



MIDWESTERN STATE UNIVERSITY

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*Gunn College of Health Sciences and Human Services  
The Shimadzu School of Radiologic Sciences  
Bachelor of Science, Radiologic Sciences Program  
Course Syllabus - Dr. Rodney Fisher*

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**RADS 4703 Principles of Computed Tomography**

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**Fall 2024 Hybrid**

**Rodney Fisher, PhD, R.T.(R)(N)(CT)(BD), CNMT**

Assistant Professor / Radiation Safety Officer

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**Office Hours:** Student Specific: Mondays 3:00 – 4:00, Tuesdays 1:00 – 3:00, and Wednesdays 10:00 – 12:00. Appointments always take preference over walk-ins. If calling, please email for a time first.

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**COURSE INFORMATION**

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|------------------------|--|
| <b>Name</b>            | RADS 4703x10-Principles of Computed Tomography (hybrid)  |
| <b>Credit</b>          | 3 hours  |
| <b>Term</b>            | Fall 2024  |
| <b>Dates</b>           | August 26, 2023 – December 10, 2022  |
| <b>Time Commitment</b> | You should expect to spend at least 9 hours per week on course material in a 15-week term or 12 hours per week in a 10-week term |
| <b>Prerequisites</b>   | None   |

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## **WHY ARE YOU TAKING THIS COURSE?**

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This course focuses on computed tomography protocols and procedures, contrast media, physics, sectional anatomy, and patient care. This course meets the 16 hours of structured education required by the American Registry of Radiologic Technologists (ARRT).

This is a hybrid course that uses a combination of face-to-face instruction along with independent reading assignments; D2L module quizzes; a computed tomography project; and a comprehensive proctored final examination will be used.

In this course, you will learn about the following:

- Understand and apply the best standards in patient care.
- Describe appropriate CT radiation safety practices.
- Discuss dose reduction techniques.
- Identify and define CT procedures.
- Discuss image production, including evaluation and archiving.

The Course is made up of the following modules:

- Module 1: Radiographic Physics Review
- Module 2: Physics and Instrumentation
- Module 3: Patient Care
- Module 4: Quality Control and Post-Processing
- Module 5: Neurologic & Musculoskeletal Anatomy and Imaging
- Module 6: Thoracic & Abdominopelvic Anatomy and Imaging
- Module 7: Advanced CT Topics
- Final Examination

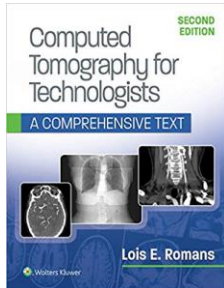
## THE TEXTBOOKS YOU WILL NEED

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### Textbooks

#### Required

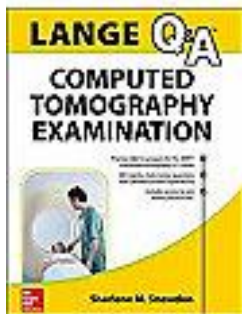
Romans, L.E. (2018). *Computed tomography for technologists: A comprehensive text*. Baltimore, MD: Wolters Kluwer Health – Lippincott Williams & Wilkins. [ISBN 9781496375858]



This book is approximately \$135.00 from the MSU Bookstore.

#### Recommended

Snowdon, S.M. (2016). *LANGE review: Computed Tomography Examination*. New York, NY: McGraw-Hill Education. (ISBN 9780071843867)



This book is approximately \$65.00 from the MSU Bookstore.

#### Recommended

MedOne Radiology

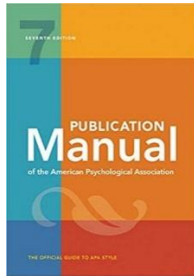


This online resource is free to MSU students. Access MedOne Radiology through the Moffett Library online databases. Log in to the MSU portal and access the Library Resources. Under the [Research Databases](#) tab, click Health Sciences and scroll down to MedOne.

MedOne Radiology is a comprehensive online reference for all medical imaging specialists. It provides extensive case libraries, diagnostic guidance for those in training, and essential references and procedural guidelines for qualified specialists in clinical practice.

### Recommended

American Psychological Association. (2010). Publication manual of the American Psychological Association (7th Ed.) [ISBN 978-1433832161]



This book is approximately \$35.00 from the MSU Bookstore.

