



**Community Colleges
of Spokane**

SPOKANE COMMUNITY COLLEGE

RADIOLOGY TECHNOLOGY

MASTER PLAN OF EDUCATION

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STUDENT LEARNING GOALS:

SPOKANE COMMUNITY COLLEGE MISSION STATEMENT:

The mission of Spokane Community College aligns with the mission of the Community Colleges of Spokane: "To provide all students an excellent education that transforms their lives and expands their opportunities."

Goals

The college's goals are visionary and define what we do to accomplish our mission.

Academic Transfer

We prepare students for successful transfer to the next step of their educational journey.

Adult Basic Education

We prepare students for college-level courses by guiding, supporting, and providing the tools necessary to achieve their academic, personal, and professional goals.

Career and Technical Education

We prepare students to enter the workforce in a timely manner; supporting our community needs in available and sustainable careers with a focus on future industries.

Student Success

We provide the services and resources needed for our students to be successful.

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 within six months of graduation.
- **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:** Graduates will express satisfaction with the program with a 2 points or greater out of 3 points on the alumni survey.
- **Goal 5:** Employer will express satisfaction with the graduates of the program by rating graduates with 3.5 points or greater points out of 5 points on the employer survey.

STUDENT LEARNING OUTCOMES:

Goal 1 - Clinical Competency: The students will be clinically competent.

Student Learning Outcomes:

- Students will demonstrate appropriate positioning skills.
- Students will successfully evaluate radiographic images for diagnostic quality.
- Students will provide appropriate radiation protection skills for the patient, self and others.
- Students will attain the technical knowledge appropriate for an entry level technologist on the ARRT examination.

Goal 2 – Communication: The students will effectively communicate.

Student Learning Outcomes:

- Students will demonstrate effective oral communication skills with patients.
- Students will demonstrate effective oral communication skills with healthcare professionals.

Goal 3 – Critical Thinking: The students will be able to effectively apply critical thinking skills.

Student Learning Outcomes:

- Students will illustrate effective critical thinking skills.
- Students will demonstrate effective critical thinking skills.

Goal 4 – Professionalism: The students display professionalism.

Student Learning Outcomes:

- Students demonstrate professional conduct.
- Students will demonstrate an understanding of the importance of credentialing, licensing, and professional organizations.

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: <https://scc.spokane.edu/What-to-Study/Healthcare/Radiology-Technology/Student-Learning-Outcomes>

CURRICULUM AND COURSE SEQUENCE

RADIOLOGY TECHNOLOGY

Fall 2022

AAS – SCC

Offered at Locations: Spokane Community College

Prerequisites

- BIOL160 General Biology w/Lab
- BIOL241 Human A & P 1 I
- BIOL242 Human A & P 2 I
- CIS 110 Computer Fundamentals
- ENGL&101 English Composition I 2
- HED 125 Medical Terminology
- MATH 72/88 Essentials of Algebra 2 or Algebra for
Math Literacy II
- 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	Radiographic Principles I	3
RAD 116	Clinical Education I	<u>8</u>
		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	Radiographic Principles II	3
RAD 126	Clinical Education II	9
RAD 127	Mobile/Surgical Procedures	<u>1</u>
		20

Third Quarter

RAD 131	Radiographic Positioning III	2
RAD 134	Radiographic Image Evaluation III	2
RAD 136	Clinical Education III	9
RAD 145	Radiographic Principles III	<u>2</u>
		15

Fourth Quarter

RAD 141	Radiographic Positioning IV	2
RAD 144	Radiographic Image Evaluation VI	1
RAD 146	Clinical Education IV	7
RAD 235	Pharmacology/Venipuncture	<u>2</u>
		12

Fifth Quarter

RAD 212	Quality Management	2
RAD 213	Various Modalities	2
RAD 214	Radiographic Image Evaluation V	2
RAD 215	Radiation Biology and Protection	1
RAD 216	Clinical Education V	<u>9</u>
		16

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	<u>9</u>
		15

Seventh Quarter

RAD 236	Clinical Education VII	9
RAD 237	Review and Registration Preparation	3
RAD 238	Cat Scan	1
RAD 239	Advanced Image Evaluation	<u>1</u>
		14

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 — 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:

- Describe the basic components of an x-ray tube and their functions
- Describe and list the major sources of natural and manmade radiation
- Define terms: exposure, absorbed dose, and dose equivalent
- Describe the interrelationship of the units of radiation
- Define the properties and characteristics of x-rays
- 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
- Define the quality of the x-ray beam
- Describe the production 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
- 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 — 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. Image holders are emphasized. Students learn about the 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. 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
- Define the properties and characteristics of x-rays
- Identify, define and discuss radiographic quality
- Describe the interrelationships of radiographic image formation factors
- Define and explain the inverse square law
- Define electromagnetic radiation and give examples (EM)
- Recognize and explain the wave formula
- Define the half value layer (HVL)

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
- 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
- Identify 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 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 artifacts. 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 (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
- 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 — 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
- 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

RAD 146 — Clinical Education IV (7 cr)

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

RAD 211 Course Learning Outcomes (cont'd)

- 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
 - Axialateral
 - 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 (2 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 (1 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

RAD 215 Course Learning Outcomes (cont'd)

- 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 (2 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 (CC)

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

RAD 238 Course Learning Outcomes (cont'd)

- 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

RAD 239 — Advanced Imaging Evaluation (1 cr)

This course will review cross-sectional anatomy for various imaging modalities, such as CT, MRI, Nuclear Medicine, Sonography, PET scan, and Interventional and Cardiac Procedures. The student will access such factors as what projection/view is shown, anatomical anomalies, contrast, brightness artifacts, and central ray correctly centered in the final images. The student will interact through classroom discussions and discussion board communications through the LMS. (SCC)

Course Learning Outcomes:

- Identify anatomical structures on cross sectional images to include the head, spine, thorax, abdomen, pelvis and upper and lower extremities.
- Describe the relationship of each anatomical structure to surrounding structures.
- Discuss the function of major bodily systems using cross sectional imaging
- Differentiate between MRI and CT cross sectional images in the coronal, sagittal, transverse and oblique imaging planes.

TEXTBOOKS

Required Textbook list for the class that started on September 19, 2022

1. Basic Medical Techniques & Patient Care for the Radiologic Technologist (L.S. Torres, C.M. Moore), 9th Edition, ISBN 13: 9781496378668.
2. Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition, ISBN 9780323566674.
3. Radiography in the Digital Age: Physics, Exposure, Radiation Biology: (Carroll) 3rd Edition, ISBN 13: 9780398092416.
4. Radiologic Science for Technologists: Physics, Biology, and Protection: (Bushong) 11th Edition, ISBN-13 9780398092416.
5. Radiographic Image Analysis (McQuillen & Martensen) 5th Edition, ISBN-13: 978-0323522816.
6. Medicolegal Issues for Diagnostic Imaging Professionals (Parelli), 4th Edition, ISBN-13: 9781420086638.
7. Digital Radiography and PACS, (Carter) 3rd Edition, ISBN 13: 9780323547581.
8. Comprehensive Radiographic Pathology (Eisenberg), 6th Edition, ISBN 13: 9780323353243.
9. Quality Management in the Imaging Sciences (Papp), 6th Edition, ISBN-13: 9780323512374.
10. Pharmacology & Drug Administration for Imaging Technologists (Jensen, Peppers), 2nd Edition, ISBN-13: 9780323030755

Recommended Textbook & Website list for September 19, 2022

1. Appleton & Lange's Review for the Radiography Examination, 11th Edition, ISBN-13: 9781259863592
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: Kimmy Eikum M.Ed., R.T. (R) (M)
Office #: Rm. 7-138
Office phone #: 509-533-8613
kimberly.eikum@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiologic Procedures, 14th 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
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
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
	1.7	75
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	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-----	=	<u>35%</u>
		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

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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:

<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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

**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	<i>am -</i>	<i>Positioning Lab open for practice</i>
	<i>pm -</i>	<i>Positioning Lab open for practice</i>

Week 5	Monday	am -	Quiz: Lower limb anatomy Positioning: Toes & Foot
		pm-	<i>Positioning Lab open for practice</i>

	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 -	<i>Positioning Lab open for practice</i>

	Thursday	am -	TEST: all Lower Limb positions
		pm -	<i>Positioning Lab open for practice</i>

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-	<i>Positioning Lab open for practice</i>

Week 8	Monday	am -	Quiz: Pelvic Girdle Anatomy Positioning: Pelvis & Hip
		pm-	<i>Positioning Lab open for practice</i>

	Thursday	am-	Test: Shoulder & Pelvic Girdles
		pm-	<i>Positioning Lab open for practice</i>

Week 9	Monday	am -	Quiz: Vertebral Column anatomy Positioning: Lateral Cervical spine (Upright, x-table, flexion, extension)
		pm -	<i>Positioning Lab open for practice</i>

	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 -	<i>Positioning Lab open for practice</i>

	Thursday		Thanksgiving Day

Week 11	Monday	am -	TEST: entire vertebral column
		pm -	<i>Positioning Lab open for practice</i>

	Thursday	am -	Review for Quarter Final
		pm -	<i>Positioning Lab open for practice</i>

Week 12	TBA		COMPREHENSIVE FINAL
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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: Kimmy Eikum, M.Ed., R.T. (R) (M)
Office #: Rm. 7-138
Office phone #: 509-533-8613
kimberly.eikum@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Basic Medical Techniques & Patient Care for the Radiologic Technologist (L.S. Torres, C.M. Moore), 9th Edition, ISBN 13: 9781496378668

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.

CLASSROOM ABSENTEEISM AND TARDINESS:

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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
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	2.9	87
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
Lowest grade acceptable to progress	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:

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, suction 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.

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
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- 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

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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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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:

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

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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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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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 tube
- 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
Office #: Rm. 7-137
Office phone #: 509-533-8616
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition,
ISBN 9780323566674

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

Radiographic Image Analysis (McQuillen & Martensen) 5th Edition, ISBN-13: 978-0323522816

This textbook has an established tradition of helping students understand analysis of on image.

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
Superior Achievement “A”	4.0	100 - 98
	3.9	97
	3.8	96
	3.7	95
	3.6	94
	3.5	93
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	3.2	90
	3.1	89
	3.0	88
	2.9	87
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
lowest grade acceptable to progress	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:

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
-
-

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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.

