MSU TEXAS
MIDWESTERN STATE UNIVERSITY

Gunn College of Health Sciences and Human Services
Department of Radiologic Sciences
Bachelor of Science, Radiologic Sciences Program
Course Syllabus - Rodney Fisher

RADS 3833 Bone Densitometry

Section X30 Summer 2024 Online

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WHY ARE YOU TAKING THIS COURSE?

This course will provide radiologic science professional knowledge and a history of bone densitometry. This course will cover various topics such as:

- Skeletal anatomy
- Indications for bone density studies
- The pathology of low bone mass and osteoporosis
- Densitometry techniques
- Physics of Dual-energy X-ray Absorption (DXA)
- Statistics and quality control
- Risk fracture prediction
- Radiation exposure in DXA

This course meets the 16 hours of structured education required by the ARRT to sit for the Bone Densitometry Registry, R.T. (BD). You must still satisfy the clinical requirements. All ARRT approvals and requirements are subject to change. If there is a question, please ask the instructor.

WHAT ARE THE TEXTBOOKS YOU WILL NEED?

Your textbook is out of print, but I have made special arrangements to reprint and sell it in the bookstore. It is called a "course pack" because it was made special for this course. The book is called Bone Densitometry for Technologists (3rd Edition) by Sydney Lou Bonnick and Lori Ann Lewis. You must use the third edition. Previous editions are missing chapters that you will be tested over. The bookstore sent you information about this book, which was included in your tuition. Be sure to follow my posted directions so you can access your textbook.

WHAT ELSE DO I NEED?

You will need a Windows or Mac-based computer. Please note that Chromebooks will not work because they are incompatible with the Respondus Lockdown Browser system used to proctor all tests and the final examination. You will also need a webcam with a working microphone and an adequate Internet connection.

HOW DO YOU CONTACT ME?

I prefer email for most contacts. This gives me a written record of what we discussed 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 do need to reach me by phone, please email me for an appointment. The appointment will ensure that I have everything ready for your call, and we will not be disturbed.

HOW OFTEN DO YOU NEED TO LOG INTO THE COURSE?

While there is no attendance policy for this course because it is online, it is very important that you log into D2L at least once a week. I may post news items that will require your attention. It is also good to check your email a few times during the week. Please make sure your email is kept up-to-date with the university. You may do this through the MSU Portal.

HOW DO I GRADE THIS COURSE?

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, and if I do accept any late assignments, they are subject to a late penalty.

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

Unit Quizzes (6)	40 %
Unit 7 DXA Project	20 %
Final Examination	40 %

WHAT IS THE CLASS SCHEDULE / DUE DATES?

All times are MSU campus time

Date	**Assignment**
June 3	Class opens All quizzes are open until July 31
July 1	Both the Unit 7 DXA Project and the Final Examination are open. They are both open until July 31
July 1	Final Examination and Course Project (Quiz 7) opens
July 4	Midterm – Unit 4 should be completed to be on track to complete the course on time.
July 31	Last date to withdraw from this course and receive a “W” by 4:00 pm
July 31	All 6 Unit Quizzes are due by 11:59 PM Project is due by 11:59 PM Final is due by 11:59 PM

WHAT WILL WE COVER IN THIS COURSE?

These are the units we will discuss in this course:

Unit 1: Osteoporosis

Unit 2: Introduction to Densitometry and Densitometry Techniques

Unit 3: Skeletal Anatomy and Performing a DXA Exam

Unit 4: Precision in Densitometry and Radiation Safety

Unit 5: Quality Control and Predicting Fracture Risk

Unit 6: Pediatric Bone Densitometry, VFA, Bone Composition Analysis

Unit 7: Final Project

WHAT ARE THE ASSIGNMENTS?

Unit Quizzes should be taken after you have reviewed the chapter in the book and any course notes. The tests consist of randomized multiple-choice questions. Each quiz is timed. The quiz lengths are:

Unit	# of Questions	Maximum Time in Minutes
1	45	90
2	35	60
3	30	60
4	28	60
5	21	60
6	32	60

The Course Project consists of 10 case studies you will answer questions about in D2L. This is Quiz 7, but it is not really a quiz. You have unlimited time and can save your progress. Be sure to read the instructions and tips in the course so you do well on this.

The Final Examination can be taken any time between July 1 and July 31. You must complete all module tests prior to taking the final examination. The final examination is a closed book and notes. It is taken using the Respondus Lockdown Browser with Webcam built into D2L. You must take the appropriate practice quiz before taking the Final to ensure you know how to use the Response system. The final

examination is comprehensive and consists of 83 randomized multiple-choice questions. You will have 120 minutes to complete the final examination.

WHAT IS THE LATE ASSIGNMENT POLICY?

Normally, I do not accept late work. Tests must be done in order, and all tests must be completed before you may take the final examination. This is true even if you are late on a test and receive a "zero" on it. You must still take the test. I do understand that sometimes there are very special situations with extenuating circumstances. If you know you will be late with an assignment, or if something happens and you miss a due date, please email me with the reasons. I may make an exception depending on the specific circumstances, and I reserve the right to impose a late penalty if I do accept late work. **The final examination MUST be completed by the due date without exception. You have a month to take it, so there is no reason for the final to be late.**

WHAT IS THE OTHER INFORMATION AND POLICIES YOU NEED TO KNOW?

Course Credit

3 Hours

Course description

This course will provide the radiologic science professional with a knowledge and history of bone densitometry. It will cover various topics such as densitometry techniques, skeletal anatomy in densitometry, statistics, and quality control. External and internal factors that affect bone density will also be covered. This course will also include patient issues such as risk fracture prediction, diagnosing osteoporosis, radiation exposure, and appropriate candidates for bone density studies.

Prerequisites

None

Course objectives

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

- Explain osteoporosis and its effects on bone density
- Identify various bone density measurement techniques.
- Calculate statistical data.
- Identify proper skeletal anatomy.

- Explain internal and external factors that affect bone density measurements.
- Know radiation dose levels received by the patient and identify patient safety issues.
- Describe therapeutic treatment for bone-related diseases.
- Explain bone density measurements.
- Summarize quality control methods.

Teaching methodology

This course uses an online methodology. It includes reading assignments, tests, a course project, and a closed-book proctored final examination.

Honor code

RADS 3833 adheres to the MSU Code of Conduct.

In particular, academic dishonesty, however small, breaches academic integrity. Students participating in this course are expected to complete their work in full observance of the MSU Code of Student Conduct. Students should consult the current Student Handbook for answers to any questions about the code.

All components of RADS 3513 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 for identification of similarities to other student papers and published works or the use of artificial writing generators in place of the student's own 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 the reference list,
- The published or unpublished works of another person.

- Students may NOT submit papers and assignments that 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 generators in place of traditional research methods to obtain sources and any interpretations about the content of those sources.

Academic dishonesty (cheating, plagiarism, artificial writing generators, etc.) will not be tolerated in this class. 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 given an opportunity to resubmit the assignment. 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 possible 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.

Special needs

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities.

This legislation requires that all students with disabilities be guaranteed a learning environment that provides reasonable accommodation of their disabilities. If you believe you have a disability requiring accommodation, please contact Disability Support Services in Room 168 of the Clark Student Center at (940) 397-4140.

Administrative process

Unresolved issues related to this course should first be addressed between the student and instructor. If there is no resolution, students must follow this sequence:

1. Interim Department Chair – Dr. Lynette Watts (940-397-4833)
2. College Dean - Dr. Jeff Killion (940-397-4679)
3. Dean of Students – Matthew Park (940-397-7500)

Campus Carry/Active Shooter

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 are 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.