MSU TEXAS
MIDWESTERN STATE UNIVERSITY

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

RADS 3833 Bone Densitometry

Summer 2020
Online

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COURSE CREDIT:

3 Hours

COURSE DESCRIPTION:

This course will provide the radiologic science professional a knowledge and history of bone densitometry. This course 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. Patient issues such as risk fracture prediction, diagnosing osteoporosis, radiation exposure, and appropriate candidates for bone density studies will also be included in this course. ***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.***

REQUIRED TEXTBOOK:

Your textbook is 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 ISBN is 9781975061418. Unfortunately, bone densitometry is such a narrow field this is the only comprehensive textbook written for the technologist and it is out of print. However, I have made special arraignments to have the e-book version available for this course. The good news is that is recommended by the International Society of Clinical Densitometry as a study guide for their examination and is a perfect book to use for the ARRT BD registry.

The e-book is available in this course. You will find it in the course content under "XanEdu Content". This e-book is part of the Courseware Access and Affordability Program at MSU Texas. Students are charged for required course materials on their student account with the Business Office. The charges for this course are and shows up on student accounts as:

COSM Electronic Courseware	$146.10
Courseware Tax	$ 12.06

You have the option to "opt-out" of this program prior to 06/04/2020. Opt-out instructions are sent to student's official my.mustexas.edu email address after the first day of class. Please contact the MSU Bookstore if you have any questions about the opt-out process.

If you do decide to opt-out, you can order a copy of the textbook from the bookstore for $198.00 plus tax, or you may find the book on your own. Please remember that it must be the third edition. Early editions will not work for this course.

PREREQUISTES:

None.

IMPORTANT DATES:

Date	Assignment
June 1	Class opens All quizzes are open until July 31
July 1	Both the Unit 7 DXA Project and the Final Examination opens. They are both open until July 31
July 4	Midterm – Unit 4 should be complete to be on track to complete the course on time
July 9	Last date to withdraw from this course and receive a "W" by 4:00pm
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

COURSE OBJECTIVES:

This course will provide the radiologic science professional a knowledge and history of bone densitometry. This course 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. Patient issues such as risk fracture prediction, diagnosing osteoporosis, radiation exposure, and appropriate candidates for bone density studies will also be included in this course.

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:

Independent reading assignments, study guide, D2L unit quizzes, Sectional Anatomy assignment, and closed book D2L final examination.

ATTENDANCE:

Since this is an online course, there are no mandatory class sessions. However, it is important that you keep track of your own progress, due dates, etc. Students should communicate with the instructor on a regular basis.

COMMUNICATING WITH THE PROFESSOR:

Contact information for the professor is listed at the top of the first page of this syllabus. The professor prefers email so there is a record of the communication and often the professor is away from his desk. Phone calls may be answered by email when appropriate. The instructor will respond or at least acknowledge all student communications within five (5) business days. If this time period will be longer because the professor is out of town or other reason, a news item will be posted online in D2L for the class. Please always give the professor the time asked for to respond before repeating your request.

HONOR CODE:

RADS 3133 adheres to the MSU Code of Conduct. In particular, academic dishonesty, however small, creates a breach in 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.

Many components of RADS 3133 are designed to be highly interactive with students helping each other learn. Students are encouraged to take full advantage of many resources available including online Blackboard course resources, Internet sites, other textbooks and journals, faculty, and peers when answering objectives. This interactive collegial learning environment is conducive for life-long learning.

PLEASE NOTE: By enrolling in this course, the student expressly grants MSU a "limited right" in all intellectual property created by the student for the purpose of this course. The "limited right" shall include but not be limited to the right to reproduce the student's work product in order to verify originality and authenticity, and for educational purposes.

PLAGIARISM:

For this course plagiarism is defined as: the use of a source without proper attribution. This can include (but not limited to):

- Turning in someone else's work and calling it your own.
- Paraphrasing another source without citing the source;
- Direct quotations which are not marked as direct quotations regardless of the attribution;
- Using a majority of direct quotes within a paper regardless of attribution and:
- Using incorrect information in a citation including citing one author as the source of another author's work.[1]

All assignments will be submitted to TurnItIn.com, a computerized service which checks for plagiarism. Any suspicious results will be investigated. Instances of plagiarism will result in a lower grade on the assignment; a grade of "F" on the assignment, and/or a grade of "F" on the course. Repeated or severe instances may result in academic probation, or dismissal from the program. Instances can also be referred to the Dean of Students for further action.

