and critical analysis of radiographs in a clinical setting. Students develop psychomotor skills, cognitive domain and affective behavior in the science of radiographic technology.

COURSE OBJECTIVES:

1. Actively participate in all examinations student is assigned to in addition to the specific objectives for the assigned rotation.
2. Attend all clinical days.
3. Maintain clinical logbook.
4. Create & update a "mini- book" for all positioning and set up of examinations.
5. Complete the required number of competency clearances for the quarter.

METHODS OF TEACHING:

Laboratory setting will enhance the demonstrations of the lecture material by discussing and presenting portions of the information with the ability to utilize the radiology equipment.

Practical application during clinical will enhance the information that has been taught in the classroom and from all the course information the student has successfully passed during previous quarters, and this quarter, while in the program.

CLINICAL REQUIREMENTS:

Students must successfully pass their DRUG SCREENING and BACKGROUND CHECK in order to be accepted at the clinical sites. NO EXCEPTIONS! All clinical sites have the option of refusing a student's admittance to their facility, if this occurs the student will not be allowed to start or continue the program. All students rotate through the 4 main hospitals in Spokane along with the Inland Imaging and Rockwood Clinic outpatient facilities.

LINES OF AUTHORITY:

In the classroom you are responsible to your instructor. During clinical responsibilities you are responsible to your instructor and personnel so designated. RESPONSIBILITY FOR PATIENT CARE RESTS WITH THE CLINICAL FACILITY. THE CLINICAL FACILITY HAS THE AUTHORITY TO GRANT OR REFUSE STUDENT ACCESS OF ANY STUDENT FOR JUST CAUSE. Remember, you are a guest and represent Spokane Community College and your program. *See additional information under the CONDUCT section in the SCC Radiology Technology Student Handbook.* If you are asked to leave a clinical site or if a site does not allow you to attend their facility (for any reason), you will not be allowed to transfer to another clinical site to finish your schooling. You will be terminated from the program.

CLINICAL BEHAVIOR:

Refer to the clinical behavior guidelines located in the SCC Radiology Technology Student Handbook.

CLINICAL ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Evaluations and Competency Clearances…… 90% of Final Grade
Blue Log Books…… 10% of Final Grade

COMPETENCY CLEARANCE GRADING POLICY:

See SCC Radiology Technology Student Handbook for competency clearances required per quarter. A successful passing score on each clearance is 83% (which is equivalent to a 2.5). All competency clearances must be successfully completed by the end of the 6th quarter. Failure to complete the minimum required competency clearances for the quarter will result in a 0.25 reduction from your clinical grade for EACH clearance not completed, and you must complete the delinquent clearance(s) before the start of the next quarter. This includes those clearances that must be completed during specific quarters.

During a competency clearance, the clinical instructor may abort the clearance at his/her discretion. A student may receive an "automatic failure" on a clearance attempt for noncompliance of certain patient care/safety guidelines. (See SCC Radiology Technology Student Handbook for additional information.)

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.5 GPA (83%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

Refer to the student clinical objectives for the assigned area of clinical. This can be found in the SCC Radiology Technology Student Handbook.

***COLLEGE WIDE ABILITIES**

The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility

Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.

Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)

Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.

Students will be able to demonstrate the following measurable behaviors/skills:

- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving

Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.

Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information

- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:

Penalties for Deliberate Plagiarism or Cheating:

First Offense: Automatic failure of the paper or test and possible failure of the course.

Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of

disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

SYLLABI *(cont'd)*

COURSE TITLE: Review & Registration Preparation **COURSE NUMBER:** RAD 237

CREDIT HOURS: 3 **QUARTER:** Spring

INSTRUCTORs:

Debbie Miller
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

Kim Eikum
Office #: Rm. 7-138
Office phone #: 509-533-8613
Cell phone #: 509-280-0001
kimberly.eikum@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT: None

COURSE DESCRIPTION:

Students review all the material covered in previous technology courses in preparation of the RRT examination, which may be taken on or after the day of graduation from the program.

