School of Nursing and Health Professions Syllabus

HUDSON COUNTY COMMUNITY COLLEGE
HUDSON is HOME!

Term: **Credit: 3CR** **Office Hours:**

Course Code: RAD 103 **Office Location:**

Title of Course: Radiography III **Email:**

Days & Times: **Phone:**

Location: **Prerequisites/ Corequisites: RAD 101 – 105**

Co-Req RAD 106

Instructor:

COURSE DESCRIPTION:

Patient Care introduces the relationship of pharmacology to contrast media studies along with learning venipuncture technique and patient assessment skills. Principles of exposure will discuss x-ray equipment, exposure charts, Radiographic Math, and the basic understanding of maintaining technical factor usage. Advanced modalities, such as Computed Tomography, Nuclear Medicine, MRI, Radiation Oncology, and Interventional imaging are covered to help prepare students for senior year clinical rotations.

STUDENT LEARNING OUTCOMES:
Methods of Patient Care

SLO 1 Pharmacology: ARRT 2022 content specifications

- Recognize common definitions and nomenclature.
- Recognize the various classifications of drugs.
- Describe the actions, indications, and precautions related to various drugs.

SLO 2 Principles of Drug Administration

- List the five rights of drug administration.
- List the methods of drug administration.
- Identify the appropriate areas for drug administration areas for drug administration
- Prepare intravenous drugs for injection.
- Perform venipuncture using appropriate universal precautions.

SLO 3 Contrast Media and Special Radiographic Techniques

- State the purpose of contrast media
- Name the general types of contrast media used for specific radiographic procedures

- Match specific procedures to particular patient instructions.
- Identify the contraindications for contrast media
- Differentiate among the major adverse effects of various contrast agents.
- Recognize the clinical symptoms of adverse reactions to iodinated contrast media to the level of treatment required.

SLO4: Medical Law

- Differentiate among the various types of law.
- Outline how the standard of care is established for radiologic technologists.
- Discuss the concept of tortious conduct and causes of action that may arise from the
- behavior of a health care practitioner.
- Identify and discuss key terminology associated with medical law.

SLO5: Health Records and Health Information Management

- Identify major health information management department functions.
- List the key components of a patient health record in acute care.
- List the key components of a patient health record in alternative health care settings, including ambulatory care and long-term care.
- Identify coding as it relates to radiologic procedures and the reimbursement impact for health care facilities.
- Differentiate between confidential and non-confidential information.
- Explain the Health Insurance Portability and Accountability Act (HIPAA) privacy and security requirements in a radiologic setting.
- Discuss the procedure for correcting or amending documentation errors in a patient health record.

SLO6: Professional Organizations

- Differentiate accreditation, certification, and representation functions of various professional organizations.
- Describe the organizations that carry out the professional aspects of a specific radiologic technology area of specialization.

SLO7: Radiology Administration

- Provide an overview of the administration of a hospital radiology department and the structure of hospital organization.
- Understand the role of the radiology administrator.
- Describe regulating agencies that affect radiology.
- Discuss the characteristics of desirable applicants for employment in radiology.
- Exposure and Equipment Operations

SLO 8 Radiographic Math and Practice

- Calculate the correct factors for creating proper exposures based on changes in technical settings.
- Advanced Modalities and Special Studies

SLO 9 Computed Tomography-Introduction –ASRT objectives

- Identify the generational changes and advances in CT systems.
- List the major components of a CT system.
- Explain the basic operating principles of CT imaging, including x-ray transmission, data acquisition, image reconstruction, window width, window level, and slice thickness
- Define and calculate pitch ratio for a volume CT scan using different variables.

SLO 10 Special Studies: Interventional Imaging Procedures

- Define the purpose, of vascular and interventional angiography.
- Explain consent and preprocedural patient care.
- Discuss vessel access for contrast media injection.
- List six steps involved with Seldinger technique.
- Discuss contraindications/risk complications.

SLO 11 DEXA (Dual energy X-ray absorptiometry)

- Define purpose of bone densitometry and its clinical indications.
- Explain the differences between a T-score and a Z-score.
- Discuss the radiation protection involved with DXA systems.

SLO 12 Magnetic Resonance Imaging (MRI)

- Explain how MRI produces an image
- Compare the process of MRI image production with that of other imaging modalities
- Explain how a tissue signal is generated and received from body tissues
- Identify basic MRI safety considerations
- Identify information to be included when preparing a patient for an MRI exam
- State the appearance of specific tissue types on both T1- and T2-weighted images
- **SLO 13 Ultrasound Imaging (Sonography)**
- Discuss principles of ultrasound with its limitations and advantages.
- Describe clinical applications.

