



COURSE OUTLINE

Course Number RAD128	Course Title Radiographic Procedures II	Credits 6
Lecture Hours 2	Prerequisites: RAD107, RAD119, RAD127	
Laboratory Hours 3	Co-Requisites: RAD114, RAD120, BIO104	
Clinical Days 28		

Catalog Description (2018-2019):

Continuation of RAD 127, with standard radiographic positioning and related medical terminology of the bony thorax, pelvic girdle, upper femora, and vertebral column. Involves laboratory simulation and evaluation. Students acquire clinical experiences at an affiliate hospital sufficient to demonstrate competency in a specified number and variety of radiographic procedures beyond those demonstrated the previous semester. (**Spring 2019**)

Required Texts/Other Materials:

Title:	Textbook of Radiographic Positioning and Related Anatomy
Author:	K.L. Bontrager; J.P. Lampignano
Publisher:	Elsevier Mosby
Edition:	9 th
Title:	Radiographic Positioning and Related Anatomy Workbook, Volume I
Author:	K.L. Bontrager; J.P. Lampignano
Publisher:	Elsevier Mosby
Edition:	9 th
Title:	Radiographic Image Analysis
Author:	Kathy McQuillen Martensen
Publisher:	Mosby
Edition:	4 th
Title:	Radiographic Image Analysis Workbook
Author:	Kathy McQuillen Martensen
Publisher:	Mosby
Edition:	4 th
Title:	Bontrager's Handbook of Radiographic Positioning & Techniques
Author:	K.L. Bontrager; J.P. Lamignano
Publisher:	Elsevier Mosby
Edition:	9 th

Title: Mosby's Dictionary of Medicine, Nursing
& Health Professions (E-book)
Publisher: Mosby
Edition: 8th

Revision Date **Course Coordinator:**

Spring 2019 No Course Changes Deborah Greer
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Course Competencies/Goals (Student Learning Outcomes):

At the completion of the course, the student should be able to:

1. Define the medical terms and pathological processes that apply to the pelvic girdle, proximal femora, vertebral spine and bony thorax.
2. Efficiently perform the routine radiographic positions applicable to the pelvic girdle, proximal femora, vertebral spine and bony thorax under simulated conditions in the laboratory utilizing radiographic equipment and accessories as needed.
3. Evaluate radiographic images to determine acceptability of positioning and identification of anatomical structures.
4. Describe accessory devices utilized and demonstrate appropriate use.
5. Identify the radiology department protocols as they relate to radiographic procedures.
6. Communicate effectively during laboratory simulation of radiographic procedures.
7. Become oriented to the operating room procedures.
8. Successfully complete initial clinical competency evaluations involving five (5) radiographic procedures on patients in the clinical setting.*

*Students who demonstrate competency in any procedure may perform that procedure with indirect supervision. This means that the licensed radiographer need not be present in the radiographic room during the procedure, but must be adjacent to the room and immediately available should the student require assistance.

Any student who produces an unacceptable image that requires a retake must have it performed with direct supervision regardless of that student's level of competency. Failure to comply with this rule will subject the student to disciplinary action.

Course-specific General Education Goals and Core Skills (Student Learning Outcomes, Continued):

General Education Knowledge Goals:

- **Goal 1. Communication.** Students will communicate effectively in both speech and writing.
- **Goal 2. Mathematics.** Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.
- **Goal 3. Science.** Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
- **Goal 4. Technology.** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.
- **Goal 5. Social Science.** Students will use social science theories and concepts to analyze human behavior and social and political institutions and to act as responsible citizens.
- **Goal 8. Diversity.** Students will understand the importance of a global perspective and culturally diverse peoples.
- **Goal 9. Ethical Reasoning and Action.** Students will understand ethical issues and situations.

MCCC Core Skills

- **Goal A. Written and Oral Communication in English.** Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.
- **Goal B. Critical Thinking and Problem-solving.** Students will use critical thinking and problem solving skills in analyzing information.
- **Goal C. Ethical Decision-Making.** Students will recognize, analyze and assess ethical issues and situations.
- **Goal D. Information Literacy.** Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.
- **Goal E. Computer Literacy.** Students will use computers to access, analyze or present information, solve problems, and communicate with others.
- **Goal F. Collaboration and Cooperation.** Students will develop the interpersonal skills required for effective performance in group situations.
- **Goal G. Intra-Cultural and Inter-Cultural Responsibility.** Students will demonstrate an awareness of the responsibilities of intelligent citizenship in a diverse and pluralistic society, and will demonstrate cultural, global, and environmental awareness.