COURSE OBJECTIVES:

The instructor will facilitate the review of:

- Medical terminology
- Patient care
- Radiographic positioning
- Radiographic principle
- Radiation physics
- Radiation biology
- Radiation protection
- Radiation pathology

Through the completion of registry review tests and simulated mock registry examinations, a senior portfolio and a senior project or essay.

METHOD OF TEACHING:

1. Testing: the tests are created to aid the student in reviewing the information and recognizing areas of weakness in order to prepare for the national examination.

2. Essay: the essay enables the student to enhance their knowledge in the area of generally radiography that is approved by Debbie Miller or Kim Eikum

3. Project: the project allows the student to demonstrate their knowledge or design a project that may enhance the knowledge and skills of themselves and their peers. The project will be approved by Debbie Miller or Kim Eikum

4. Portfolio: the portfolio will aid in enhancing the student's resume and potential job opportunities; as well as, ask them to reflect back on their time in the program, and their immediate & life-long learning goals.

Review Tests will be done on Canvas and they will have a designated due date (no exception). Quizzes will not be reopened for any reason. Quizzes are allowed to be done away from SCC, for this reason it is the students responsibility to find a computer that will allow them to take the quiz without any difficulty. This includes the Lockdown Brower.

****You will be taking the first four mock exams on Canvas in the computer lab. The remaining mock exams will be given "paper & pencil" in the radiology classroom. You are required to take the first two "paper & pencil" exams. Do not open the tests prior to the scheduled day and time otherwise you will receive a "0" grade for that particular test. You may open any quizzes, exercises, etc. just not the actual tests!!*

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

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RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
Superior Achievement "A"	4.0	100 - 98
	3.9	97
	3.8	96
	3.7	95
	3.6	94
	3.5	93
Above Average Achievement "B"	3.4	92
	3.3	91
	3.2	90
	3.1	89
	3.0	88
	2.9	87
	2.8	86

	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
Lowest grade acceptable to progress	2.0	78
	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are <u>not</u> sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

Senior Project or Essay----------	33%
Senior Portfolio----------	33%
Cumulative Score of Review Tests & Mock Registry----------	34%

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- Identify medical terms and their definitions
- Define the properties of radiographic principles utilized to create a qualitative image.
- Recondite typical radiation pathology on a given radiographic image.
- Identify appropriate patient care actions that should be administered in the clinical setting.
- Demonstrate an understanding of good radiation protection.
- Identify the appropriate positioning requirements for ht types of procedures taught in the program.
- Demonstrate an understanding of radiation biology and how radiation may affect the body.
- Be able to create the information & materials necessary to apply for a job.
- Begin mapping out their life-long learning plans
- Identify how they have grown in general radiology and define their interested in any of the other modalities.
- Present designated exams/procedures they have completed during their time in the program.
- Demonstrate knowledge in a specific area of radiography through an essay or project in an area of radiology the student has chosen.

***COLLEGE WIDE ABILITIES**
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Students will be able to demonstrate the following measurable behaviors/skills:

- Set and recognize priorities
- Communicate needs and make decisions
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- Demonstrate respect for self and others
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- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving
Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.
Students will be able to demonstrate the following measurable behaviors/skills:

- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods
- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
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- Formulate reasoned solutions and interpret them to others
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Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

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(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

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PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student*

Handbook. Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

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VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

***You will be taking the first four mock exams on Canvas in the computer lab. The remaining mock exams will be given "paper & pencil" in the radiology classroom. You are required to take the first 2 "paper & pencil" exams. Do not open the tests prior to the scheduled day and time otherwise you will receive a "0" grade for that particular test. You may open any quizzes, exercises, etc. just not the actual tests!!