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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**
 - **Metals:** 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:

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 Radiographic Principles I

COURSE NUMBER: RAD 115

CREDIT HOURS: 3

QUARTER: Fall 2022

INSTRUCTORS: Debbie Miller
Office #: Rm. 7-136
Office phone #: 509-533-8614
Cell phone #: 509-953-3843
deborah.miller@scc.spokane.edu
Office hours posted by office door

Jamie Tevis
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-7689295
Jamie.Tevis@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT: Radiography in the Digital Age, 3rd. By: Quinn B. Carroll

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

COURSE DESCRIPTION:

This course is an introductory course of radiographic principles. Discussion in this course will include atomic structure and x-ray interaction with matter, x-ray tube components and function, x-ray beam production, qualities of the radiographic image, and basic electronic components of x-ray equipment.

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 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 ABSENTEEISM AND TARDINESS:

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CLASSROOM BEHAVIOR:

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	3.5	93
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	3.0	88
	2.9	87
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	2.6	84
	2.5	83
	2.4	82
	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.7	75
	1.6	74
	1.5	73
	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.

The students will begin the quarter with 200 participation points. **The 200 points (10 for each class time, 20 class times in all) for participation and attendance will be applied at the beginning of the course. You will lose 10 points for the day for any of the following:**

- 1. Missed class (even if it is a test day!)**
- 2. Arriving late and/or leaving early. Arriving late to the computer lab for tests/quizzes.**
- 3. Disruptive in class (for example: Talking out of turn in class)**

All homework must be completed on the date due, prior to the start of class to receive full credit. If you fail to complete your homework on time, you can get **50% if it is completed within 24 hours** of the due date & time. **After the 24-hour mark, you will receive a “0” grade for that homework assignment.** If you are absent on a test day, 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 10% deduction will be applied to final quiz or test grade. A comprehensive final will be given which constitutes the remaining 30% of the final grade. Grades can be checked online on Canvas.

The following is a breakdown of the grading method:

Participation/Attendance-----	10%
Homework-----	20%
Tests-----	40%
Comprehensive Final-----	30%

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.

Pertinent Information Regarding Tests

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.

STUDENT LEARNING OBJECTIVES:

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

1. Identify considerations regarding atomic structure and radiographic variables.
2. Discuss x-ray interactions with matter and production of subject contrast.
3. Discuss visibility and geometric qualities of the radiograph.
4. Demonstrate understanding and relationship between kVp and mAs.
5. Identify uses for automatic exposure control (AEC).
6. Discuss x-ray generators and electronic components of the x-ray unit.
7. Define scatter radiation and grid function.
8. Identify x-ray tube components and function.

***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

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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:

<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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 <i>(Principles of Radiographic Exposure, Processing and Quality Control textbook)</i>
	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)
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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
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<i>(Radiography in the Digital Age textbook)</i>		
Week 3	MON.	TEST: Chapters 3 & 4 (Ch. 3 & 4 homework due)
	THURS.	Lecture on Chapter 14: “Milliamperes-seconds”
<hr/> <hr/>		
Week 4	MON.	Lecture on Chapter 15: “Kilovoltage” &
	THURS.	Continuation of Ch. 15 & Lecture on Chapter 12: “Production of Subject Contrast”
<hr/> <hr/>		
Week 5	MON.	TEST: Chapters 12, 14 & 15 (Ch. 12, 14 & 15 homework due)
	THURS.	Lecture on Chapter 19: “Scattered Radiation & Grids”
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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: Kimmy Eikum
Office #: Rm. 7-138
Office phone #: 509-533-8613
kimberly.eikum@scc.spokane.edu
Office hours posted by office door

Helen Murphy
Office #: Rm 7-137
Office phone #: 509-533-8616
helen.murphy@scc.spokane.edu
Office hours posted by office door

Jamie Tevis
Office #: Rm. 7-139
Office phone #: 509-533-8612
jamie.tevis@scc.spokane.edu
Office hours posted by office door

Debbie Miller
Office #: Rm 7-136
Office phone #: 509-533-8616
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition,
ISBN 9780323566674.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Fourteenth 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
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
Lowest grade to progress “C” Average Achievement	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
	1.7	75
	1.6	74
	1.5	73
	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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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: <https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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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: Kimmy Eikum M.Ed., R.T. (R) (M)
Office #: Rm. 7-138
Office phone #: 509-533-8613
kimmy.eikum@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiologic Procedures 14th 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.

CHILDREN IN THE WORKPLACE – 2.30.05-N:

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RADIOLOGY TECHNOLOGY GRADING POLICY

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	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
Average Achievement “C”	2.8	86
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	2.0	78
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	1.8	76
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.7	75
	1.6	74
	1.5	73
	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 classroom, 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
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- Demonstrate respect for self and others
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- 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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- Observe, listen and respond appropriately
- Make justifiable inferences
- Recognize bias, stereotyping, and manipulation
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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-04-060

- (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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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:

<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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	<u>QUIZ: Bony Thorax & Respiratory System Anatomy</u> 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	<u>TEST: Entire Bony Thorax & Respiratory System</u>
Week 3	Monday	NO CLASS – Martin Luther King Day
	Thursday	<u>QUIZ: GI System Anatomy</u> Discussion of terms Discussion of fluoro guidelines
Week 4	Monday	<u>QUIZ: GI Terminology</u> 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	<u>TEST: GI System</u>
Week 8	Monday	<u>QUIZ: GU System Anatomy</u> Positioning of KUB, IVU
	Thursday	Discussion of: Cystograms, VCUG, Loopograms & Urethrograms
Week 9	Monday	<u>TEST: Urinary system</u>
	Thursday	<u>QUIZ: Central Nervous System & Reproductive Anatomy</u> Lecture: Myelograms & Lumbar Punctures
Week 10	Monday	Lecture on: Arthrograms & Hysterosalpingograms (HSG)
	Thursday	<u>TEST: Myelograms, Lumbar Punctures, Arthrograms, & Hysterosalpingograms</u>
Week 11	Monday	Review for Comprehensive Positioning II Final
	Thursday	Positioning Lab practice
Week 12	TBA	<u>Comprehensive Final</u>

POSITIONING II

COURSE 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
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

Parrelli, 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
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
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
	1.7	75
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

- Quizzes (approx. 2-3 per quarter) & ARRT Code and Rules assignment : 20% of overall grade
- Tests (4), Critical Thinking Journal & Patient Care Essay: 55% 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:

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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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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 (<i>we will cover only a portion of this chapter in preparation of Pharmacology class</i>)
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 textbook: Chapters 1 & 2
Week 7	Monday	OFF 
	Thursday	Medicolegal textbook: Chapters 3 & 4
Week 8	Monday	Medicolegal textbook: Chapter 5 and harassment
	Thursday	ESSAY DUE!!! 😊 TEST: Chapters 1-5 and harassment
Week 9	Monday	Medicolegal textbook: Chapters 6 & 7
	Thursday	Medicolegal textbook: 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 contribution 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 _____
 Organizations _____ 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
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition, ISBN 9780323566674

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

Radiographic Image Analysis (McQuillen & Martensen) 5th Edition, ISBN-13: 978-0323522816

This textbook has an established tradition of helping students understand analysis of on image.

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 anatomic 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
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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:

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.

*****On the daily Radiographic image Evaluation the “All or Nothing method” will start in the second quarter:** 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 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.**

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
- 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:

- Set and recognize priorities
- Communicate needs and make decisions
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- 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

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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:

<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>

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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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**
 - **Metals**- 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?
(Perpendicular, or correct degree & direction of angle) Yes No

(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: Radiographic Principles III

COURSE NUMBER: RAD 125

CREDIT HOURS: 2

QUARTER: Spring 2022

Class Times: M and Th 10:00 -11:30pm

Lab Times: Days Vary, check schedule for full breakdown of lab times and groups

INSTRUCTOR: Jamie Tevis B.S., R.T.(R)(M)
Office #: Rm. 7-137
Office phone #: 509-533-8612
Cell phone #: 509-768-9295
jamie.tevis@scc.spokane.edu
Office hours are posted by office door

REQUIRED TEXT:

Carter, C. E., & Veale, B. L. (2018). *Digital radiography and PACS* (3rd ed.). Maryland Heights, MO: Mosby Elsevier.

Carrol, Q. B. (2014). *Radiography in the digital age: Physics, exposure, radiation biology* (2nd ed.). Springfield, IL: Charles C. Thomas

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. Radiographic principles from previous courses will also be reviewed and incorporated into course content.

COURSE OBJECTIVES:

This course will follow the outline of the required text “Digital Radiography and PACS”, with supporting explanations from the text “Radiography in the Digital Age”. Upon completion of this course the student will be able to understand the following key concepts set forth by the American Registry of Radiologic Technologist guidelines:

- 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:

This course will use a combination of lectures, labs, and online learning.

GRADING METHOD:

This course’s grade will be a combination grade that will be based on in class and lab participation, homework to include lab discussions, tests and a comprehensive final. All homework done must be completed by the date due to receive full credit. **Any assignment submitted within 24 hours after the due dates will receive only half credit. Any work submitted after the 24-hour window will be given a grade of 0.** All tests will be taken on campus in the computer lab. The following is a breakdown of the grading method:

Homework	10% of overall grade
Discussions	10% of overall grad
In class/lab participation	20% of overall grade
Test’s	30% of overall grade
Final	30% of overall grade

Tentative assignment schedule can be accessed on Canvas. Please pay attention to all due dates of online homework and assignments. It is your responsibility to complete assignments on time and come to class prepared.

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.

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- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
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- 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

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- 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

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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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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:

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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.

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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.