### Computer Requirements

In this course, you need access to an up-to-date Windows-based or Mac computer with an internet connection. Chromebooks will not work. D2L does not work well with Internet Explorer or Edge. Please use Chrome or Firefox browsers when working in D2L.

### HOW TO CONTACT ME

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I prefer email for most contacts. This gives me a written record of our discussion so I do not forget anything important. Also, I am often away from my desk and may be hard to reach by telephone. If you need to call or see me in my office, please email me for an appointment. The appointment will ensure that I have everything ready for your visit and that we will not be disturbed.

### ATTENDANCE

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This is a hybrid course. Most of the assignments and activities are online; however, students must attend three class sessions on campus. These dates are posted in the class schedule. There is a 5 % penalty on the semester grade for each session missed.

During the semester, the student should log into the course at least once per week and should check their school email several times a week, if not daily.

## HOW I GRADE THIS COURSE

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I use the following grading scale:

A = 100 – 90

B = 89.99 – 80

C = 79.99 – 70

D = 69.99 – 60

F = 59.99 and below

While I do not round individual assignments, I will round your semester grade up to the next grade if you are within 0.5 points of the next grade. Late assignments are not accepted without my prior approval. If I do accept any late assignments, they are subject to a late penalty.

### **BSRT Students:**

For BSRT students, this is a non-progression course. A semester grade of 70% or better is required for passing. However, if students do not pass this course, they cannot progress to RADS 4783, CT Applications, and will not be able to earn a CT certificate. The student will then have to take two electives in the last semester of their degree plan to graduate. If you believe you may not pass this course or have to withdraw, please discuss it with me and/or your academic advisor as soon as possible so you will fully understand your circumstances.

Your semester grade will be made up of the following types of assignments:

- 25 % D2I Module Quizzes (7)
- 10 % CT Course Project
- 10 % Rad Tech Boot Camp
- 10 % Virtual Scenarios
- 15 % Midterm Examination
- 30 % Comprehensive Final Examination

## Important Dates

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All times are MSU campus time

The schedule is subject to change

| Date    | Assignment   |
|---------|--|
| Aug 26  | Class opens<br>All quizzes open<br>Review course syllabus<br>Begin Module 1: Radiographic Physics Review   |
| Sept 10 | Survey Complete by 11:59 pm<br>Module 1 Quiz due by 11:59 pm   |
| 24      | Module 2 Quiz due by 11:59 pm  |
| 27      | 1 <sup>st</sup> CT Seminar on campus 8:00 am – 9:00 am CE 340  |
| Oct 8   | CT Project sign-up by 11:59 pm<br>Module 3 Quiz due by 11:59 pm<br>RTBC Assignment 1 due by 11:59 pm   |
| 22      | Module 4 Quiz due by 11:59 pm<br>RTBC Assignment 2 due by 11:59 pm   |
| 25      | 2 <sup>nd</sup> CT Seminar on campus – 8:30 am – 9:00 am CE 340  |
| Nov 1   | Midterm Examination closes at 11:59 pm   |
| 5       | Module 5 Quiz due by 11:59 pm  |
| 19      | Module 6 Quiz due by 11:59 pm<br>CT Virtual Scenarios Worksheet due by 11:59 pm in the dropbox<br>RTBC Assignment #3 due by 11:59 pm   |
| 25      | Last day to withdraw with a “W” grade by 4:00 pm campus time<br>Note: withdrawing or not passing this course will preclude you from taking RADS 4783 in the spring. See your advisor for more information about how this would affect your spring courses. |
| Dec 3   | CT Course Project due by 11:59 pm in the dropbox<br>Module 7 Quiz due by 11:59 pm<br>RTBC #4 due by 11:59 pm   |
| 6       | 3 <sup>rd</sup> CT Seminar on campus – 8:30 am – 9:00 am CE 340  |
| 10      | Final Examination closes at 11:59 pm   |

## WHAT ARE THE ASSIGNMENTS?

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### D2L Module Quizzes (7) 25%

You should complete the reading assignments, answer the chapter objectives, and review the questions at the end of the chapter before attempting the module quizzes.

When you have reviewed a module and are ready for the quiz, you should log into D2L and receive a customized timed module quiz consisting of randomized multiple-choice questions. The Respondus LockDown Browser will be used for all quizzes. Quizzes contain 30 random questions; students will have 30 minutes to complete.