Please review the Corectec info below!!

www.corectecreview.com
Address: PO Box 7275, Athens, GA 30604
Phone: (706) 310-1845 9:00 AM – 5:00 PM EST
Email: corectec@aol.com

Welcome to Corectec's Online Radiography Review. Be sure to spell corectec.com with only one r. You will get a site that is not ours if you use two r's! Corectec's Online Radiography Review provides a comprehensive review based on the most current A.R.R.T. content specifications for the Radiography Examination.

As a student at Spokane Community College, you will purchase this Review and be charged **$80**, not $100, at Corectec's web site **by entering the school code** of seven, case sensitive, letters**, wayeBJX,** If the debit or credit card belongs to someone else, enter your name and address as the "Ship To" information. Your user ID and password will be included on the receipt as soon as your information is processed successfully. Please print two copies (one for your wallet and one to keep in a safe place.) Also, please provide your instructor with a copy of your user ID and password. When you LOGIN, your user ID must include the letters, xsr, and the six numbers assigned to you. If you enter only your number, you will not gain access. Your confidential user ID and password each contain a total of nine characters. Each letter is case sensitive.

There is information on the Corectec web site about the use of Corectec's Review according to federal copyright laws.

The content, organization, graphics, design, compilation, magnetic translation, digital conversion and other matters related to the Site are protected under applicable copyrights, trademarks and other proprietary (including but not limited to intellectual property) rights. The copying, redistribution, use or publication by you of any such matters or any part of the Site is strictly prohibited.

Please select "Tips" on the menu bar for operational instructions. Many educators ask their students to print the lessons and put them in a three-ring binder. Most of the 15 lessons are about 6 or 7 pages long. Some students may study the *printed* lessons more thoroughly. Students study them when they are not at a computer or refer to them as they complete their exercises.

When you repeat an entire exercise, quiz or exam, the original score will only be replaced on their Menu Page if the new score is higher. If a student is weak in an area, they do not need to be afraid of earning a lower score if they repeat the assignment. Students may need to repeat an exercise more than once.

The four simulated radiography exams will taken in order. Each exam contains 200 questions. Educators and students will be able to select the Exam Summary button as often as they desire to view the breakdown of their scores and to review just the questions that were missed. **When the student clicks on an exam, the green Take Exam button turns gray on their Menu Page.** BE WARNED, I will know if you view an exam before you are asked to. Before starting an exam I will take a minute to walk around the room and make sure everyones' Take Exam button is green.

Your scores will not be tabulated correctly if the same password is used to log in on two devices at the same time. You may access Corectec's Online Review from a computer, tablet, or other internet device. Therefore, *be sure to log out of Corectec on one device before logging into Corectec on another device* (e.g., tablet, phone, computer, etc.) To Exit Corectec on an iPad, select "Settings," then the browser, (Safari), then "Clear Cookies and Data."

The lessons include the A.R.R.T. outline for the Radiography Examination. Their outline is not underlined. The material that is underlined is provided by Corectec. The Exercises vary in length. Look at the title bar to confirm that you have selected the desired Exercise. Also, note the number of questions remaining. You may log off before completing an exercise, quiz or exam! When you log back in, you must select the same "**GO"** button with the **green background** to "resume" your work. If you select any other button, you will lose the opportunity to "*resume"* your previous work.

After submitting your answer, a Blue X will appear next to the correct answer. Your score will not change after every answer if there are more than 100 questions in the exercise. It will take two correct answers to change your score if there are 101 to 200 questions. For Exercises containing more than 200 questions, it will take three correct answers in a row to change your score. Each exercise may be repeated over and over.

After each question has been presented to you once, any questions that you did not answer will be presented again. If you skipped one or more questions, (intentionally or not) you will need to answer them before a score can be placed on your Navigation Page. Do not select the "GO" button to a new exercise, quiz or exam until you have answered every question in the section that you are working on. When the skipped questions are presented, the score may reflect the score that you had when the questions were skipped. Don't worry; your final score will appear accurately on your Navigation Page.