Units of Study in Detail:

At the completion of each weekly three-component activity (lecture, laboratory, clinical education) the student will be able to:

- Exercise the priorities required in daily clinical practice. (GE 1, A)
- Execute medical imaging procedures under the appropriate level of supervision. (GE 9, C)
- Adhere to team practice concepts that focus on organizational theories, roles of team members and conflict resolution. (GE F)
- Adapt to changes and varying clinical situations. (GE B)
- Provide patient-centered clinically effective care for all patients regardless of age, gender, disability, special needs, ethnicity or culture. (GE 8, G)
- Integrate the use of appropriate and effective written, oral and nonverbal communication with patients, the public and members of the health care team in the clinical setting. (GE 1, A)
- Integrate appropriate personal and professional values into clinical practice. (GE 9, C)
- Recognize the influence of professional values on patient care. (GE 8, Goal C)
- Explain how a person's cultural beliefs toward illness and health affect his or her health status. (GE 8, C)
- Use patient and family education strategies appropriate to the comprehension level of the patient/family. (GE 1, A)
- Provide desired psychosocial support to the patient and family. (GE 5)
- Demonstrate competent assessment skills through effective management of the patient's physical and mental status. (GE 1, A)
- Respond appropriately to medical emergencies. (GE 1, A, F)
- Examine demographic factors that influence patient compliance with medical care. (GE 8, C)
- Adapt procedures to meet age-specific, disease-specific and cultural needs of patients. (GE 8, C)
- Assess the patient and record clinical history. (GE 1, A)
- Demonstrate basic life support procedures.
- Use appropriate charting methods. (GE 1, A)
- Apply standard and transmission-based precautions.
- Apply the appropriate medical asepsis and sterile technique.
- Demonstrate competency in the principles of radiation protection standards
- Examine procedure orders for accuracy and take corrective actions when applicable.
- Demonstrate safe, ethical and legal practices. (GE 1, 9, A-C)
- Integrate the radiographer's practice standards into clinical practice setting. (GE 8, C)
- Maintain patient confidentiality standards and meet HIPAA requirements.
- Demonstrate the principles of transferring, positioning and immobilizing patients.
- Comply with departmental and institutional response to emergencies, disasters and accidents. (GE 1, A, F)
- Differentiate between emergency and non-emergency procedures.
- Adhere to national, institutional and departmental standards, policies and procedures regarding care of patients, providing radiologic procedures and reducing medical errors.

- Select technical factors to produce quality diagnostic images with the lowest radiation exposure possible.
- Critique images for appropriate anatomy, image quality and patient identification. (GE 4, B, E)
- Determine corrective measures to improve inadequate images. (GE B)

Note: All objectives listed above satisfy the course Goals/Competencies identified on page 2 of this Course Outline)

Topical Outline:

The general plan for the fifteen-week semester identifies the topics and procedures to be discussed and simulated in the laboratory:

<u>Week #</u>	<u>Topic</u>
1	Radiography of the Femur and Hip
2	Radiography of the Pelvic Girdle
3	Radiography of the Cervical Spine
4	Radiography of the Cervical Spine, continued
5	Radiography of the Thoracic Spine
6	Radiography of the Lumbar Spine
7	Lumbar Spine, continued with Sacroiliac Joints
	Spring Break (No classes 3/18/19 – 3/24/19)
8	Midterm Examination
9	Radiography of the Sacrum and Coccyx and Scoliosis
10	Radiography of the Bony Thorax
11	Radiography of the Bony Thorax, continued
12	Principles of Trauma and Operating Room Radiography
13	Principles of Trauma and OR Radiography, continued
14	Review
	Comprehensive Final Examination

Week 1 through 14: Clinical education is provided two days per week.

