

**RAD 364-3**  
**Computed Tomography Technology**

**INSTRUCTOR:** Michael Grey, Ph.D., RT(R)(MR)(CT)  
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**COURSE DESCRIPTION:**

This course will focus on the physical principles of computed tomography. Topics of discussion will include the history of computed tomography, its physical principles and instrumentation, data acquisition, image reconstruction, contrast agents, patient care/safety, quality assurance, and imaging applications for the head, neck, chest/mediastinum, abdomen, and pelvis. In addition, special imaging applications for pediatrics/geriatrics, interventional, trauma, and oncology will be discussed. Prerequisite: RAD 362 or consent of instructor.

**TEXTBOOK:**

**Suggested:**

Seeram, E. (2009). *Computed tomography: Physical principles clinical applications and quality control* (3<sup>rd</sup> ed.). Philadelphia: W. B. Saunders Company.

Hofer, M. (2005). *CT teaching manual*. Germany: Georg Thieme Verlag.

Note: Other books are located in the Reserve Area of the Undergraduate Library.

**COURSE OBJECTIVES:**

Upon completion of this course, the student will be able to:

1. Explain the physical principles and instrumentation of CT.
2. Discuss medicolegal issues as applied to the CT technologist.
3. Discuss the use of contrast agents in CT.
4. Describe patient care/safety procedures commonly used in CT.
5. List and describe the use of contrast agents in CT.
6. List and describe radiation dose reduction techniques.
7. List and explain tests used to evaluate quality assurance in CT.
8. Describe the imaging applications commonly used in CT.

**GRADING SCALE:**

The grading will be on a straight scale. Course grades will be based on article reviews, quizzes, tests, and a final exam.

**EVALUATION AND POINT VALUE FOR THE COURSE:**

	Maximum Points	Your Points
Article Reviews (3)	30	_____
Quizzes (9)	80	_____
Tests (2) 50 points each	100	_____
Final Exam	<u>100</u>	_____
Total:	310	_____

A = 93 - 100%	288 - 310 points	<u>Article Review Topics</u>
B = 85 - 92%	263 - 287 points	1. Spiral
C = 77 - 84%	238 - 262 points	2. Multi-slice or multi-detector
D = 70 - 76%	217 - 237 points	3. PACS
F = Below 70%	below 216 points	4. Multiplanar reconstruction
		5. QA
		6. Radiation Dose Reduction Techniques

All students are expected to attend class and come prepared to discuss the topic for that day. Tests will cover the lecture, text, handouts, reading assignments, and images reviewed during class. No make-up tests will be given for other than instructor approved absences.