Each quiz may be attempted up to three times. The final score for any module quiz will be the average of all attempts made. Knowing the module content before attempting the quizzes is important since they are timed. Quiz scores will be available immediately after you submit it for grading.

Each quiz has requirements that must be completed before the quiz will open.

Before the Module 1 quiz can be taken, you must complete all of the following:

- New Student Survey must be completed

For subsequent quizzes and the final examination, you must on the previous module quiz:

- Score 75% or greater on any one attempt or
- Successfully complete three attempts of the module quiz (the final quiz score will be an average of all attempts)

For example, to take the Module 2 quiz, you must either score 75% on any attempt of the Module 1 quiz or complete three attempts of the Module 1 quiz. To take the final examination, you must score 75% on any attempt or complete three attempts of the Module 6 quiz.

If you find a faulty quiz item or believe a quiz question has been scored incorrectly, you should send an email to me that includes the following:

- Module Quiz Number (1-7) or Midterm Examination
- Question stem
- Rationale supporting why your answer is correct
- Include page numbers when referencing the textbook

For example, you cannot send the message: "I think question number ten is wrong on quiz four," because each student gets a quiz of randomly generated test items. I must know the question stem to find the question in the database. After reviewing the situation, if I think a revision is justified, your quiz score will be revised to reflect the additional points, and the test bank will be updated.

**YOU MAY NOT TAKE THE MIDTERM EXAMINATION UNTIL YOU HAVE COMPLETED MODULE 1 – 4 QUIZZES.**

**YOU MAY NOT TAKE THE FINAL EXAMINATION UNTIL ALL QUIZZES ARE COMPLETED.**

**NO EXCEPTIONS.**

## **CT Course Project 10%**

The course project is designed to give you experience working with CT protocols. In order to perform the CT Clinical Experiences, a student must have permission to perform exams on actual patients from their facility. In addition, some state regulations will not allow distance students to perform assignments at facilities within their state's borders. When you complete the New Student Survey, you will be able to determine if you can do the CT Experiences Project. Instructions within the course are for both the CT Clinical Experience Project and the Alternate CT Presentation Project.

You must submit one form of the CT Course Project to the appropriate drop box by the scheduled due date.



## Rad Tech Boot Camp 10%

You should still have a Rad Tech Boot Camp subscription from previous semesters. For this course, you will be completing videos, exams, and assessments in the following RTBC courses:

| Assignment # | RTBC Course           | Due Date    | # of Assessments |
|--------------|-----------------------|-------------|------------------|
| 1            | CT Image Production   | October 8   | 9                |
| 2            | CT Patient Care       | October 22  | 2                |
| 3            | CT Imaging Procedures | November 19 | 9                |
| 4            | CT Radiation Safety   | December 3  | 2                |

You watch the videos and take the exams as often as you wish. While you may retake assessments to aid you for the final, only your first attempt on the assessments will count towards your RTBC grade. The average of your first attempts on all 22 assessments will be your RTBC grade. Any assessments not completed by the due date will be assigned a zero-point grade, which will count toward the average.

## Virtual Scenarios 10%

There are three virtual scenarios for you to complete. Allow for several hours of work on each scenario. After completing all three scenarios, one worksheet for all three scenarios is turned into the appropriate dropbox. You should complete the appropriate section of the worksheet after completing each scenario.

Before the completed worksheet may be uploaded, you are asked to complete an anonymous survey. This survey will only be used for research purposes and does not affect your grade. The dropbox will open after the survey is completed.

The scenarios are designed to enhance the learning environment after modules 1-3 in the course have been completed. The scenarios will not open until October 3 to give students time to complete modules 1-3 before beginning the scenarios.

Complete instructions about the scenarios may be found in the course.

## Midterm Examination 15%

Module 1 – 4 quizzes must be completed before the Midterm Examination.

The midterm examination must be completed by October 24, 2023, at 11:59 pm. Incomplete midterm exams will result in a zero score, and you may fail the course. If you know you will miss

a due date because of extenuating circumstances, you should contact me to deal with your situation individually. Acceptance of an extenuating circumstance is at my discretion. Since the midterm examination is open for one month, only the most extraordinary circumstances will be considered.