TENTATIVE CLASS SCHEDULE

Week 1	Mon.	Discuss class schedule, expectations and hand out assignments & review first quarter Fuchs
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Thurs.	Lecture on:	Chapter 25 “Simplifying & Standardizing Technique”
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Week 2	Mon.	Continuation of chapter 25
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Thurs.	<u>TEST: Chapter 25 in the classroom</u>
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Week 3	Mon.	NO CLASS – Martin Luther King Day
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Thurs.	Lecture on:	Chapter 36 “Fluoroscopy & Digital Fluoroscopy”
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Week 4	Mon.	TEST: Chapter 36
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Thurs.	Lecture on:	Chapter 20 “The Anode Bevel & Focal Spot Size” Chapter 21 “Source-Image Receptor Distance”
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Week 5	Mon.	Lecture on: Chapter 22 “OID & Distance Ratios”
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Thurs.	TEST: Chapters 20, 21, 22
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Week 6	Mon.	Lecture on: Chapter 23 “Alignment & Motion” Chapter 24 “Analyzing the Radiographic Image”
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Thurs.	TEST: Chapters 23 & 24
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Week 7	Mon.	NO CLASS – President’s Day
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Thurs.	Lecture on:	“Automatic Processors http://www.youtube.com/watch?v=aa1Cpz7OH44 http://www.youtube.com/watch?v=6DBU9y_0FDE
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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” <i>in the classroom</i>
Week 11	Mon.	Review for Comprehensive Principles II Final
	Thurs.	Catch-up day
Week 12	TBA	COMPREHENSIVE FINAL

COURSE 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. Parallax Imaging

- III. Fluoroscopy & Digital Fluoroscopy**

- IV. Image Intensifier (be able to briefly describe how each works)**
 - A. Input Phosphor & Photocathode
 - B. Electrostatic Focusing Lens
 - C. Accelerating Anode
 - D. Output Phosphor

- V. Beam Splitter**

- VI. Automatic Brightness System Image Qualities (be able to define these)**
 - A. Scintillation
 - B. Contrast
 - C. Distortion
 - 1. Pincushion Distortion
 - 2. Veiling Glare
 - 3. Vignetting
 - 4. Lagging

- VII. Image Recording Systems (be able to briefly describe)**
 - A. Photospot cameras
 - B. Digital Photospot
 - C. Cineradiography
 - D. Spot-Film Devices

- VIII. Minimizing Patient & Operator Exposure**
 - A. Pulsed fluoroscopy
 - B. ALARA
 - C. 3 – Cardinal Principles for Decreasing Patient Exposure

- IX. 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

X. Source-Image Receptor Distance

- A. Effects on Geometric Functions
 - 1. Sharpness of Recorded Detail
 - 2. Magnification
 - 3. Shape Distortion
- B. Effects on Visibility Functions
 - 1. Effect on Density
 - a. Inverse Square Law
 - b. Square Law
 - 2. Effect on Contrast

XI. 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

XII. 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

XIII. Analyzing the Radiographic Image

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

XIV. 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

XV. 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)

XVI. 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: Kimmy Eikum
Office #: Rm. 7-138
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Helen Murphy
Office #: Rm 7-137
Office phone #: 509-533-8616
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Jamie Tevis
Office #: Rm. 7-139
Office phone #: 509-533-8612
jamie.tevis@scc.spokane.edu
Office hours posted by office door

Debbie Miller
Office #: Rm 7-136
Office phone #: 509-533-8616
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition,
ISBN 9780323566674.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Fourteenth 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:

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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
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	2.0	78
	1.9	77
	1.8	76
	1.7	75
	1.6	74
	1.5	73
	1.4	72
	1.3	71
1.2	70	

GRADING METHOD:

Evaluations and Competences 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 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)
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SYLLABI (cont'd)

COURSE TITLE: Mobile/Surgical Procedures

COURSE NUMBER: RAD 127

CREDIT HOURS: 1

QUARTER: Winter 2022

INSTRUCTOR: Jamie Tevis B.S., R.T.(R)(M)
Office #: Rm. 7-137
Office phone #: 509-533-8612
Cell phone #: 509-768-9295
jamie.tevis@scc.spokane.edu
Office hours are posted by office door

REQUIRED TEXT:

Merrill's Radiographic Positioning and Procedures Volumes 2 and 3, 14th edition.

Frank, E., Long, B., & Smith, B. (2019). In Wilke J. (Ed.), *Merrill's atlas of radiographic positioning and procedures* (14th 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, and trauma procedures performed in a hospital setting. It emphasizes positioning techniques used to take appropriate radiographs of each body part based on the physician's request and patient condition. The student will become acquainted with various mobile radiographic equipment, proper use, alignment, and exposure factors, as well as patient apprehension, safety, and comfort.

COURSE OBJECTIVES:

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

METHOD OF TEACHING:

This course will consist of lecture, laboratory demonstration, and class discussions.

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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GRADING METHOD:

This course's grade will be a combination grade that will be based on homework, discussions, tests, a group project, and a comprehensive final. All homework, discussions, and tests must be completed by the date due to receive full credit. **Any assignment submitted after the due dates will receive only half credit.** Tests will be taken on your own in Canvas and timed. Even though you are taking tests at home, it is your responsibility to ensure that you are familiar with the material as you will not have time to look up every answer. Since the tests are not done in the computer lab at SCC it is your responsibility to find a computer that will allow you to take your test without any difficulty. A comprehensive final will be done on campus in the computer lab. The following is a breakdown of the grading method:

Homework	10% of overall grade
In Class Participation	10% of overall grad
Discussions	10% of overall grade
Group Project	20% of overall grade
Test's	20% of overall grade
Final	30% of overall grade

Winter Quarter 2022 tentative assignment schedule can be accessed on Canvas. Since this class only meets one day per week, homework, discussions and tests are all done on your own time. **Please pay attention to all due dates of assignments.**

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.

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

STUDENT LEARNING OBJECTIVES:

INTRODUCTION TO PORTABLES AND PERFORMING EXAMS

(SWBAT-Student will be able to...)

- Objective 1.** Identify and describe the different type of mobile equipment used
- Objective 2.** Describe a brief history of mobile x-ray
- Objective 3.** Describe types of grids used for mobile equipment
- Objective 4.** Identify radiation protection procedures for mobile exams

POST EXAM PROCEDURE 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, EXTREMITIES 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 PROCEDURES

(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.** Identify the uses of forensic radiology
- Objective 7.** Identify the types of fractures common in child abuse cases
- Objective 8.** Identify the areas of the morgue
- Objective 9.** Describe the types of exams performed in the morgue
- Objective 10.** Identify the different manors of death

***COLLEGE WIDE ABILITIES**

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- 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

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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.

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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- Observe, listen and respond appropriately
- Make justifiable inferences
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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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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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.



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.

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	<u>TEST</u> , (<i>Positioning in Surgery homework due</i>), <i>OEC video</i>
Week 6	(<i>Positioning in Trauma homework due</i>), Procedures regarding chest, abdomen and extremity's & Neonatal Lecture Quiz #2-Due on Canvas (Make up lecture due to President's Holiday) <u>QUIZ</u> , (<i>Portable Questions homework due</i>), Surgical procedures Lecture
Week 7	OFF 
Week 8	<u>TEST</u> , (<i>Mobile Worksheet homework due</i>) Fractures Lecture, (<i>Manual Technique chart homework due</i>), Group Projects due
Week 9	Quiz #3-Due on Canvas
Week 10	(<i>Fractures homework due</i>), Trauma radiography and Forensic Radiology Lecture
Week 11	<u>TEST</u> (<i>Trauma homework due</i>)
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 PROCEDURE 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
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- Objective 6.** Describe the medical legal system
- Objective 7.** Identify the uses of forensic radiology
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- Objective 10.** Describe the types of exams performed in the morgue
- Objective 11.** Identify the different manors of death

RUBRIC FOR CRITICAL THINKING 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	<ul style="list-style-type: none"> ✓ Analyzes insightful questions or exam order. ✓ Critiques content ✓ Values information ✓ Applies appropriate technique adjustments. ✓ Adapts to trauma patient situation with ease 	<ul style="list-style-type: none"> ✓ Examines conclusions ✓ Uses reasonable judgment ✓ Discriminates rationally ✓ Synthesizes data ✓ Views information critically 	<ul style="list-style-type: none"> ✓ Discusses issues thoroughly ✓ Shows intellectual honesty ✓ Justifies decisions ✓ Assimilates information ✓ Argues succinctly
3-Competent	<ul style="list-style-type: none"> ✓ Address's insightful questions or exam order. ✓ Categorizes content ✓ Recognizes content ✓ Makes attempt to apply appropriate technique adjustments ✓ Adapts to trauma patient situation 	<ul style="list-style-type: none"> ✓ Formulates conclusions ✓ Recognizes arguments ✓ Notices differences ✓ Evaluates data ✓ Seeks out information 	<ul style="list-style-type: none"> ✓ Argues clearly ✓ Identifies issues ✓ Attributes sources naturally ✓ Suggests solutions ✓ Incorporates information
2-Developing	<ul style="list-style-type: none"> ✓ Identifies some questions ✓ Recognizes basic content ✓ Selects sources adequately ✓ Makes some attempts to apply appropriate technique adjustments 	<ul style="list-style-type: none"> ✓ Identifies some conclusions ✓ Sees some arguments ✓ Identifies some differences ✓ Paraphrases data ✓ Assumes information valid 	<ul style="list-style-type: none"> ✓ Misconstructs arguments ✓ Generalizes issues ✓ Cites sources ✓ Presents few options ✓ Overlooks some information
Developing (cont'd)	<ul style="list-style-type: none"> ✓ Some adaption to trauma patient situation 	<ul style="list-style-type: none"> ✓ 	<ul style="list-style-type: none"> ✓
1-Beginning	<ul style="list-style-type: none"> ✓ 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 	<ul style="list-style-type: none"> ✓ Fails to draw conclusions ✓ Sees no arguments ✓ Overlooks differences ✓ Repeats data ✓ Omits research 	<ul style="list-style-type: none"> ✓ 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: Kimmy Eikum M.Ed., R.T. (R)(M)
Office #: Rm. 7-138
Office phone #: 509-533-8613
kimberly.eikum@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiologic Procedures 14th edition Ballinger & Frank

COURSE DESCRIPTION:

This course reviews 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.

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	
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	
Average Achievement “C”	2.8	86	
	2.7	85	
	2.6	84	
	2.5	83	
	2.4	82	
	2.3	81	
lowest grade acceptable to progress	2.2	80	
	2.1	79	
	2.0	78	
	1.9	77	
	Minimum Achievement “C” & “D”	1.8	76
	1.7	75	
these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74	
	1.5	73	
	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	<u>35%</u>
	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

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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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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This syllabus may be subject to change.

POSITIONING III
TENTATIVE CLASS SCHEDULE

Week 1	Monday	Introduction / assignments
	Thursday	Study groups for Monday, 4/13, test

Week 2	Monday	<u>TEST: Skull, Facial Bones & Sinuses anatomy & baselines, landmarks</u>
	Thursday	<i>WSRT</i>

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	<u>TEST: Skull</u>
-	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	<u>TEST: Facial Bones & Zygomatic Arches</u>

Week 6	Monday	TMJ positions: Bilat. Axialateral--open & closed mouth Mandiblepositions: PA & Towne with open mouth <i>HOMEWORK #1 DUE @ beginning of class!!</i>
	Thursday	Axialateral Obliques (several methods)

Week 7	Monday	<u>TEST: TMJ & Mandible</u>
	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 **TEST: 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

COURSE OUTLINE:

- I. Anatomy
 - A. Bones of the Cranium (8)
 - B. Bones of the Face (14)
 - C. Paranasal Sinuses
 - D. Sutures
 - E. Fontanelles
 - 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

SYLLABI (cont'd)

COURSE TITLE: Radiographic Imaging Evaluation III

COURSE NUMBER: RAD 134

CREDIT HOURS: 2

QUARTER: Spring

INSTRUCTOR: Helen Murphy, M.Ed., R.T.(R),
Office #: 7-138
Office phone #: 509-533-8616
Cell phone #: 509-202
helen.murphy@scc.spokane.edu
Office hours as posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition,
ISBN 9780323566674

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

Radiographic Image Analysis (McQuillen & Martensen) 5th Edition, ISBN-13: 978-0323522816

This textbook has an established tradition of helping students understand analysis of on image.