Lecture Schedule (Wednesday 8:00 AM – 9:50 AM)

WEEK #	TOPIC	READING ASSIGNMENT (BONTRAGER)
1	Femur and Hip	Chapter 7
2	Hip and Pelvis Quiz #1: Femur, Hip & Pelvis Quiz #1 : Image Analysis	Chapter 7
3	Cervical Spine Quiz #2: Trauma: Hip & Pelvis Quiz #2 : Image Analysis	Chapter 8
4	Cervical Spine, Continued Quiz #3: Cervical Spine Quiz #3 : Image Analysis	Chapter 8
5	Thoracic Spine Quiz #4: Cervical Spine, Continued Quiz #4 : Image Analysis	Chapter 8
6	Lumbar Spine Quiz #5: Thoracic Spine Quiz #5 : Image Analysis	Chapter 9
7	Lumbar Spine, Continued, plus Sacroiliac Joints Quiz #6: Lumbar Spine Quiz #6 : Image Analysis	Chapter 9
	SPRING BREAK (3/18/19- 3/24/19)	Enjoy!
8	Midterm Examination	
9	Sacrum, Coccyx, and Scoliosis	Chapter 9
10	Ribs & Sternum Quiz #7: Sacrum & Coccyx and Scoliosis Quiz #7 : Image Analysis	Chapter 10
11	Ribs and Sternum, Continued Quiz #8: Bony Thorax: Ribs Quiz #8: Image Analysis	Chapter 10
12	Trauma and OR Radiography Quiz #9: Bony Thorax: Sternum Quiz #9: Image Analysis	Chapter 15
13	Trauma and OR Radiography Continued	
14	Final Exam Review	
Finals Week	Comprehensive Final Exam	

RAD128 RADIOGRAPHIC PROCEDURES II

LECTURE DATE	WEEK	LECTURE TOPIC	WED PM Practice Lab	MON PM Practice Lab	FRI AM/ PM Testing
1/23	1	Femur (Complete) and Hip	Femur and Hip 4 positions 1/23	Femur and Hip 4 positions 1/28	2/1
1/30	2	Hip and Pelvis Quiz #1: Proximal Femur; Hip & Pelvis Quiz #1 : Image Analysis	Bilateral AP and lateral Hips; Trauma Hip; acetabulum 1/30	Bilateral AP and lateral Hips; Trauma Hip; acetabulum 2/4	2/8
2/6	3	Cervical Spine Quiz #2: Trauma Hip & Pelvis Quiz #2 : Image Analysis	C Spine 4 positions 2/6	C Spine 4 positions 2/11	2/15
2/13	4	Cervical Spine, Continued Quiz #3: Cervical Spine Quiz #3 : Image Analysis	C Spine Odontoid, Cross table lateral and Transthoracic-Swimmers 2/13	C Spine Odontoid, Crosstable lateral and Transthoracic-Swimmers 2/18	2/22
2/20	5	Thoracic Spine Quiz #4: Cervical Spine, Continued Quiz #4 : Image Analysis	T-Spine 4 positions 2/20	T-Spine 4 positions 2/25	3/1
2/27	6	Lumbar Spine Quiz #5: Thoracic Spine Quiz #5 : Image Analysis	L Spine 4 positions 2/27	L Spine 4 positions 3/4	3/8
3/6	7	Lumbar Spine, Continued plus SI Joints Quiz #6: Lumbar Spine Quiz #6 : Image Analysis	L5-S1 2 positions; SI joints 3/6	L5-S1 2 positions; SI joints 3/11	3/15
3/13		Midterm Examination	Make-Up Testing* 3/13	Make-Up Testing* 3/25	
3/20	8	SPRING BREAK	SPRING BREAK	SPRING BREAK	SPRING BREAK
3/27	9	Sacrum and Coccyx 4 positions Scoliosis 2 positions	Sacrum and Coccyx 4 positions Scoliosis 2 positions 3/27	Sacrum and Coccyx 4 positions Scoliosis 2 positions 4/1	4/5
4/3	10	Ribs and Sternum, part 1 Quiz #7: Sacrum and Coccyx, and Scoliosis Quiz #7 : Image Analysis	Rib series 4 positions 4/3	Rib series 4 positions 4/8	4/12
4/10	11	Ribs and Sternum, part 2 Quiz #8: Bony Thorax – Ribs Quiz #8 : Image Analysis	Sternum 2 positions 4/10	Sternum 2 positions 4/15	4/19
4/17	12	Trauma and OR Radiography Quiz #9: Bony Thorax – Sternum Quiz #9 : Image Analysis	Trauma Procedures 4/17	Trauma Procedures 4/22	4/26
4/24	13	Trauma and OR Radiography, continued	Practice Lab 4/24	Practice Lab 4/29	5/3
5/1	14	Final Examination Review	Make-Up Testing 5/1	Make-Up Testing 5/6	
5/8		Comprehensive Final Examination			