### **Exam Format**

- The midterm examination consists of 50 random multiple-choice questions.
- The exam is a timed, 45-minute test.
- To prepare for this exam: The midterm has been derived from Modules 1-4 of this course. Review all of your quizzes and your textbook chapters. Reinforcing study materials includes PowerPoint presentations.
- The midterm examination uses Respondus LockDown Browser + Webcam

## **Comprehensive Final Examination 30%**

All quizzes and projects must be completed before the Final Exam is taken.

The final examination must be completed by December 12, 2023, at 11:59 pm. Incomplete final exams will be scored a zero, and you will fail the course. If you know you will miss a due date because of extenuating circumstances, you should contact me to deal with your situation individually. Acceptance of an extenuating circumstance is at my discretion. Since the final examination is open for one month, only the most extraordinary circumstances will be considered.

You are required to have a webcam and microphone for the Final Exam. The examination uses the Respondus LockDown Browser + Webcam.

**Exam Format**

- The final examination consists of 100 random multiple-choice questions.
- The exam is a timed, 1-hour (60 min) test.
- To prepare for this exam: The final has been derived from the entire content of this course. Review all of your quizzes and your textbook chapters. Reinforcing study materials includes PowerPoint presentations.
- The final examination uses Respondus LockDown Browser + Webcam

**Principles of Computed Tomography Course Policy Details****LATE WORK**

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Normally, late work is not accepted in this course except under extraordinary circumstances beyond the student's control which can be documented. If a student needs an extension based on extraordinary circumstances, the student must email the professor with documentation as soon as possible once the student knows they will be late with an assignment. If granted an extension, the student must submit the work by the new due date to receive credit. The professor reserves the right to lower the grade of all late work. In some instances, even if the student receives a grade of zero for a missed assignment, they may still have to complete the assignment in order to proceed to the next assignment.

**PROFESSIONAL CONDUCT**

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All students are expected to comport themselves professionally while in class or working on course projects with other students on or off campus. If students have questions about what the proper professional conduct should be, please reference the University Student Handbook located on the [Office of Student Rights and Responsibilities](#) webpage and the Shimadzu School of Radiologic Sciences Academic and Clinical Handbook for the student's current cohort located on the [BSRT Program](#) webpage. Violations of either set of standards or policies may result in grade reduction and referral for disciplinary action.

## ATTENDANCE

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While there is no attendance policy for this course because it is online, it is very important that students log into D2L at least once a week. The professor may post news items that will require the student's attention. It is also good to check for students to check their email several times during the week. Students should ensure their email address is kept up-to-date with the university. This may be done through the MSU Portal.

## REQUESTING A WITHDRAWAL

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The last opportunity to drop this course with a grade of "W" is 4:00 pm on October 30, 2023. The student must initiate all withdrawals. After this date, dropping the course results in a grade of "F."

In an emergency or extenuating circumstance, a student may request an incomplete grade before grades are submitted. If the professor grants the incomplete, the student has until thirty (30) days after the beginning of the next long semester to complete the course requirements. If the student does not complete the course requirements within the deadline, the incomplete grade will automatically convert into a grade of "F."

## TECHNICAL DIFFICULTIES

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Occasionally, students may experience problems accessing D2L, accessing class files located within D2L, connecting with their internet service, or other computer-related issues. Make the professor aware of a technical issue as soon as possible. A due date extension is typically granted if a situation occurs at the university's end, such as D2L failure. **However, remember that students are responsible for having (or accessing) a working computer in this course. Assignments and tests are due by the due date, and personal computer technical difficulties will not be considered a reason for the instructor to allow students extra time to submit assignments, tests, or discussion postings.**

Dropbox assignments that can be attached in an email should be emailed to the professor when a problem is encountered. Failure to do so may result in lost points, regardless of connection issues.

For help options:

- For D2L issues, go online go to the Distance Education Helpdesk
- By phone, call the Distance Education office at 940-397-4868 between 8 am and 5 pm.
- Use the D2L help link in D2L.
- Contact your professor.
- For other computer access issues, visit the MSU Information Technology Website online.

## **SPECIAL NEEDS**

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In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable adjustments in its policies, practices, services, and facilities to ensure equal opportunity for qualified persons with disabilities to participate in all educational programs and activities.

The Office of Disability Services (ODS) provides information and assistance, arranges accommodations, and serves as a liaison for students, professors, and staff. The ODS has assistive devices such as books on tape, recorders, and adaptive software, which can be loaned to qualified individuals. A student/employee who seeks accommodations based on disability must register with the Office of Disability Services in the Counseling Center, Clark Student Center, Room 108. Documentation of disability from a competent professional is required.