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
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
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
Lowest grade acceptable to progress	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

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:

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

Clinical Critique Rubric: 10% of final grade, 100 points 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. No grades will be eliminated from the computation of the quarter 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:

- 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
- 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

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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:
<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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.

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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 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 5 – Monday

Week 8 – Monday

Week 2 – Monday

Week 6 – Monday

Week 9 – Monday

Week 3 – Monday

Week 7 – Monday

Week 10 – Monday

Week 4 – 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**
 - **Metals**: 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?
(Perpendicular, or correct degree & direction of angle) Yes No

(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: Kimmy Eikum
Office #: Rm. 7-138
Office phone #: 509-533-8613
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Office hours posted by office door

Helen Murphy
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Debbie Miller
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deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition,
ISBN 9780323566674.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Fourteenth 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. This course continues with the development of clinical skills introduced in RAD 126.

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

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- Recognize academic and personal obstacles to learning and have strategies to overcome them

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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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- Organize information to develop and support a main idea
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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
- 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)
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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.

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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.

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This syllabus may be subject to change.

SYLLABI (cont'd)

COURSE TITLE: Radiographic Principles III

COURSE NUMBER: RAD 145

CREDIT HOURS: 2

QUARTER: Spring

INSTRUCTOR: Jamie Tevis, BS, R.T.R (R)
Office #: Rm 7-136 Office phone #: 509-533-8612
Cell phone #: 509-768-9295
jamie.tevis@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Radiography in the Digital Age: Physics, Exposure, Radiation Biology: (Carroll) 3rd Edition, ISBN 13: 9780398092416.

Radiologic Science for Technologists: Physics, Biology, and Protection: (Bushong) 11th Edition, ISBN-13 9780398092416.

Digital Radiography and PACS, (Carter) 3rd Edition, ISBN 13: 9780323547581

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 Cassette, Imaging 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:

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	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:

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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.

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: Radiographic Positioning IV

COURSE NUMBER: RAD 141

CREDIT HOURS: 2

QUARTER: Summer

INSTRUCTOR: Kimmy 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:

Merrill's Atlas of Radiographic Positions & Radiologic Procedures 14th Ed., Ballinger & Frank

COURSE DESCRIPTION:

This course reviews the bony positioning that was taught first quarter. This will include technique, 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
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
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
	1.7	75
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	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.

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

PLAGIARISM/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-04-060

- (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:

<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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

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This syllabus may be subject to change.

**POSITIONING IV – RAD 141
TENTATIVE CLASS SCHEDULE**

Week 1	Tues.	Review syllabus & introduction to Positioning IV
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Week 2	Tues.	Presentations & Assessments on: Digit/Thumb/Hand, Wrist/Forearm, & Elbow/Humerus
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Week 3	Tues.	Presentations & Assessments on: Shoulder/Scapula, AC Joints/Clavicle, Toes/Foot/Ankle, Calcaneus/Tib/Fib,
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Week 4	Mon.	Online TEST on Upper Limb & Shoulder Girdle due 11:55pm
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	Tues.	Presentations & Assessments on: Knee/Femur, Pelvis//Hip AP/Supine/Decubitus Abdomen/Ribs, Chests & SC Joints/Sternum
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Week 5	Mon.	Online TEST on Lower Limb & Pelvic Girdle due 11:55pm
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	Tues.	Presentations & Assessments on: Cervical Spine/Thoracic Spine Thoracolumbar/ Lumbar Spine, & Sacrum/Coccyx/SI Joints
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Week 6	Mon.	Online TEST on Bony Thorax, Chest, Vertebral Column & Abdomens due 11:55pm
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	Tues.	Presentations & Assessments on: Pediatrics, Elderly/Obese, Trauma & Mobiles
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Week 7	Mon.	Online TEST on Pediatrics, Elderly, Obese, Trauma & Mobiles due 11:55pm
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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

COURSE 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: Kimmy 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 as posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition,
ISBN 9780323566674

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

Radiographic Image Analysis (McQuillen & Martensen) 5th Edition, ISBN-13: 978-0323522816

This textbook has an established tradition of helping students understand analysis of on image.

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:

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	3.7	95
	3.6	94
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Lowest grade acceptable to progress	2.2	80
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	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, 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:

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

Clinical Critique Rubric: 10% of final grade, 100 points

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 **“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.

No grades will be eliminated from the computation of the quarter 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:

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

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- Receive, analyze, and present information through visual media
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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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Plagiarism Policy: WAC 132Q-04-061

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CHEATING: WAC 132Q-04-060

- (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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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:
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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.

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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.

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**
 - **Metals:** 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:

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?
(Perpendicular, or correct degree & direction of angle) Yes No

(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 IV

COURSE NUMBER: RAD 146

CREDIT HOURS: 9

CLINICAL HOURS: 231

QUARTER: Summer

INSTRUCTORS: Helen Murphy
Office #: Rm. 7-139
Office phone #: 509-533-8616
phone #: 509-202-7810
helen.murphy@scc.spokane.edu
Office hours posted by office door

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

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition,
ISBN 9780323566674.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Fourteenth 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. This course continues with the development of clinical skills introduced in RAD 136.

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.

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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
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
Lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
	1.7	75
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	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
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This syllabus may be subject to change.

SYLLABI (cont'd)

COURSE TITLE: Pharmacology/Venipuncture

COURSE NUMBER: RAD 235

CREDIT HOURS: 2

QUARTER: Summer

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

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.

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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	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
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
	1.7	75
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	1.4	72
	1.3	71
	1.2	70

GRADING METHOD:

- Online quizzes..... 100 points
- Discussion questions..... 20point
- 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.

***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
- Evaluate information on the basis of its origin, viewpoint, relevance and completeness

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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:

<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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 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

SYLLABI (cont'd)

COURSE TITLE: Quality Management

COURSE NUMBER: RAD 212

CREDIT HOURS: 1

QUARTER: Fall

INSTRUCTOR: Jamie Tevis, BS, R.T. (R), (M)
Office #: Rm. 7-139
Office phone #: 509-533-8612
Cell phone #: 509-768-9295
jamie.tevis@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Quality Management in the Imaging Sciences (Papp), 6th Edition, ISBN-13: 9780323512374.

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
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
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
	1.7	75
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	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.

<i>Assignment</i>	<i># of assignments</i>	<i>Points</i>	<i>Total possible</i>
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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COURSE OUTLINE:

<u>Week 1</u>	<u>Tues.</u>	CPR Review
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<u>Week 2</u>	<u>Tues.</u>	Go over Syllabi, Lab Packet
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<u>Week 3</u>	<u>Tues.</u>	Chapter 4, Film Processing and Chapter 5, Processor Quality Control
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<u>Week 4</u>	<u>Tues.</u>	Quiz , Chapter 4 and 5 <u>Processor Q.C. Packet Due, (YELLOW)</u> Chapter 1, Intro to Quality Management Chapter 3, Darkrooms
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<u>Week 5</u>	<u>Tues.</u>	<u>Darkroom worksheet due,(GREEN)</u> TEST, Chapter 1, 3, 4, and 5
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<u>Week 6</u>	<u>Tues.</u>	Chapter 6, Silver Recovery, Chapter 7, QC of Rad. Equipment, Chapter 8, QC of Fluoro Equip
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<u>Week 7</u>	<u>Tues.</u>	<u>Silver recovery/Q.C. Worksheet due,(PINK)</u> TEST, Chapter 6, 7, and 8
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<u>Week 8</u>	<u>Tues.</u>	Chapter 9, Advanced imaging equipment Chapter 10, Outcomes assessment of Rad. Imaging
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<u>Week 9</u>	<u>Tues.</u>	<u>Q.C. test packets (COSMIC GREEN) & Extra credit (TAN) are due!</u> QUIZ , Chapter 9 and 10 <u>C.R. and Artifact Worksheet due, (BLUE)</u> , Repeat Analysis Project
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<u>Week 10</u>	<u>Tues.</u>	TEST, Chapter 9 and 10
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<u>Week 11</u>	<u>Tues.</u>	FINAL IN THE LAB
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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: Helen Murphy
Office #: Rm. 7-137
Office phone #: 509-533-8616
Cell phone #: 509-202-7810
helen.murphy@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition,
ISBN 9780323566674

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 Imaging, 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:

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		1.7	75
1.6		74	
1.5		73	
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 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 handbook and as follows.

TESTS -----200 points each

Assignments-----100 points each

COMPREHENSIVE FINAL-----500 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:

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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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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- 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

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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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- 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

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CHEATING: WAC 132Q-04-060

- (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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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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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.

COURSE 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: Kimmy 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:

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Fourteenth 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. Analyze images to determine the appropriate use of beam restriction.
10. Identify common equipment and patient malfunctions that affect image quality, and corrective action needed to fix them.

11. Differentiate between technical factor problems, procedural factor problems and equipment malfunctions.
12. 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
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
Average Achievement “C”	2.7	85
	2.6	84
	2.5	83
	2.4	82
	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:

The 110 points (11 for each class time, 9 class times in all) for participation and attendance will be applied at the beginning of the course. You will lose your points for the day for any of the following:

1. Missed class
2. Arriving late and/or leaving early. This includes arriving late to start an exam in the computer lab.
3. Disruptive in class (for example: Talking out of turn in class)

You will not make up the quiz 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. 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. Scheduled weekly quiz's that are done on Canvas will have a due date/time and these quizzes must be completed by the date/time in order to received full grade. Any quiz given on Canvas that is not completed by the date/time will receive ½ credit if done with in 24 hours of due date.

Attendance/Participation Points Critique form.....	= 10%
One-on-One	= 10%
Discussion Questions	= 20%
Weekly Quizzes.....	= 35%
<u>Final.....</u>	<u>= 25%</u>

*Check grades online (Canvas)

One-n-One with Kimmy

ON December 6th you will bring your bluebook to the instructor's office where you will critique random images/exams that are from your logbook. This allows the instructor to evaluate how you are doing in image eval without the help and/or interference of other classmates.