SLO 14 Nuclear Medicine (NM)

- Define nuclear medicine.
- Explain clinical applications.

SLO 15 PET Scan

- Discuss principles of PET scan

- Identify and discuss the clinical applications of PET

SLO 16 Radiation Oncology (Therapy)

- Define radiation oncology.
- Explain brachytherapy, teletherapy, and linear accelerators.

Lab/Clinical:

First Step: Lab demonstration class is mandatory and is completed in the non-energized lab room on campus before the Didactic portion of the imaging studies.

Second Step: Lab Evaluations are performed by students who have successfully passed the didactic component of the imaging study. School faculty observe and grade the student on lab evaluations. Date of performed lab is documented on Student's Individual CCE record. Passing grade on lab evaluations is 85% and must be completed before student moves onto Performance of Patient Procedure phase.

Third Step: Patient Performance Phase: *Students must perform One Patient Procedure (non-graded) under Direct Supervision Prior to performing a (graded) ICCE. Students must document and have signed by a licensed R.T. (staff radiographer) on their Student Individual CCE record that they have performed the radiographic study.* The student can perform the study immediately after passing the lab evaluation, once the study becomes available in the department.

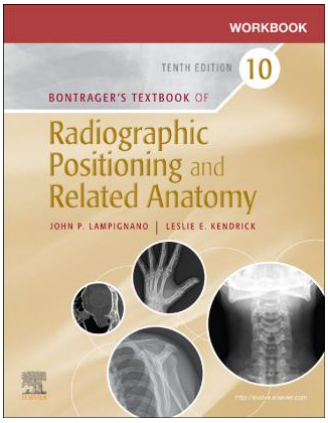
Fourth Step: Initial Clinical Competency Evaluations: B 4- I A (Handbook) One week time frame between Lab and Competency must pass before the student can be evaluated on the competency evaluation unless the faculty C.I. approves it earlier for an unusual case. **Only faculty or designated clinical instructors can evaluate and grade the student's CCE.**

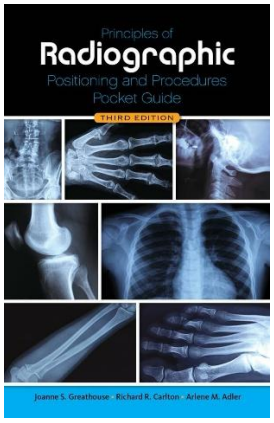
TEXTBOOK REQUIRED:

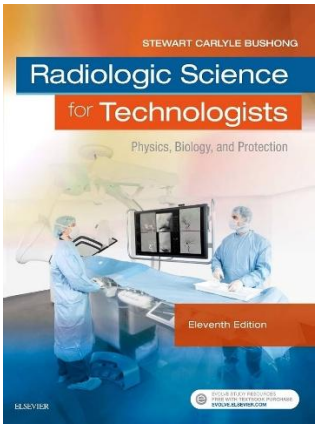
Lampignano & Bontrager, (2021) Textbook & Workbook for Radiographic Positioning and Related Anatomy, 10th ed. **(2 Books)**

Carlton, Greathouse & Adler, (2024) Bontrager's Handbook of Radiographic Positioning and Techniques *(pocket guide for use at clinical),* 10th ed

Bushong, (2020) Radiologic Science for Technologists: Physics, Biology, and Protection, 12th ed.







EVALUATION METHODS:

- # of unit section averages = 60% of final grade
- Final Exam = 30% of final grade
- Quizzes = 10% of final grade
- Total = 100% for final grade of subject

WEEKLY OUTLINE:

Week	Topic	Learning Outcomes (L.O)
1	**Pharmacology; CT**	**SLO 8, 9, 1**
2	**Grids, IR Speed, Density; Interventional (IR); Drug Administration**	**SLO 9, 10, 2**
3	**Dexa/MR/Mammo/US; Contrast Media; IR**	**SLO 3, 8, 11, 12, 13**
4	**IR/Dexa/MR/US; NM/PET/RT; A&C**	**SLO 8, 14, 15, 16**
5	**NM/PET/RT**	
6	**Final Exam**	**FINAL**

HCCC POLICIES, STATEMENTS, AND SERVICES:

https://www.hccc.edu/administration/academic-affairs/syllabus-addendum.html