Individuals with grievances related to discrimination or lack of accommodation based on a disability are encouraged to resolve the problem directly with the area involved. If the matter remains unresolved, the Office of Disability Services for resolution will provide advice and/or assistance. The grievance procedure may be found in the Student Handbook and Activities Calendar.

The Director of the Counseling Center serves as the ADA Coordinator and may be contacted at (940)397-4618, TDD (940)397-4515, or 3410 Taft Blvd., Clark Student Center Room 108.

## **ADMINISTRATIVE PROCESS**

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Unresolved issues related to this course should first be addressed between the student and the professor.

If there is no resolution, students must follow this sequence:

1. Interim Department Chair – Dr. Lynette Watts (940-397-4845)
2. College Dean - Dr. Jeff Killion (940-397-4594)
3. Dean of Students – Matthew Park (940-397-7500)

## **HONOR SYSTEM**

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RADS 4853 adheres to the MSU Code of Conduct.

In particular, however small, academic dishonesty creates a breach of academic integrity. A student's participation in this course comes with the expectation that his or her work will be completed in full observance of the MSU Code of Student Conduct. A student should consult the current Student Handbook for answers to any questions about the code.

All components of RADS 4853 are designed to represent the efforts of each student individually or each student group as appropriate and are NOT to be shared, copied, or plagiarized from other sources. When students submit their efforts for grading, they are attesting they abided by this rule.

An online plagiarism/artificial writing detection service may be used in this course. Student assignments may be uploaded to the service to identify similarities to other student papers and published works or to use artificial writing generators instead of the student's work.

**Cheating includes but is not limited to**

- Use of any unauthorized assistance in taking quizzes, tests, or examinations;
- Dependence upon the aid of sources beyond those authorized by the professor in writing papers, preparing reports, solving problems, or completing other assignments; or
- The acquisition of tests or other academic materials from the university faculty or staff without permission.

**Plagiarism includes but is not limited to**

- The use of, by paraphrase or direct quotation without correct citation in the text and in the reference list,
- The published or unpublished works of another person.
- Students may NOT submit papers and assignments they have previously submitted for this or other courses.
- The use of materials generated by agencies engaged in "selling" term papers is also plagiarism.

**Using of Artificial Writing Generators includes but is not limited to**

- Using any artificial intelligent agent (e.g., Chat GPT) to generate written work that the student uses within their course paper, poster, presentation, or any other project, with or without proper citation, or;
- Using any artificial writing generator as a primary source, or;
- Using any artificial writing generators in place of traditional research methods to obtain sources and any interpretations about the content of those sources.

This course will not tolerate academic dishonesty (cheating, plagiarism, artificial writing generators, etc.). Whenever a student is unsure whether a situation will be interpreted as academic dishonesty, the student should ask the professor for clarification. If students are guilty of academic dishonesty, a grade of zero (0) will be given for the quiz, assignment, etc., and the student will not be allowed to resubmit the assignment for a grade. Based on the severity of the cheating, plagiarism, or use of artificial writing generators, the professor reserves the right to fail the student in the course and refer the student to the department chair for further disciplinary action, which could include permanent dismissal from the program. Cases may also be referred to the Dean of Students for possible dismissal from the university and the ARRT as a potential ethics violation.

Students are encouraged to review the tutorials and suggested websites for more information about plagiarism. If you have any questions about what constitutes plagiarism, please consult:

- The University Academic Dishonesty Policy
- The website Plagiarism.Org, or
- The professor

### **Please Note**

By enrolling in this course, the student expressly grants MSU a "limited right" to all intellectual property created by the student for the purpose of this course. The "limited right" shall include, but shall not be limited to, the right to reproduce the student's work/ project in order to verify originality and authenticity and for educational purposes. Specifically, faculty may submit student papers and assignments to an external agency to verify originality and authenticity and to detect plagiarism or the use of artificial writing generators.

## **CAMPUS CARRY / ACTIVE SHOOTER**

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### **Campus Carry**

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License to Carry permit, and openly carrying handguns is not allowed on

college campuses. For more information, visit [Campus Carry](#).

### **Active Shooter**

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by the MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit [Safety / Emergency Procedures](#).