Clinical Critique Form

Form is due every Tuesday. Completed form will be handed in at the end of the quarter (form is worth 5% of the final grade other 5% is your attendance/participation). Even if you are in a Various Modalities rotation you can be looking at images for that modality or others. Clinical Critique Rubric: 100 points total (if the form is turned in each week with no images that are addressed, ½ credit will be given for that week.) In order for you to receive all the points possible you will need to bring your form with you every Tuesday! This means that the class days you do not have normal class you must still bring it to get checked off!

10-9 weeks=100% of the points
 8-7 weeks=80% of the points
 6-1 weeks=50% of the points

“ALL OR NOTHING METHOD”:

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.

No grades will be eliminated from the computation of the quarter 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 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:

- 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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Second Offense: Automatic failure of the course.

I would like to bring to your attention that ethical conduct is one of the most important attributes of a competent health care professional and that cheating on an exam may deprive your future patients of the quality health care they deserve.

I am here to remind you during each and every exam, you will not use any outside source of information, including but not limited to your textbook, other resource books, computers, electronics, i.e., cell phone, iPad, websites, google, another person. You need to treat the quiz as if you were in class, an instructor conducting the quiz, performing to the best of your ability using your learned knowledge and understanding, which in turn safeguards you, your family and friends to educated practitioners with the patient in mind. It is your responsibility to develop and maintain ethical conduct.

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CLASSROOM MASK POLICY:

MASK POLICY:

The radiology faculty (Kim Eikum, Helen Murphy, Debbie Miller and Jamie Tevis) have agreed to adhere to the following classroom mask policy in all of their classes; thus, making it consistent amongst the faculty and easier for the students to remember.

As of the start of the fall quarter 2021 the faculty has agreed to the following: Masks will be required to be worn by individuals that have not completed the COVID vaccination. All students that have completed the COVID vaccination are not required to wear a mask. All students are encouraged to wear a mask while in the classroom if they choose.

This policy will be in effect as of fall 2021 start. If the state (governor) and/or campus president implements stricter guidelines, the program will follow the guideline presented to us for the duration of the mandate.

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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 Thursday** giving your answer to each of the questions posted and your long critique of the image, second by Monday please comment on at least one other classmate's reply (Senior must respond to a juniors post) 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 about film evaluation and to facilitate the learning of your fellow junior or senior students. **You automatically lose ½ credit if you do not complete 2 post and you will lose 2 points if you do not do your first post by Thursday evening.**

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 Dates: On Canvas

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**
 - **Metals**- 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. Test films can be **ANYTHING**. Be prepared! If we go over a certain exam it **MAY** appear as a test either in the spring, summer or fall quarters.
3. 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.
4. There is no set schedule for this course. We will be covering various exams and images each week. I have given you a tentative schedule to go by.
5. It is your responsibility to review Merrill or the Image Analysis books regularly.
6. 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.
7. In regards to testing:
 - *Long Critique* images will be given a 5 min. time limit
 - *Quick Critique* images will be given 30 seconds per image
8. When doing a Long Critique you must indicate, at the bottom of the page, an *average technique* for the image.
9. 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.

This syllabus may be subject to change.

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?
(Perpendicular, or correct degree & direction of angle) Yes No

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

(10 points) Why or why not? _____

Average Technique for this view: _____

One-on-One Critique Requirements:

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, technique, 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					
IMAGE EVAL ONE-ON-ONE CRITIQUE					
Grading Criteria					
Student: _____		Exams: _____			
	0.1 - 0.5 Points	0.6 - 1.0 Points	1.1 - 1.5 Points	1.6 - 2.0 Points	Score
CORRECT LABELING	The student does not recognize the patient's information is incorrect and the limb/pt's side is incorrectly marked on the image(s).	The student has difficulty recognizing either the patient's information, or the limb/pt's side is incorrectly marked on the image(s).	The student has difficulty recognizing the images have the patient's information, however, the student has used someone else's Rt./Lt. markers to correctly identify the limb/pt's side.	The student recognizes the images have the pt's information and the student has used their own Rt./Lt. markers to correctly identify the limb/pt's side.	
PROPER TECHNIQUING	The student does not recognize the images are too light or dark, have the wrong algorithms and do not have optimum contrast.	The student has difficulty recognizing the images are marginally too light or dark, close to the correct range of algorithms and/or does not have optimum contrast & is unable to provide corrective measures.	The student has difficulty recognizing the images are marginally too light or dark, but has optimum contrast. Yet, when the errors are pointed out the student is able to provide corrective measures.	The student recognizes the images have the optimum contrast density and/or algorithms.	
PROPER POSITIONING	The student does not recognize the images are grossly off-centered and incorrectly positioned.	The student has difficulty recognizing the images are off-centered or incorrectly positioned & is unable to provide corrective measures.	The student has difficulty recognizing the images are slightly off-center or incorrectly positioned. Yet, when pointed out to them, they are able to give corrective measures.	The student recognizes the images are correctly positioned and centered well.	
COLLIMATION	The student does not recognize the radiograph is not collimated	The student has difficulty recognizing the images are collimated in one direction only.	The student has difficulty recognizing the images show signs of collimation that is greater than 1/2" and less than 1 1/2 "	The student recognizes the images are collimated to within 1/2" of the anatomy of interest.	
ARTIFACTS	The student does not recognize the images contain artifacts .	The student has difficulty recognizing images containing artifacts which may or may not be positioned very close to the area of interest.	The student recognizes the images contain artifacts, yet doesn't see the importance of removing the artifacts since the artifacts do not overly the area of interest.	The student recognizes the images are free of artifacts.	
FINAL SCORE: _____					

SYLLABI (cont'd)

COURSE TITLE: Radiation Biology & Protection

COURSE NUMBER: RAD 215

CREDIT HOURS: 2

QUARTER: Fall

INSTRUCTOR: Debbie Miller
Office #: Rm. 7-136
Office phone #: 509-533-8614
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. 12th 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:

ALL PowerPoints, Lecture Notes, Protocols, Handouts, etc. are subject to change 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
Superior Achievement “A”	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
Average Achievement “C”	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
	2.2	80
	2.1	79
lowest grade acceptable to progress	2.0	78
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.9	77
	1.8	76
	1.7	75
	1.6	74
	1.5	73
	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, homework, tests & comprehensive final. All homework is due the day before we discuss the chapters in class. All homework must be completed on the date and time due, in order to receive full credit. If you fail to complete your homework on time, you can get 50% if it is completed within 24 hours of the due date & time. After the 24-hour mark, you will receive a “0” grade for that homework assignment. If you are absent on a test day, 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 10% deduction will be applied to final quiz or test grade. A comprehensive final will be given which constitutes the remaining 30% of the final grade. Grades can be checked online on Canvas.

The 100 extra points (10 for each class time, 10 class times in all) for participation and attendance will be applied at the beginning of the course. You will lose your points for the day for any of the following:

1. Missed class
2. Arriving late (Tardy) and/or leaving early.
3. Disruptive in class (for example: Talking out of turn in class)

The following is a breakdown of the grading method:

Participation/Attendance-----	15%
Homework-----	15%
Tests-----	40%
Comprehensive Final-----	30%

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.

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:

1. Review the major subdivisions of a cell
2. Review the nucleus and cytoplasm of a cell when given a diagram.
3. Review the term chromosome.
4. Review the primary constituents of chromosomes.
5. Review the importance of DNA in the cell.
6. Review the importance of linkage of the ladder arrangement of DNA.

7. Review the structures of a DNA molecule.
8. Review the differences between genetic and somatic cells.
9. Differentiate between the direct and indirect interactions.
10. Describe an ion and a free radical.
11. Describe relative biological effect (RBE), linear energy transfer (LET), and the quality factor (QF).
12. Name the general effects of radiation on other cellular constituents.
13. State the difference between a differentiated and undifferentiated cell.
14. List factors contributing to the radiosensitivity of tissues.
15. Describe the mechanisms of radiation damage to radioresistant and radiosensitive tissue.
16. Select the most radiosensitive and radioresistant organs and tissues when given a list of organs and tissues.
17. State the effects of radiation on the male and female reproductive systems.
18. Provide reasons why the embryonic period of life is so radiosensitive.
19. Describe the risk involved in irradiation of a female during stages of pregnancy.
20. List possible symptoms of an individual exposed to increasing doses of radiation.
21. Define LD 50/30.
22. Explain the relationship between ionizing radiation and cancer.
23. State the name assigned to the time period between radiation exposure and the appearance of cancer.
24. Discriminate between acute radiation effects and late radiation effects.
25. Define health physics.
26. List the cardinal principles of radiation protection.
27. Describe the ALARA concept.
28. Give the dose limits for occupational and nonoccupational workers for whole-body, skin and extremities.
29. Describe the recommended procedures for the pregnant radiographer and pregnant patient.
30. Name the leakage radiation limits for x-ray tubes.
31. List the nine radiation protection features of radiographic equipment.

32. List the nine radiation protection features of fluoroscopic equipment.
33. Compare the design of primary and secondary radiation barriers.
34. Compare the units and concepts of occupational exposure.
35. Describe ways of reducing occupational exposure.
36. 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

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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:

<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

Electronic devices, (i.e. cell phones, smart phones, smart watches, etc.): These are not allowed in class. **ALL ELECTRONIC DEVICES WILL BE PLACED IN THE STUDENT'S ASSIGNED SLOT PRIOR TO THE START OF 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

Tuesday	Sept. 27th	Introduction to class, discuss expectations & assignments. Movie: <i>Radioactive</i>
Monday	Oct. 3rd	<i>Homework due for Chapters 37, 39 - 40 by 11:59pm</i>
Tuesday	Oct. 4th	Lecture on: Chapter 37 “Radiography/ Fluoroscopy Patient Radiation Dose” Chapter 39 “Patient Radiation Dose Management” Chapter 40 “Occupational Radiation Dose Management”
FRIDAY	Oct. 7th	<i>Homework due for Chapters 29 – 31 by 11:59pm</i>
Tuesday	Oct. 11 th	TEST: Chapter 37, 39 – 40 Lecture on: Chapter 30 “Fundamental Principles of Radiology” Chapter 31 “Molecular Radiobiology” Chapter 32 “Cellular Radiobiology”
Tuesday	Oct. 18th	TEST: Chapters 30 – 31 TV Series: <i>Chernobyl</i>
Monday	Oct. 24th	<i>Homework due for Chapters 32 – 34 by 11:59pm</i>
Tuesday	Oct. 25 th	Lecture on: Chapter 33 “Deterministic Effects of Radiation” & Chapter 34 “Stochastic Effects of Radiation”
Tuesday	Nov. 1st	TEST: Chapter 33 – 34
Monday	Nov. 7th	<i>Homework due for Chapters 35 - 36 by 11:59pm</i>
Tuesday	Nov. 8 th	Lecture on: Chapter 35 “Health Physics” & Chapter 36 “Designing for Radiation Protection” TV Series: <i>Chernobyl</i>
Tuesday	Nov. 15th	TEST: Chapters 35 - 36
Tuesday	Nov. 22nd	TV Series: <i>Chernobyl</i>
Tuesday	Nov. 29th	COMPREHENSIVE FINAL TV Series: <i>Chernobyl</i>
Tuesday	Dec. 6 th	NO CLASS

5 episodes of Chernobyl - we will be watching these during times when your other classes have openings.

