



North Central State College
MASTER SYLLABUS
2019-2020

- A. Academic Division: Health Science
- B. Discipline: Radiological Sciences
- C. Course Number and Title: RADS 2460 Imaging Science 4
- D. Course Coordinator: Ellen Johnson, M.E., R.T. (R)
Assistant Dean: Melinda Roepke, MSN, RN

Instructor Information:

- Name: [Click here to enter text.](#)
- Office Location: [Click here to enter text.](#)
- Office Hours: [Click here to enter text.](#)
- Phone Number: [Click here to enter text.](#)
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- E. Credit Hours: 3
Lecture: 2
Laboratory: 3
- F. Prerequisites: RADS 2340
Co-requisites: RADS 2440(m)
- G. Syllabus Effective Date , Fall, 2019
- H. Textbook(s) Title:

Principles of Radiographic Imaging

- Author: Carlton / Adler
- Copyright Year: 2012
- Edition: 5th
- ISBN #: 978-143-905-8725

Radiologic Science for Technologist

- Author: Stewart Bushong
- Copyright Year: 2017
- Edition: 11th
- ISBN: 9780323353779

Radiographic Image Analysis

- Authors: McQuillen
- Copyright Year: 2014
- Edition: 4th
- ISBN #: 978-0-323-28052-5

- I. Workbook(s) and/or Lab Manual: None

J. Course Description: This course is designed to establish a knowledge base of radiographic and fluoroscopic equipment design. The nature and characteristics of radiation, x-ray production, and photon interaction with matter are also included. Image analysis is included with the importance of optimal imaging standards. The lab setting will permit application of these skills.

K. College-Wide Learning Outcomes:

College-Wide Learning Outcome	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	Critical Thinking VALUE Rubric – Week 12-14
Information Literacy	
Quantitative Literacy	

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Identify the basic terms and vocabulary associated with electricity and electromagnetism.	Test - Week 3-4
2. Diagram and explain the components / function of the x-ray circuit.	Test Week 5-6
3. Diagram and explain the components / function of the x-ray tube.	Test Week 7-8
4. Compare and contrast the shape of the x-ray emission spectrum as one variable changes.	Test Week 7-8
5. Differentiate between target interactions and tissue interactions.	Test Week 9-10
6. Diagram and explain the components / function of the image intensifier.	Test Week 11-12
7. Describe the various components / function of a CT imaging system.	Test Week 11-12
8. Define various terms associated with CT	Test Week 13-14
9. Identify various cross-sectional anatomical structures.	Test Week 13-14
10. Evaluate non-diagnostic images with regard to image quality and evaluation criteria.	Classroom activity worksheets Weeks 2, 4, 6, 8, 10, Critical Thinking rubric Week 12.
11. Perform and interpret various QC tests.	Lab exercises Weeks 13-15

M. Topical Timeline (Subject to Change):

Week 1	The Structure of Matter, Electromagnetic Energy
Week 2	Electricity, Magnetism and Electromagnetism
Week 3	The X-ray Imaging System
Week 4	The X-ray Imaging System
Week 5	The X-ray Tube
Week 6	X-ray Production
Week 7	X-ray Emission The Effect of Filtration on the X-ray Beam
Week 8	X-ray Interactions
Week 9	X-ray Interactions
Week 10	Image Intensification

Week 11	Computed Tomography
Week 12	Computed Tomography Sectional Anatomy
Week 13	Artifacts
Week 14	Quality Control in Diagnostic Radiography
Week 15	Quality Control in Diagnostic Radiography
Week 16	Comprehensive Final

N. Course Assignments:

Weekly Reading	Progressive Tests
Worksheets	Skills practice
Chapter Review Questions	Lab exercises

O. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93-100	A	4.00	Superior
90-92	A-	3.67	Superior
87-89	B+	3.33	Above Average
83-86	B	3.00	Above Average
80-82	B-	2.67	Above Average
77-79	C+	2.33	Average
73-76	C	2.00	Average
70-72	C-	1.67	Below Average
67-69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

P. Grading and Testing Guidelines:

Tests (1-3 60 pts each, 4-7 75 pts each)	480 points
Homework	55 points
Participation	15 points
Lab	100 points
Final	<u>200 points</u>
TOTAL	850 points

Q. Examination Policy:

Test dates are given on the course calendar which is handed out on the first class day. Every attempt will be made to follow this schedule. However, if a change is needed it will be announced in class. If a test has to be changed, I will give the class at least one-week notice.

The Radiology Department believes that a grade below C indicates a lack of mastery of essential content and skills. Any student who receives less than C in any radiological sequence course cannot continue in the program or meet graduation requirements.

R. Class Attendance and Homework Make-Up Policy:

Generally, the student will be expected to make-up any missed test/quiz on the next day that student is on campus OR using the campus make-up test service, whichever comes first. Exceptions may be made at faculty discretion. The student **must speak to the instructor directly** or communicate through email

before the next class meeting time so make-up arrangements can be made. If I haven't talked to you directly, I will email you. All emails posted prior to 10 pm are valid even if you are not aware of the email.

S. Classroom Expectations:

All students are expected to be in class and on time. If a student cannot make it to class they are to call or email the instructor before the scheduled start of class. Any student missing a quiz/test or assignment deadline may not take the quiz/test or hand in the assignment late unless calling in / emailing before class starts.

1. If you miss a class period, you are responsible for all material covered that period and are expected to be prepared for the next class. Please communicate directly with the instructor if you miss a class.
2. Students should call if unable to be in class. Students must call in on the day of a test or assignment prior to the beginning of class. ***Failure to do so will result in a 10% deduction from the student's score on that test.*** Participation points will be subtracted for tardiness, absences, and leaving class early. Again, talk to me before the next class.

NOTE: In all cases, the student must call prior to the beginning of class.

The first missed test/assignment	No deduction from score
The second missed test/assignment	Minus 8% from earned score
Additional missed test/assignment	Zero

Any student who arrives late for a test may not be permitted to take the test at that time. The test will then be treated as a make-up test.

3. All students are expected to demonstrate professional behavior in the classroom and use language appropriate for the classroom learning experience.
4. Cell phone use is not permitted during class time. Any student's cell phone that rings, vibrates loudly, or is used for texting during class will result in a \$1.00 fine from that student. Monies collected from cell phone fines will be donated to the Robert L. Garber Scholarship for radiology students.

T. College Procedures/Policies:

Important information regarding College Procedures and Policies can be found on the [syllabus supplement](https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf) located at <https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf>

The information can also be found [Choose an item.](#)