Do not let *anyone* know your user I.D. and password. If someone else uses your password, your password will be retired.

When you enter your password incorrectly, you will be given the opportunity to log in with your "ALTERNATE LOG IN." You will be asked to enter: your last name, first name and then the last four numbers of the debit or credit card (or the four numbers that you chose when you created your user ID and password.)

Students should write Corectec's phone number on the first page of the lessons they print. If a technical problem develops, students should turn off their computer for a minute and then log back in. If rebooting does not resolve the issue, they should call us between 9 A.M. and 9 P.M. EST.

When maintenance is necessary, the Corectec site may be down for a few minutes. We appreciate your patience. If a technical problem develops, you should turn off your computer for a minute and then log back in. If rebooting does not resolve the issue, then call Corectec between 9 a.m. and 9 p.m. EST. We have only been down one evening during a severe storm about two years ago and one day when an Atlanta part was replaced that affected our fiber optic line in Athens. Internet technology is getting better every year, but a glitch is possible.

REGISTRY REVIEW SCHEDULE

The first seven review tests will be taken during winter quarter. Then the remaining five review tests will be taken during the first part of spring quarter. Each test has a set time limit. You can take each review test twice and the two scores will be averaged together. If you choose to only take a text once you will receive that score. You can review the test before taking it the second time; however, you will not be able to see the correct answer on the questions you miss after taking the test for the first time, only after the second time. The review tests can be found on Canvas under the Registry Review Course. You will have access to the tests on Canvas for review after the completion due date. The tests may be used as study guides for the simulated registry exam. The tests will be available one week prior to the due date. The review tests must be completed by 11:59pm of the specific date provided on the syllabus. You must complete each test by the due date. NO EXCEPTIONS!!!

The first simulated registry exam will be on _____. A student must receive a passing grade of 75% on at least one simulated registry exam before receiving a grade in the course. The simulated registry exams will continue to be given until all students have passed with a 75%. You will be taking the first four mock exams on Canvas in the computer lab. The remaining mock exams will be given "paper & pencil" in the radiology classroom. You are required to take the first 2 "paper & pencil" exams. Do not open the tests prior to the scheduled day and time otherwise you will receive a "0" grade for that particular test. You may open any quizzes, exercises, etc. just not the actual tests. All twelve review tests and simulated registry exams will be averaged together to comprise 1/3 of the quarter grade.

TENTATIVE TEST/CLASS SCHEDULE

Exams Due by 11:55pm on:

Week 1	Tuesday……	Registry Review Games 7:30 – 9:00
Week 2	Monday ……	Radiographic Positioning Test I (Upper/Lower Limbs, Shoulder/ Pelvic Girdle & Pos V)
	Tuesday ……	Registry Review Games 7:30 – 9:00
Week 3	Monday……	Radiographic Positioning Test II (Thorax, Pelvis, Abdomen & Pos V)
	Tuesday……	Registry Review Games 7:30 – 9:00
Week 4	Monday……	Radiographic Positioning Test III (Skull & Facial)
	Tuesday……	Registry Review Games 7:30 – 9:00
	Sunday ……	Patient Care / Medical Ethics / Pharmacology / Venipuncture Test

SIMULATED REGISTRY EXAMS:

The first four tests will be taken in the computer lab (room 011)!! @ 7:10am.

The remaining tests will be taken in the classroom as paper tests!! @ 7:30am.