RADIATION BIOLOGY & PROTECTION – 215

COURSE OUTLINE:

- I Radiography/Fluoroscopy Patient Radiation Dose
 - A. Patient Dose Descriptions
 - 1. Estimation of Patient Dose
 - a. Entrance Skin Exposure (ESE)
 - b. Gonadal
 - c. Mean Marrow
 - d. Glandular
 - e. Tissue
- II Patient Radiation Dose Management
 - A. 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

III 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

IV. 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

V 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

VI. Molecular Radiobiology

- A. Irradiation of Macromolecules
 - 1. Main-Chain Scission
 - 2. Cross-Linking
 - 3. Point Lesions

- a. Macromolecular synthesis Catabolism
 - b. Anabolism
 - 4. Radiation Effects on DNA
 - 5. Radiolysis of Water
 - B. Direct & Indirect Effect
- VII. 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
- VIII. 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 Survival

E. Cytogenetic Effects

- a. Normal Karyotype

- b. Single-hit chromosome aberrations

- c. Multi-hit chromosome aberrations

- d. Kinetics of Chromosome Aberration

IX. 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

X. 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

XI. 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

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
	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

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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:

<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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 & Radiographic Procedures (Ballinger) 14th Edition,
ISBN 9780323566674.

*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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Superior Achievement “A”	4.0	100 - 98
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	3.7	95
	3.6	94
	3.5	93
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	3.2	90
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	3.0	88
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	2.5	83
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	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
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	1.7	75
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	1.4	72
	1.3	71
	1.2	70

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 & DEMONSTRATIONS:

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

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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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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- (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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PERSONS WITH DISABILITIES STATEMENT:

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

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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: 2

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 (Eisenberg), 6th Edition, ISBN 13: 9780323353243.

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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	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
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
	1.7	75
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	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 the 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 their cardiovascular system.
- To be able to describe the various pathologic conditions affecting the cardiovascular system and their 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:

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/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-04-060

- (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:

<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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 v

COURSE NUMBER: RAD 224

CREDIT HOURS: 2 Credits

QUARTER: Winter 2022

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:

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Fourteenth 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
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
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
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Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	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.

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.*** If you are not in the classroom when class is to start you will lose ½ the daily points. 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 Form

Form is due every Tuesday. Completed form will be handed in at the end of the quarter (form is worth 5% of the final grade other 5% is your attendance/participation). Even if you are in a Various Modalities rotation you can be looking at images for that modality or others. Clinical Critique Rubric: 100 points total (if the form is turned in each week with no images that are addressed, ½ credit will be given for that week.) In order for you to receive all the points possible you will need to bring your form with you every Tuesday! This means that the class days you do not have normal class you must still bring it to get checked off!

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.

No grades will be eliminated from the computation of the quarter 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:

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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For non-Safe Campus Advocate syllabi: CCS' Safe Campus Advocates program is an effort to create a safe space for all students. If you have concerns for yourself or others concerning bias, bias-motivated violence, discrimination, inequitable treatment, microaggressions, or prejudice, you can speak with an Advocate who can listen to you, support you, advocate for you, and help you address your concern.* To find an Advocate, look for the Safe Campus decal on office doors, email Claudine Richardson at claudine.richardson@sfcc.spokane.edu or call 509.533.3546, email Katie Clemons at Katie.Clemons@sfcc.spokane.edu, or stop by the MOSAIC center in building 17 room 130. *Please note that all CCS employees are mandatory reporters and therefore cannot keep reports of abuse confidential.

For Safe Campus Advocate syllabi: SFCC's Safe Campus Advocates program is an effort to create a safe space for all students. As an Advocate, I have been trained to listen to you, support you, advocate for you, and help you address concerns you might have regarding bias, bias-motivated violence, discrimination, inequitable treatment, microaggressions, or prejudice.* Specifically, I have been trained to advocate for XXX, XXX, and XXX students. Other Advocates are available for you as well. If you would feel more comfortable with an Advocate who is not your current instructor or has expertise working with students of other diverse backgrounds, look for the Safe Campus decals on office doors, email Claudine Richardson at claudine.richardson@sfcc.spokane.edu or call 509.533.3546, email Katie Clemons at Katie.Clemons@sfcc.spokane.edu, or stop by the MOSAIC Center in building 17 room 130. *Please note that all SFCC employees are mandatory reporters and therefore cannot keep reports of abuse confidential.

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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.

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 Thursday** giving your answer to each of the questions posted and your long critique of the image, second by Monday please comment on at least one other classmate's reply (Senior must respond to a juniors post) posting under each of the categories per week. **Please use the Jr. 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 about film evaluation and to facilitate the learning of your fellow junior or senior students. **You automatically lose ½ credit if you do not complete 2 post and you will lose 2 points if you do not do your first post by Thursday evening.**

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 Dates:
On Canvas**

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**
 - **Metals:** 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.

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

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:

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?
(Perpendicular, or correct degree & direction of angle) Yes No

(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** (50-60 min)

Use your imagination, teach the class the way you want. 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. I will not be playing any games, I am there to observe. A copy of any PowerPoint, game or handouts must be turned in to the instructor. Please leave a copy of any PowerPoints or electronic submissions on desktop on computer. 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 or Quick Critiques, (written question tests or a new type of critique test can be used but they must be done with a Long Critique or Quick Critique). You cannot give “Group Tests”! Each student must take their own test. You can give extra credit points for games done during class. You can give a **max of 5 extra credit** points per student.

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). **A “Key”, must be turned in to me the week before for grading.** If you are teaching a mini class the long critique can not be on the same subject.

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 (if the form is different than the normal used one) and a key. **All groups will go over their test image on February 22nd.** You cannot have the students grade their own test, that is for the group teaching the class. The quiz form can be found on Canvas. Assigned groups have been predetermined. See list below.

IMAGE EVALUATION SENIOR CLASS GROUPS

GROUP # and DATE	NAME	SUBJECT
(1) Jan. 18		
(2) Jan. 18		
(3) Jan. 25		
(4) Jan. 25		
(5) Feb. 1		
(6) Feb. 1		
(7) Feb. 8		
(8) Feb. 15		
(9) Feb. 15		

These dates could change

Ideas for class: Games, Proportional Anatomy, Techniques, Mini Class on exam, Portable/C-arm, Anatomy of images, Trauma Critique, Ref, IE #'s, Quick Critique.

IMAGE EVALUATION (THIS FORM WILL NOT BE SHARED WITH ANYONE IN THE GROUP!)

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
Life Tips given	1			4
Feedback asked for	1			4

NAME: _____

Shows willingness to perform assigned tasks	1	2	3	4
Interacts well with the class	1	2	3	4
Gives constructive <u>criticism</u>	1	2	3	4
Is able to critique radiographs for quality	1	2	3	4
Works well with assigned group	1	2	3	4
Life Tips given	1			4
Feedback asked for	1			4

GROUP TOTAL# _____

Time Started _____ Time ended _____

points _____

Items to be turned in:

PowerPoint	Y	N
Game	Y	N
Handouts	Y	N
Test	Y	N
Misc.	Y	N
Peer Evals	Y	N

Received Key: _____ Checked Key _____

IMAGE EVALUATION-Group Presentation Critique

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 _____

Life Tips _____

Feedback _____

Appropriate grading of quizzes for errors without being
Overly lenient or critical (x3) _____

Time started _____ Time Ended _____
(3) _____

Group total _____

[88 total possible]

COMMENTS:

THIS FORM WILL BE HANDED BACK TO EACH OF YOU

PEER EVALUATION

Please rate 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 your peers, use a one-to-five-point scale, where

- 5 = Superior;**
- 4 = Above Average;**
- 3 = Average;**
- 2 = below average; and**
- 1 = weak.**

Insert **the name of each of your peers** in the spaces provided. (One name at the top of each column).

Names	Myself				
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					

Worth 20 points

Self-Evaluation

1. How many hours did you put into this project? _____ (5)___.

2. What was your part of the project?

_____ (5)___

3. What problems, if any, did you run into?

_____ (5)___

4. Did you learn anything from this group project? If yes, what did you learn? If no, what should we do different?

(5)

I NEED FROM YOUR GROUP:

<input type="checkbox"/>	PowerPoint
<input type="checkbox"/>	Game/game rules
<input type="checkbox"/>	Blank Test
<input type="checkbox"/>	Test Key
<input type="checkbox"/>	Hand outs
<input type="checkbox"/>	Other: _____

THIS FORM WILL BE FILLED OUT BY EACH PERSON IN THE GROUP. IT WILL BE SEEN BY THE INSTRUCTOR ONLY!

Image Evaluation Group Presentation Rubric				
Score	4	3	2	1
Willingness to perform	Was well prepared with assignment and prepared to conduct class	Prepared for class but had some organizational difficulties	Needed to improve on class prep and/or readiness to present. Did not start on time.	Unprepared for class assignment. Did not start on time.
Interactions with class	Interacts well with the class. Excellent communication. Answered questions from the class	Interaction with class was acceptable but communication improvement was needed.	Needed to improve on class interactions and communication. Did not address questions from class.	Interaction and communication was not accomplished.
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 willingly and supported the efforts of the students.	Difficulty in giving or receiving constructive criticism. Was hesitant to listen to, share willingly and or support the efforts of the students.	Argumentized at times, did not receive or give constructive criticism to peers. Did not listen to students.
Critique of Radiographs	Displayed skills in critiquing images and how to make necessary corrections. Offered suggestions of corrections easily.	Minimal difficulty critiquing images and making appropriate corrections.	Has difficulty critiquing images and making appropriate corrections	Unable to recognize images that need correction
Works well with partner	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. Was 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
Life Tips	Gave Life tips in presentation			Did not give Life tips in presentation.
Feedback	Asked for feedback from class.			Did not ask for any feedback from class
Grading of quiz X3 the score	Appropriate grading of quiz was accomplished with less than 2 mistakes noted. Key was 100%	Grading of quiz was acceptable with 3-5 mistakes noted. Key was 99%-90%.	Improvement of grading of quiz needed to be accomplished with 6-8 mistakes noted. Key was 89%-80%.	Imappropriate grading of quiz was noted with 9 or more mistakes. Key was 79% or lower.
Length of class X3 the score	Class lasted 50-60 minutes	Class lasted 45-49 minutes	Class lasted 30-44 minutes	Class lasted less than 30 minutes.