TENTATIVE LECTURE & LABORATORY SCHEDULE

Evaluation of Student Learning:

The student must receive a minimum grade of "C+" (77%) or higher in each component of the course (lecture, laboratory and clinical education) in order to continue in radiography courses. A grade of "P" (pass) must be earned in the clinical component. The following course grade distribution will be utilized:

Lecture:	80%
Laboratory:	20%
Clinical:	Pass/Fail (P/F)

Lecture Evaluation & Grading Policy:

A minimum of ten weekly written tests and image evaluation quizzes, 4 critical thinking assignments, a midterm and a final examination will be administered in the lecture component. The lecture grade will be determined on the basis of the following distribution:

Weekly Tests:	40%
Critical Thinking:	5%
Image Analysis:	5%
Midterm Exam:	20%
Final Exam:	30%

Laboratory Evaluation & Grading Policy:

Laboratory testing is an integral part of the clinical competency process. This process begins with classroom instruction followed by laboratory demonstration. Students then practice those positions learned in lecture and demonstration.

Laboratory testing requires the student to demonstrate proficiency in positioning, patient care and communication, equipment use and radiation protection. Students must demonstrate a minimum of two positions chosen at random from those practiced in the laboratory during the current week. A minimum score of 85% is needed in order to successfully complete a laboratory test, also called a laboratory practical evaluation.

Each position is evaluated separately. Certain objectives must be successfully achieved in order to pass. The laboratory test will be terminated if the requirements of these areas are not met before a simulated exposure is made. These objectives are related to proper communication, interpretation

of the procedure to be demonstrated and radiation protection. A copy of the laboratory testing form will be distributed during the first laboratory practice session.

Students are required to complete twelve (12) laboratory tests (laboratory evaluations). To achieve the highest degree of success, students are urged to study the assigned material, ask relevant questions in class when the material is not clearly understood, and actively engage in laboratory practice. **Until a laboratory test is successfully completed, students are not permitted to perform that same procedure on patients in the hospital!** However, students are free to practice with each other while at the hospital when circumstances permit and make the best use of laboratory practice sessions. The best use of laboratory time requires **observation, collaboration and participation.**

The laboratory grading is based on the number of laboratory tests completed **on the first attempt** as follows:

12 = 100% (A); 11 = 92%(-A); 10 = 83%(B); 9 = 75%(C)

When a laboratory test is unsuccessful, the student will be asked to retest provided that remediation is performed and that evidence of remediation is submitted in a timely fashion as determined by the course instructor. A maximum of 3 different radiographic procedures can be retested. An unsuccessful retest in any one of these will result in an unsatisfactory laboratory grade. All outstanding laboratory testing must be completed by the end of the semester. Otherwise, the student will earn an unsatisfactory grade for the course.

Clinical Education Evaluation & Grading Policy:

There will be two (2) clinical evaluations that will cover the student's overall technical and professional development. Students will be evaluated weekly by the staff that they are assigned with. These weekly evaluations will become the basis for the clinical evaluations conducted by the senior clinical instructor and the adjunct clinical faculty member. An image evaluation presentation will be made by students that will demonstrate their ability to critique the quality of images taken in the clinical setting with respect to technique, positioning and other criteria (patient identification, marker placement, etc.).

Students are required to satisfactorily complete clinical competency testing involving a minimum of five (5) radiographic procedures covered in lecture, evaluated in laboratory and performed at the initial (CCE) level as defined in the Clinical Education Student Handbook. Two of the five radiographic procedures evaluated must be of the chest (PA and lateral) and abdomen (acute abdominal or obstructive series).

The clinical grade is computed as follows:

Clinical Evaluations	40%
Image Evaluation	30%
Clinical Competency Evaluations	30%

Clinical Assignment Schedule:

Students will report to the assigned clinical facility prepared to begin clinical education at 8:00 a.m. unless otherwise notified. Specific clinical dates, hours and sites will be distributed at the start of the course.

*Note: Students who demonstrate competency in any procedure may perform that procedure under indirect supervision. This means that the licensed radiographer need not be present in the radiograph room during the procedure, but must be adjacent to the room and immediately available should the student require assistance.

Students who produce unacceptable radiographs must repeat those radiographs under direct supervision regardless of the student's level of competency. Failure to comply with this rule is subject to disciplinary action.