Week 5	Tuesday.....	1st Exam	(mandatory)
Week 6	Tuesday.....	2nd Exam	(mandatory)
Week 7	Tuesday.....	3rd Exam	(mandatory)
Week 8	Tuesday.....	4th Exam	(mandatory)
Week 9	Tuesday.....	5th Exam	(mandatory)
Week 10	Tuesday.....	6th Exam	(mandatory)

Week 11	Tuesday.....	7th Exam	(classroom, if necessary)
	Wednesday.....	8th Exam	(classroom, if necessary)
	Thursday	9th Exam	(classroom, if necessary)
	Friday.....	10th Exam	(classroom, if necessary)

****You must take the first six simulated registry exams even if you achieve a 75% prior to the sixth exam. You are not required to take exams after exam #6 if you have achieved a 75% on one of the first four. The scores for all the exams you take will be recorded & included in the overall grade for the registry review & mock exams.**

SYLLABI *(cont'd)*

COURSE TITLE: CAT Scan **COURSE NUMBER:** RAD 238

CREDIT HOURS: 2 **QUARTER:** Spring

INSTRUCTOR: Debbie Miller
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

GUEST SPEAKER: Felix Bunton
Phone #: 251-1114
mcfunkenhammer@hotmail.com

REQUIRED TEXT:

Radiologic Science for Technologists: Physics, Biology & Protection. 10th Ed. by Stewart C. Bushong *(Chapter 28)*.

Merrill's Atlas of Radiographic Positions & Radiologic Procedures; 12th edition; Ballinger & Frank, Volume 3 *(Chapter 31)*.

COURSE DESCRIPTION:

This course is designed to provide entry-level radiography students with principles related to computed tomography (CT) imaging. This course includes instruction on the history, various components, operations and processes applied to CT. The students will also be instructed on the appropriate radiation protection that should be utilized.

COURSE OBJECTIVES:

1. Actively participate in all course activities.
2. Attend all lectures and demonstration.
3. Read all the required reading assigned.
4. Do the required homework assignments.
5. Take all quarter tests.

METHOD OF TEACHING:

Lectures are created to present the principles of producing a top quality radiograph, making the appropriate corrections and problem solving as it relates to radiography in the clinical setting.

Lectures will be supplemented by demonstrations, video tapes, radiographic images, white board and guest speakers.

CLASSROOM BEHAVIOR:

The values I have set for this course encompasses, respect, responsibility, communication, problem solving and global awareness. These are values that I myself will follow. You are responsible for your learning and you will get out of learning what you put in it. Three expectations will serve as the guidelines for this course: (1) attend, (2) come prepared, and (3) participate. Disrespect for other students or the instructor will not be tolerated.

CLASSROOM ABSENTEEISM AND TARDINESS:

Please refer to the SCC Radiology Technology Student Handbook policy manual.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

As an institution of higher education, CCS provides educational and support services primarily to adult learners. Children without supervision or with supervision imposed upon CCS employees or students may disrupt the educational process or work setting and possibly create a safety hazard for the children themselves or for others within the district. This procedure seeks to create a safe environment which is conducive to and supports the effective conduct of the educational process. *[Updated to reflect recent legislative changes, see section 5.0.]*

RADIOLOGY TECHNOLOGY GRADING POLICY

Grading Scale	GPA	SCORE
	4.0	100 - 98
	3.9	97
Superior Achievement	3.8	96
"A"	3.7	95
	3.6	94
	3.5	93
	3.4	92
	3.3	91
	3.2	90
Above Average Achievement	3.1	89
"B"	3.0	88
	2.9	87
	2.8	86
	2.7	85
	2.6	84
	2.5	83
Average Achievement	2.4	82
"C"	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78

	1.9	77
Minimum Achievement	1.8	76
"C" & "D"	1.7	75
these grades are not sufficient	1.6	74
to continue into the next course	1.5	73
sequence	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

This course's grade will be a combination grade that will be based on homework, participation & tests and a comprehensive final (if necessary). The combined grades of homework, attendance/participation & tests will account for the final grade, unless you have to take the final. Then it will account for 65% of your grade. Students will be given 55 attendance/participation points at the beginning of the quarter (5 points each day for attendance. Each day that the student is not disruptive in class and participating or in attendance, they will continue to keep their participation points. However, each time a student is disruptive in class or misses a class, he/she will receive a 5 point deduction in their participation points.