This syllabus may be subject to change

SYLLABI (cont'd)

COURSE TITLE: Skull & GI Review

COURSE NUMBER: RAD 225

CREDIT HOURS: 1

QUARTER: Winter

INSTRUCTOR: Kimmy 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:

Merrill's Atlas of Radiographic Positions & Radiologic Procedures, 14th 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
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
Average Achievement “C”	2.8	86
	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
	1.7	75
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	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.

The students will begin the quarter with 50 participation points. ***The 50 points (10 for each class time, 5 class times in all) for participation and attendance will be applied at the beginning of the course. You will lose ALL your points for the day for any of the following:***

1. Missed class (even if it is a test day!)
2. Arriving late and/or leaving early. Arriving late to the computer lab for tests/quizzes.
3. Disruptive in class (for example: Talking out of turn in class)

The students will also be graded on how well they perform during the demonstration and/or ability to lead a discussion.

The following is a breakdown of the grading method:

Participation Points-----	30%
Demonstration or Lead Discussion points-----	30%
Tests-----	40%

The two Skull, GI, Myelogram/LP, & Cysto/VCUG will be done on Canvas and they will have a designated due date on MONDAYS (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. A student will only be able to see one question at a time and will not be allowed to go back!!

The Senior Project/Essay, Senior Portfolio, and Registry Review test scores 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. 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. The tests will be timed. Registry Review Tests will not be reopened for any reason.

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 & 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

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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:

<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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.

VETERANS:

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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

For non-Safe Campus Advocate syllabi: CCS’ Safe Campus Advocates program is an effort to create a safe space for all students. If you have concerns for yourself or others concerning bias, bias-motivated violence, discrimination, inequitable treatment, microaggressions, or prejudice, you can speak with an Advocate who can listen to you, support you, advocate for you, and help you address your concern.* To find an Advocate, look for the Safe Campus decal on office doors, email Claudine Richardson at claudine.richardson@sfcc.spokane.edu or call 509.533.3546, email Katie Clemons at Katie.Clemons@sfcc.spokane.edu, or stop by the MOSAIC center in building 17 room 130. *Please note that all CCS employees are mandatory reporters and therefore cannot keep reports of abuse confidential.

For Safe Campus Advocate syllabi: SFCC’s Safe Campus Advocates program is an effort to create a safe space for all students. As an Advocate, I have been trained to listen to you, support you, advocate for you, and help you address concerns you might have regarding bias, bias-motivated violence, discrimination, inequitable treatment, microaggressions, or prejudice.* Specifically, I have been trained to advocate for XXX, XXX, and XXX students. Other Advocates are available for you as well. If you would feel more comfortable with an Advocate who is not your current instructor or has expertise working with students of other diverse backgrounds, look for the Safe Campus decals on office doors, email Claudine Richardson at claudine.richardson@sfcc.spokane.edu or call 509.533.3546, email Katie Clemons at Katie.Clemons@sfcc.spokane.edu, or stop by the MOSAIC Center in building 17 room 130. *Please note that all SFCC employees are mandatory reporters and therefore cannot keep reports of abuse confidential.

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

Monday Week 1 **Patient Care/Medical Ethics/Pharmacology/Venipuncture Test**
(DUE by 11:55pm)

Tuesday Week 1 Introduction, syllabus & tentative schedule
Cover Letters, Resume & Interview class (Guest Lecturers)

Monday Week 2 **Principals I (Fuchs) Parts A & B Review Tests: (DUE by 11:55pm)**
(Primarily Ch. 1 – 24)

Tuesday Week 2 **DEMONSTRATIONS ON:**
1.) Skull
2.) Facial Bones (& Zygomatic Arches)
3.) MJs

Monday Week #3 **Principals II (Fuchs) Parts A & B Review Tests (DUE by 11:55pm)**
(primarily CR/DR)

Tuesday Week 3 **DEMONSTRATIONS ON:**
1.) Nasal Bones
2.) Orbits
3.) Sinuses
4.) Mandible
SENIOR PROJECTS/ESSAYS DUE!!!

Monday Week 4 **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

Tuesday Week 4 **DEMONSTRATIONS / DISCUSSIONS ON:**
1.) Feeding Tubes
2.) Esophagus
3.) UGI
4.) Small Bowel studies
5.) Barium Enemas
6.) Fistula tracts

TENTATIVE CLASS SCHEDULE (continued)

.....
Monday Week 5 **Physics I Parts A & B Review Tests:** (DUE by 11:55pm)
(Primarily Ch. 1 – 6)

.....
Tuesday Week 5 Review with Jamie—CR/DR/Quality Management

.....
Monday Week 6 **Physics II Parts A & B Review Tests:** (DUE by 11:55pm)
(Primarily Ch. 6 – 10)

.....
Tuesday Week 6 **DEMONSTRATIONS / DISCUSSIONS ON:**
1.) Barium Enemas via colostomy
2.) Defecos & Colon Transit studies
3.) Myelograms & Lumbar Punctures
4.) Cystograms, VCUGs & IVU
5.) Arthrograms

.....
Monday Week 7 **ONLINE GI / Meylograms / Cystograms / VCUG**
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

Tuesday Week 7 ARRT PAPERWORK/WA LICENSE

.....
Monday Week 8 **Rad. Bio I Parts A & B Review Tests:** (DUE by 11:55pm)
(Primarily Ch. 32 - 36)

Tuesday Week 8 Trauma labs with Jamie (B-M)

.....
Monday Week 9 **Rad. Bio II Parts A & B Review Tests:** (DUE by 11:55pm)
(Primarily Ch. 37 – 39)

Tuesday Week 9 Trauma labs with Jamie (R-W)

.....
Monday Week 10 **Med Term Parts A & B Review Test:** (DUE by 11:55pm)

.....
Tuesday Week 10 *****SENIOR PORTFOLIO Due*****
Present Senior Projects to Junior and Seniors

**(DEAD DAY), APPOINTMENT WITH KIMMY TO COMPLETE ARRT EXAM SIGN UP!
SCHEDULED THROUGH SIGN UP GENIUS.**

Demonstrations:

Each day we are in class, various students will be asked to position an exam in the radiology lab. For example, it may be a hand and a student will describe while positioning a classmate. The images they will be positioning will be school protocol images. The student needs to explain where the CR enters, the appropriate kVp, image size while demonstrating each protocol position. In addition, the instructor will have protocol images for the student to review with his/her classmate. The student will review anatomy, proper positioning and any adjustments that may be necessary. As this class is all about review of what has been already taught, the instructor feels this is a good way to refresh the student's memory on what they have learned.

When it is time to review a particular exam, the instructor will draw the name of the student, who will be demonstrating, out of a bucket. That particular name will not be placed back into the bucket until all the names have been drawn. Once all the names have been drawn the instructor will place the names back in the bucket and the process will be again.

The students are free to offer tips that they have learned in the clinical setting.

Student Led Discussions:

The student, whose name was drawn, will lead open discussions on various fluoroscopy exams (see schedule) The student led Discussions will be designated on the week prior to the discussion. The student leading the discussion should be looking for feedback and suggestions from his/her classmates. Again, the students are free to offer tips that they have learned in the clinical setting.

Tests:

The tests will be based on what you are reviewing, demonstrating and discussing in class; along with what was previously taught in regards to anatomy, CR, image size, & image criteria. This is a review of Positioning I and the first part of Positioning II.

POSITIONING IV DEMONSTRATION / DISCUSSION RUBRIC

CATEGORY	8-7	6-5	4-3	2-1
VERBAL DEMONSTRATION	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.
IMAGES	Is able to thoroughly review and explain the protocol images provided by the instructor or included images in PPT.	With some prodding, is able to review and explain, the protocol images provided by the instructor. Did not include image in PPT	Struggles to review and explain 1-2 of the protocol images provided by the instructor	Is unable able to review and explain, a majority of the protocol images provided by the instructor

CATEGORY	8-7	6-5	4-3	2-1
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.
KNOWLEDGE OF SUBJECT MATTER	Excellent knowledge of exams with excellent explanation/demonstration of how to perform the exam. Knows Protocols.	Average knowledge of exams with average explanation/demonstration of how to perform the exam. Struggled with protocols	Had limited knowledge of exams or gave partial explanation/demonstration of how to perform the exam. Did not know protocols	Had no knowledge of exams or was unable to explain/demonstrate how to perform the exam
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.
ADDED MORE....(+2)	Gave life experiences to demonstration with tips .			

COMMENTS:

Student's Names: _____

Demonstration on: _____ **Total Points:** _____

Possible Points: 40 pts

SKULL & GI REVIEW – RAD 225

COURSE OUTLINE:

- 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
 - 1. AP Axial Towne / Haas
 - 2. PA Axial Caldwell
 - 3. Lateral
 - C. Facial Bones
 - 1. AP Axial Towne / Haas
 - 2. PA Axial Caldwell
 - 3. Waters / Reverse Waters
 - 4. Lateral (upright & crosstable)
 - D. Mandible
 - 1. Open Mouth AP Axial Towne
 - 2. Straight PA
 - 3. Axiolateral Obliques
 - E. Nasal Bones
 - 1. Waters / Modified Waters
 - 2. Lateral
 - F. TMJs
 - 1. Lateral: open mouth
 - 2. Lateral: closed mouth
 - G. Orbits/Optic Foramen
 - 1. Rhese
 - 2. Waters
 - 3. PA Caldwell: 22 degree
 - H. Paranasal Sinuses
 - 1. Waters
 - 2. Open mouth Waters & SubV
 - 3. Lateral
 - 4. PA Axial Caldwell

SYLLABI (cont'd)

COURSE TITLE: Clinical Education VI

COURSE NUMBER: RAD 226

CREDIT HOURS: 8 **CLINICAL HOURS:** 297

QUARTER: Winter

INSTRUCTORS: Kimmy Eikum
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Debbie Miller
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Office phone #: 509-533-8616
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition, ISBN 9780323566674.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Fourteenth 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. This course continues with the development of clinical skills introduced in RAD 216.