Clinical Education Policies:

The student should refer to the clinical education handbook for the pertinent policies regarding attendance, punctuality, the clinical competency process, etc.

Attendance Policy:

1. Students are expected to be in attendance at the scheduled start time of all class and laboratory sessions; late arrival is disruptive to the class and instructor. Attendance will be taken for all lecture and lab sessions. The following grading system will be recorded for late arrival and absences:

A. Lecture:

1. Three points will be deducted from the final lecture grade for each late arrival to a scheduled lecture.
2. Five points will be deducted from the final lecture grade for each absence from a scheduled lecture.

B. Laboratory:

1. Three points will be deducted from the final lab grade for each late arrival to a scheduled laboratory.
2. A total of five (5) points will be deducted from the final laboratory grade for each lab test not taken on schedule. (Refer to item # 3-4 below)

2. Cell phones must be turned off upon entering the classroom. Receiving phone calls in tone or vibration mode are distracting to other students. Calls may not be made on personal cell phones during class time. Students may not charge their personal cell phone in the radiography classroom MS 314.
3. All students are required to attend every lab session. Students must be present for the entire period actively engaged in radiographic positioning, assisting classmates, and image evaluation. In case of emergency or illness, exceptions may be made if the student contacts the course instructor prior to the lab session. If the instructor is not available, a message must be transmitted by e-mail or voice mail before the lab session begins. A valid, documented excuse (i.e. doctor's note, vehicular repair) must be presented the next class session. It will be the instructor's prerogative to decide whether or not the excuse is valid. If deemed valid, a make-up session would be conducted in the college lab according to a schedule arranged by the instructor. Students may not lab test until the lab session has been completed. If a student misses more than one lab session clinical education progression may be jeopardized, leading to course failure.
4. Students who miss a laboratory test will be rescheduled according to a schedule arranged by the instructor. Students may not progress with the clinical competency process on the missed lab procedure; this may jeopardize completion of clinical education requirements. A total of five (5) points will be deducted from the final laboratory grade for each lab test not taken on schedule.
5. Make-up written exams are not permitted. Students must contact the instructor directly, leave a voice or e-mail message prior to the time of the scheduled exam. Students who miss an examination must provide a valid, documented excuse i.e. doctors note, vehicular repair by the next class session. If determined valid by the instructor, the comprehensive mid-term and/or final exam will be calculated with an additional weight equal to the missed examination. This will serve as verification of material comprehension covered on the missed examination.

Academic Integrity:

Mercer County Community College is committed to Academic Integrity -- the honest, fair and continuing pursuit of knowledge, free from fraud or deception. This implies that students are expected to be responsible for their own work.

Academic Integrity is violated whenever a student:

- A. Uses or obtains unauthorized assistance in any academic work.
- B. Gives fraudulent assistance to another student.
- C. Knowingly represents the work of others as his/her own, or represents previously completed academic work as current.

- D. Fabricates data in support of an academic assignment.
- E. Inappropriately or unethically uses technological means to gain academic advantage.

For any academic integrity violation, the faculty member will determine the penalty and shall notify the chairperson of the Academic Integrity Committee of the violation and the penalty imposed. Students should refer to the MCCC Student Calendar/Handbook for the complete policy and OMB210 (http://www.mccc.edu/academic_policies_integrity.shtml).

Accessibility:

Mercer County Community College is committed to ensuring the full participation of all students in its programs. If you have a documented differing ability or think that you may have a differing ability that is protected under the ADA or Section 504 of the Rehabilitation Act, please contact Arlene Stinson in LB216 (stinsona@mccc.edu) for information regarding support services.

RAD128 RADIOGRAPHIC PROCEDURES II



Mercer County Community College
 Radiography Program
 Clinical Education Dates - Class 2020
 Course: RAD 128 Semester: Spring 2019

January

	Tu	Th		
			24	
	29		31	

February

	Tu	Th		
	5		7	
	12		14	
	19		21	
	26		28	

March

	Tu	Th		
	5		7	
	12		14	
	26		28	

April

	Tu	Th		
	2		4	
	9		11	
	16		18	
	23		25	
	30			

May

	Tu	Th		
			2	
	7			

March 12: Mid-Term Evaluation Due
 March 18 -24: Spring Break
 May 7: End-Term Evaluation Due
 May 8 - 13: Final Exams