The tests will be given online and must be completed by the deadline of Monday night at 11:55pm. Each day you are late completing and submitting a test you will receive 5% off your score for that particular test. For each day you are late submitting the homework you will receive 5% off your homework score. If you achieve an overall grade of 95% before the comprehensive final you will be excused from taking it.

Homework---------- 20%
Tests---------- 45%
Comprehensive Final---------- 35%
100%

No grades will be eliminated from the computation of the quarter grade.

Tests & homework will be done on Canvas and they will have a designated due date (no exception). Tests will not be reopened for any reason. Tests are allowed to be done away from SCC, for this reason it is the students responsibility to find a computer that will allow them to take the quiz without any difficulty.

FINAL GRADE:

The total points earned, as a percentage of total points possible will determine the final grade for the course. A 2.0 GPA (78%) or better is required to pass this course.

STUDENT LEARNING OBJECTIVES:

By the end of this quarter the student should be able to:

- List and describe the various generations of computed tomography (CT) imaging systems.
- Relate the CT system components to their functions.
- Describe how CT and conventional radiography differ.
- Discuss image reconstruction via interpolation and back projection.
- Describe CT image characteristics of image matrix, Hounsfield unit, and sensitivity profile.
- Describe technique selection of CT.
- Explain the spiral imaging relationships among pitch, index, dose profile and patient dose.

- Discuss image quality as it related to spatial resolution, contrast resolution, noise, linearity and uniformity
- List the advantages and limitations of multi-slice spiral CT.
- Discuss the pros and cons of CT angiography
- Describe the important and limitations, if any, of radiation protection during CT.

***COLLEGE WIDE ABILITIES**
The following college-wide abilities developed by Student Learning Outcomes for Spokane Community College will be evaluated in this course:

Responsibility
Students will develop the ability to recognize, understand and accept ownership for their learning by self-assessing, demonstrating, and evaluating behaviors that support the learning situation.
Students will be able to demonstrate the following measurable behaviors/skills:
- Set and recognize priorities
- Communicate needs and make decisions
- Make and follow through on commitments
- Demonstrate respect for self and others
- Understand work ethic
- Make ethical decisions
- Work independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
- Recognize academic and personal obstacles to learning and have strategies to overcome them

Communications (Oral and Written)
Students will demonstrate the ability to create meaning between themselves and their audience; learn to listen, read, speak, and write effectively using graphics, electronic media, computers and quantified data.
Students will be able to demonstrate the following measurable behaviors/skills:
- Read and listen analytically with understanding and openness toward another point of view
- Write and speak clearly, accurately, and fluently with a sense of continuity
- Organize information to develop and support a main idea
- Analyze information and persuade an audience
- Receive, analyze, and present information through visual media
- Demonstrate skill in gathering information from and within a specific field
- Collect and organize information about a topic through observation, library or applied laboratory research
- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
- Analyze, interpret, and synthesize information

Problem Solving
Students will be able to access, evaluate, and apply information from a variety of sources and in a variety of contexts.
Students will be able to demonstrate the following measurable behaviors/skills:
- Formulate questions
- Recognize the need for both quantitative and qualitative information
- Recognize that accurate and complete information is the basis for effective decision-making
- Identify available technologies and analytical methods

- Analyze information, critically recognizing viable solutions
- Understand connections and apply knowledge among various disciplines
- Use one's own creativity to generate diverse possible solutions (recognizing that making errors is part of the process)
- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

Global Awareness

Students will demonstrate an awareness and appreciation of the world: its scientific complexity, its social diversity, and its artistic variety.

Students will be able to demonstrate the following measurable behaviors/skills:

- Demonstrate understanding and openness toward another point of view
- Use intercultural and/or international perspectives
- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
- Analyze, interpret, and synthesize information
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

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Plagiarism Policy: WAC 132Q-04-061

PLAGERISM/CHEATING IS NOT ALLOWED:

Academic dishonesty and plagiarism are unacceptable. Refer to the college plagiarism policy in the Student Handbook and Academic Planner. This handbook is distributed annually to enrolled students and is available in the Office of the Dean of Student Development or the Dean of Student Services.