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
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:

Evaluations and Competency Clearances90% 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
 - Recognize bias, stereotyping, and manipulation
 - Analyze, interpret, and synthesize information
 - Evaluate information on the basis of its origin, viewpoint, relevance and completeness
-

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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 132O-04-060

- (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:

<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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: Clinical Education VII

COURSE NUMBER: RAD 236

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

QUARTER: Spring

INSTRUCTORS: Kimmy Eikum
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Helen Murphy
Office #: Rm 7-137
Office phone #: 509-533-8616
helen.murphy@scc.spokan.edu
Office hours posted by office door

Jamie Tevis
Office #: Rm. 7-139
Office phone #: 509-533-8612
jamie.tevis@scc.spokane.edu
Office hours posted by office door

Debbie Miller
Office #: Rm 7-136
Office phone #: 509-533-8616
deborah.miller@scc.spokane.edu
Office hours posted by office door

REQUIRED TEXT:

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ISBN 9780323566674.

Reference Merrill's Radiographic Positioning and Procedures Volumes 1, 2 &3, Fourteenth 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. This course continues with the development of clinical skills introduced in RAD 226.

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.

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	3.8	96
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	2.7	85
	2.6	84
	2.5	83
	2.4	82
	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
	1.7	75
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	1.4	72
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GRADING METHOD:

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

COMPETENCY CLEARANCE GRADING POLICY:

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FINAL GRADE:

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STUDENT LEARNING OBJECTIVES:

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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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- Evaluate information on the basis of its origin, viewpoint, currency, relevance, and completeness
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- Analyze information, critically recognizing viable solutions
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Plagiarism Policy: WAC 132Q-04-061

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CHEATING: WAC 132Q-04-060

- (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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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:

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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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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: Helen Murphy
Office #: Rm. 7-137
Office phone #: 509-533-8616
Cell phone #: 509-202-7810
Helen.murphy@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**

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

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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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- 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
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- Formulate reasoned solutions and interpret them to others
- Evaluate and test solutions for validity and appropriateness

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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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Second Offense: Automatic failure of the course.

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<https://scc.spokane.edu/About-Us/Public-Disclosures/Right-to-Know/Notice-under-the-Americans-with-Disabilities-Act>.

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REGISTRY REVIEW SCHEDULE

The first review tests will be taken during winter quarter. Then the remaining review tests will be taken during the first part of spring quarter. Each test has a set time limit. 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 from the first day of the quarter 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 **Tuesday, April 19th**. 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 exams on the computer in the computer lab. 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 the 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:

Tuesday,	Apr. 5 th	Final Competency/Review-Games
Monday	Apr. 11 th	Radiographic Positioning Test III (GI, GU, Reproductive, CNS, Skull, Facial & misc.)
Tuesday,	Apr. 12 th	Review - Games
		Corectec must be purchased DUE

SIMULATED REGISTRY EXAMS:

The tests will be taken in the computer lab (room 007)!! @ 10:30am.
Door will be locked at 10:30!! If you arrive late you will have to schedule a time to take the exam.

Tuesday	April 19 th	1 st Exam	(mandatory)
Tuesday	April 26 th .	2 nd Exam	(mandatory)
Tuesday	May 3 rd .	3 rd Exam	(mandatory)
Tuesday	May 10 th	4 th Exam	(mandatory)
Tuesday	May 17 th	5 th Exam	(mandatory)
Tuesday	May 24 th	6 th Exam	(mandatory)
Tuesday	May 31 st	7 th Exam	(mandatory)
Tuesday	June 7 th .	8 th Exam	(mandatory)

Wednesday	June 8 th	9 th Exam	(if necessary)
Thursday	June 9 th .	10 th Exam	(if necessary)
Friday	-June 10 th	11 th Exam	(if necessary)

****You must take the first eight simulated registry exams even if you achieve a 75% prior to the eighth exam. You are not required to take exams after exam #8 if you have achieved a 75% on one of the first 8 tests. The scores for all the exams you take will be recorded & included in the overall grade for the registry review & mock exams.**

Please review the Corectec info below!!

Corectec.com

Corectec LLC

Address: PO Box 7275, Athens, GA 30604

Phone: (706) 310-1845 9:00 AM – 6:00 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 will provide a comprehensive review based on the latest A.R.R.T. content specifications for the Radiography Examination.

As a student at Spokane Community College, you may purchase Corectec’s Online Review for **\$80**, at Corectec’s web site: **Corectec.com**. There is information about placing your order when you select “Tips” on the menu bar. To place your order, please select “Order” on the menu bar. If the debit or credit card belongs to someone else, be sure to enter your name and address in the “Ship To” information. You will be asked to use a valid email address and then create your own password. Your account login will be your email address. Two people may not use the same email address.

Your school code will also be required. It is: **XXX**

You may print the receipt that you see when your order is successfully processed.

Please note: 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.

When maintenance is necessary, the Corectec Review may be down for a few minutes. We will post a message on the site, when this happens. We appreciate your patience. If a technical problem develops with your own account, you should log off your account, 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 6 p.m. EST or email us at corectec@aol.com, if it is after regular hours.

You must purchase this no later than 8:00a.m. First Tuesday of April

SYLLABI (cont'd)

COURSE TITLE: CAT Scan

COURSE NUMBER: RAD 238

CREDIT HOURS: 1

QUARTER: Spring

INSTRUCTOR: Helen Murphy
Office #: Rm. 7-137
Office phone #: 509-533-8616
Cell phone #: 509-202-7810
Helen.murphy@scc.spokane.edu
Office hours posted by office door

GUEST SPEAKER: Felix Bunton
Phone #: 251-1114
mcfunkenhammer@hotmail.com

REQUIRED TEXT:

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition,
ISBN 9780323566674.

Radiologic Science for Technologists: Physics, Biology, and Protection: (Bushong) 11th Edition, ISBN-13
9780398092416

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.

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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
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	2.4	82
	2.3	81
lowest grade acceptable to progress	2.2	80
	2.1	79
	2.0	78
	1.9	77
	1.8	76
	1.7	75
Minimum Achievement “C” & “D” these grades are <u>not</u> sufficient to continue into the next course sequence	1.6	74
	1.5	73
	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**

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- Set and recognize priorities
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Demonstrate respect for self and others

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

- Formulate questions
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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

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: <https://scc.spokane.edu/For-Our-Students/Student-Resources/Veterans-One-Stop>.

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,	<i>Merrill's Ch. 31 ONLINE HOMEWORK Due by 11:55pm (it can be found under quizzes)</i>
	Tuesday,	Guest Speaker: Marcus Swett on contrast injectors Guest Speaker: Felix Bunton (Begin: Learning Objectives 1-3)
Week 3	Monday,	<i>Bushong's Ch. ONLINE HOMEWORK: Due by 11:55pm (it can be found under quizzes)</i>
	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)
	<i>Wednesday,</i>	<i>**Contrast Media Lecture (9:30-11:30, Bldg. 9, room 208) MANDATORY 9:30 – 11:30, Bldg. 9, room 208!!</i>
Week 6	Monday,	<i>ONLINE TEST #1: Due by 11:55pm</i>
	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,	<i>ONLINE TEST #2: Due by 11:55pm</i>
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

SYLLABI (cont'd)

COURSE TITLE: Advanced Image Evaluation

COURSE NUMBER: RAD 239

CREDIT HOURS: 1

QUARTER: Spring

INSTRUCTOR: Jamie Tevis B.S., R.T.(R)(M)
Office #: Rm. 7-137
Office phone #: 509-533-8612
Cell phone #: 509-768-9295
jamie.tevis@scc.spokane.edu
Office hours are posted by office door

REQUIRED TEXT:

Merrill's Radiographic Positioning and Procedures Volumes 2 and 3

Merrill's Atlas of Radiographic Positions & Radiographic Procedures (Ballinger) 14th Edition,
ISBN 9780323566674.

SUGGESTED TEXT:

Kelley, L.L., Peterson, C.M. (2018). *Sectional anatomy for imaging professionals* (4th edition). St. Louis, MO: Mosby Elsevier.

COURSE DESCRIPTION:

This is a 1 credit course designed to provide the student with an introduction to cross sectional image evaluation. We will cover the entire human body and evaluate images as we go through each anatomical system.

COURSE OBJECTIVES:

- Identify anatomical structures on cross sectional images to include the head, spine, thorax, abdomen, pelvis, and upper and lower extremities
- Describe the relationship of each anatomical structure to surrounding structures
- Discuss the function of major bodily systems using cross sectional imaging
- Differentiate between MR and CT cross sectional images in the coronal, sagittal, transverse, and oblique imaging planes

METHOD OF TEACHING:

This course will consist of weekly reading, online lectures, and homework activities. Lectures will discuss major structures found in each body cavity. Homework will cover the lecture and reading content, along with labeling worksheets to aid students in identifying anatomy on cross sectional images. I encourage students to work together on the labeling worksheets given for each system. Majority of this courses content will be online and accessible through Canvas.

METHOD OF COMMUNICATION:

There will be an open discussion board for students to ask and answer questions. It is important that you subscribe to the discussion board, so you know when others are posting. If you have a question that you think others may have as well, please post to the discussion board, so everyone is able to see it. If a fellow student posts a question that you feel you can answer, please do so. I will check the discussion board daily Monday- Friday, and occasionally on weekends. If you have private questions you may email me, and I will get back to you within 24 hours.

GRADING METHOD:

This course's grade will be based on homework and tests. Even though course content is primarily online, *it is not a "work at your own pace" course*. All assignments must be completed by the due date to receive full credit. **Any assignment submitted after the due dates will receive only half credit.** You will have *two tests* in this class; one mid-term covering the first set of body cavities, and one at the end of the term covering the second set of body cavities. Tests will be taken on your own time but must be completed by the due date. Tests are timed and will require you to have knowledge of the material going in. It is your responsibility to find a computer that will allow you to take your test without any difficulty. There will be computers available at SCC in the radiology lab core and in the building 7 computer lab. You must make prior arrangements to use these so please contact your instructors as soon as possible if you need to utilize this. The following is a breakdown of the grading method:

Lecture Homework	20%
Labeling Worksheets	30%
Test's	<u>50%</u>
	100%

Spring Quarter 2020 assignment schedule can be accessed on Canvas. This class is mainly an online class and will only meet if required. Please pay attention to all due dates of assignments.

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.

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
	1.3	70

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.]*

***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

Plagiarism Policy: WAC 132Q-04-061

PLAGIARISM/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-04-060

- (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:

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SCC RADIOLOGY TECHNOLOGY STUDENT HANDBOOK:

The SCC Radiology Technology Student Handbook can be found on our website at:

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