CHEATING: WAC 132Q-O4-060

(1) Any student, who for the purpose of fulfilling or partially fulfilling any assignment or task required by the faculty as part of the student's program of instruction, shall knowingly tender any work product that the student fraudulently represents to the faculty as the student's work product, shall be deemed to have cheated. Cheating shall be cause for disciplinary action.

(2) Any student, who aids or abets the accomplishment of cheating as defined in subsection (1) of this section, shall also be subject to disciplinary action.

A zero tolerance policy on cheating will be enforced. Eyes that are not on your own paper during an individual quiz or test will be considered cheating. The test paper will be picked up and a 0.0 will be given for the class.

To encourage academic excellence and honesty, we have established the following policy:

Penalties for Deliberate Plagiarism or Cheating:

First Offense: Automatic failure of the paper or test and possible failure of the course.

Second Offense: Automatic failure of the course.

PERSONS WITH DISABILITIES STATEMENT:

In accordance with the Americans with Disabilities Act and the Rehabilitation Act of 1973, accommodations for students with disabilities will be considered at the student's request. The student will be required to register with the Disability Support Services office and provide documentation of

disability. Once the student is qualified by the DSS Manager as having a disability, requested accommodations will be considered. Accommodations for the classroom, laboratory, or clinical setting will be considered according to reasonableness. Accommodations that compromise patient care, or that fundamentally alter the nature of the program or activity, are not considered to be reasonable. A student denied accommodation may request an individualized determination to assure that the denial is not a result of disability discrimination by contacting the Manager of Disability Support Services and Testing at 533-7498. Procedures for appeal are outlined in the *SCC Center for Students with Disabilities Student Handbook.* Other than accommodation issues, procedures for student grievances including academic dismissal are outlined in the following SCC website: http://www.scc.spokane.edu/?concerns.

STUDENT HOLIDAYS FOR REASONS OF FAITH OR CONSCIENCE (SSB 5173)

SCC/SFCC students are entitled to two days of excused absences per academic year for reasons of faith or conscience or for organized activities conducted under the auspices of a religious organization. Students' grades will not be adversely impacted by authorized absences under this policy, although students in courses with required community clinical and /or practicum experiences must fulfill these requirements to meet the licensure requirements of the program.

All absences under this policy must be submitted to the Chief Academic Officer in writing at least two weeks prior to the desired absence, containing a precise explanation of how the requested holiday is related to a reason of faith, conscience or an organized activity conducted by a religious organization. If deemed in alignment with the policy, the student will receive a document with date(s) of the approved absences (must be full days). The student is solely responsible for ensuring the documentation authorizing the absence is provided to each of the instructors whose classes or assignments are affected by the absence. The instructor(s) will determine, within two days after receiving the notification, what adjustments, if any, will need to be made for the student to make up assignments or tests missed during the absence(s), and the instructor may require that the student submit the assignment or take the test before or after the regularly scheduled date. If the student fails to notify the instructor of an authorized absence under this policy, the instructor is not obligated to make accommodations.

VETERAN'S

SCC appreciates students who have served our country and understands that students with military experience may face unique challenges in completing their educational goals. The Veteran's One Stop can be found in the Lair Student Center (Building 6, Room 0112), or can be contacted at (509) 533-7027 or (509) 533-7274. Additionally, lists of faculty who are registered as "Veteran Friendly Contacts" are posted in all buildings on campus. More information, including a complete list of Veteran Friendly Contacts, can be found at: http://www.scc.spokane.edu/?vetaffairs.

Electronic devices, i.e. cell phones, mp3 players, etc: These are not allowed in class.

PLEASE REFER TO THE SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK AND SCC HEALTH SCIENCES – ALLIED HEALTH – STUDENT HANDBOOK FOR A COMPLETE LIST OF POLICIES AND PROCEDURES.

This syllabus may be subject to change.

CAT Scan – RAD 238
TENTATIVE CLASS SCHEDULE

Week 1	Tuesday,	Introduction and review of course syllabus
Week 2	Monday,	***Merrill's Ch. 31 ONLINE HOMEWORK Due by 11:55pm (it can be found under quizzes)***
	Tuesday,	Guest Speaker: Marcus Swett on contrast injectors Guest Speaker: Felix Bunton (Begin: Learning Objectives 1-3)
Week 3	Monday,	***Bushong's Ch. ONLINE HOMEWORK: Due by 11:55pm (it can be found under quizzes)***
	Tuesday,	Guest Speaker: Felix Bunton (cont'd: Learning Objectives 1-3)
Week 4	Tuesday,	Guest Speaker: Felix Bunton (Begin: Learning Objectives 4-6)
Week 5	Tuesday,	Guest Speaker: Felix Bunton (cont'd: Learning Objectives 4-6)
	Wednesday,	***Contrast Media Lecture (9:30-11:30, Bldg. 9, room 208) MANDATORY 9:30 – 11:30, Bldg. 9, room 208!!*
Week 6	Monday,	***ONLINE TEST #1: Due by 11:55pm***
	Tuesday,	Guest Speaker: Felix Bunton (Begin: Learning Objectives 7-9)
Week 7	Tuesday,	Guest Speaker: Felix Bunton (cont'd: Learning Objectives 7-9)
Week 8	Tuesday,	Guest Speaker: Felix Bunton (Begin: Learning Obj. 10-12)
Week 9	Tuesday,	Guest Speaker: Faith Washington on various IV / IA lines & ports Guest Speaker: Felix Bunton (cont'd: Learning Obj. 10-12)
Week 10	Monday,	**ONLINE TEST #2: Due by 11:55pm**
Week 11	**TBA**	**COMPREHENSIVE FINAL**

CT – COURSE OUTLINE

I. Components, Operations and Processes

A. Data acquisition

1. Methods
   a. Slice-by-slice
   b. Volumetric
2. Elements
   a. Beam geometry
      1) Parallel
      2) Fan
      3) Spiral
3. Data acquisition system (DAS)
   a. Components
      1) Tube
      2) Detectors
      3) Filters
      4) Collimators
      5) ADC
   b. Functions
      1) Measurement of transmitted beam
      2) Data transmission to computer
4. Data acquisition process
   a. Scanning/raw data/image data
      1) Rays
      2) Views
      3) Profiles
         a) Pixels
         b) Matrices
         c) Voxels
   b. Attenuation
      1) Linear attenuation coefficients
      2) CT numbers (Hounsfield numbers)
         a) Baseline reference numbers
            i) Water equal to 0
            ii) Bone (white) equal to 400 to 1000 HU
         b) Air (black) equal to -1000 HU
   c. Selectable scan factors
      1) Scan field of view

2) Display field of view
3) Matrix size
4) Slice thickness
5) Algorithm
6) Scan time and rotational arc
7) Radiographic tube output
8) Region of interest (ROI)
9) Magnification
10) Focal spot size and tube geometry

B. Factors controlling image appearance

C. Anatomical structures

1. Artifacts
2. Contrast resolution (window width)
3. Grayscale manipulation (window level)
4. Distortion
5. Noise
6. Spatial resolution

II. Radiation Protection

A. Methods for reducing radiation dose to the patient

1. Technical factor selection
2. Technical adjustments for children
3. Scatter radiation reduction

B. Reducing the radiographer's exposure to scatter radiation

C. Measurement units in CT

1. CT dose index (CTDI)
2. Multiple scan average dose (MSAD)
3. Dose length product (DLP)

D. CT immobilization devices

1. Straps
2. Head holders
3. IV arm boards

SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK:

Insert PDF