If you have any questions about what constitutes plagiarism, please consult:

- The entire University Academic Dishonesty Policy which can be found in the University Student Handbook: http://mwsu.edu/Assets/documents/student>life/2013>14%20Student%20Handbook.pdf
- The website: Plagiarism.Org;, or
- This instructor.

SPECIAL NEEDS:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Disability Support Services in Room 168 of the Clark Student Center, (940) 397-4140.

GRADING:

Assignments will be graded in a timely manner after the published due dates. The professor will not grade assignments early nor will be professor "pre-grade" assignments. The professor is committed to your education and will answer relevant questions about course topics so long as such answers do not compromise specific assignments or specific test question.

GRADING SCALE:

A = 100 – 90

B = 89.99 – 80

C = 79.99 – 70

D = 69.99 – 60

F = 59.99 and below

GRADE ROUNDING:

The professor does not "round up" individual assignments. The professor will round up a course grade that is less than 0.5 points from the next level.

FINAL COURSE GRADE:

A final course score (including any "rounding up") of 69.51 is required to pass this course. Letter grades of "D" or "F" cannot be used for graduation and will require the course be repeated according to the current department policies.

The last date to withdraw from this course and receive a grade of "W" is Thursday, July 9th at 4:00pm campus time. All withdrawals **must be initiated by the student**. After this date dropping the course results in a grade of "F".

LATE ASSIGNMENTS:

The professor normally does not accept late assignments without prior approval and proper documentation for the rationale. In extreme emergencies the professor may grant an extension after the due date has passed with acceptable documentation from the student. All course work must be completed in the semester the course is taken. The professor does not give incomplete grades.

ADMINISTRATIVE PROCESS:

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

1. Interim Department Chair – Prof. Debra Wynne (940-397-4608)
2. College Dean – Dr. Jeff Killion (940-397-4594)
3. Dean of Students – Matthew Park (940-397-7400)

ASSIGNMENTS:

There will be six unit quizzes, the Unit 7 DXA project, and one final examination. The grading will be as follows:

1. Unit Quizzes (~6.7 % each quiz x 6 units)	40%
2. Unit 7 DXA Project	20%
3. Compressive and Proctored Final Examination	40%

UNITS:

Each unit has a quiz with the exception of Unit 7. At the end of Unit 7 is your final project.

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

D2L OPEN BOOK UNIT QUIZZES - 40%:

Once you feel comfortable with the unit notes, the associated pages in your textbook, and the learning activities, you should complete the associated Unit exams. When a student is ready for the quiz, he or she will log on to D2L and receive a customized timed unit quiz consisting of randomized multiple choice and/or matching questions. See the course schedule for the open and close dates for the quizzes.

It is important to know the unit content before attempting the unit quizzes because they are **timed**. Quiz scores will be available immediately after a student submits his or her quiz for grading.

All quizzes are open the day that classes begin. , so you can work ahead. A target date for each quiz is provided so you can keep abreast of your progress. These are not due dates and the quizzes do not close until July 31. Quizzes not completed by July 31 11:59 PM, will receive a zero (0). Under NO circumstances will an extension be made to complete quizzes not completed by the close date. All quizzes must be completed before taking the Final Exam. Students should contact the instructor in extenuating circumstances; such cases will be dealt with on an individual basis.

If students have technical difficulties during a quiz, they should use the Help link at the top toolbar in D2L, contact the MSU Information Systems Support Staff, and send an email right away to the professor explaining what happened.

Technical issues may occur (cannot see an image, cannot see your grade, etc.). The easiest solution is to see if the issue can be corrected by simply changing browsers. Internet explorer is a good browser however fewer occurrences have been noted by using Firefox as a browser for D2L.

If a student finds a faulty quiz test item or believes that a quiz question has been scored incorrectly, he or she should send an email to the course instructor that includes the following:

- Unit Quiz Number (1 - 6)
- Question Stem
- Answer Scored as Correct by the Computer
- Answer the Student Thinks Should be Correct
- Rationale Supporting Why the Student's Answer is Correct
- Page numbers must be included when referencing the textbook in a rationale

After reviewing the case, if the course instructor thinks a revision is justified, the student's quiz score will be revised to reflect the additional points and the test bank will be updated. It may take several weeks for the student to receive a response because the instructor works on batches of questions for a particular quiz at a time.

DXA Project ASSIGNMENT - 20%:

Under Unit & in the course content you are provided with 10 case studies from actual DXA scans. For each study write a report that covers:

- Were the scans done properly? Are there any artifacts that should be considered or required adjustments to any scoring?
- Is the L1-L4 T score accurate or should any adjustments be made?
- List the final T-score averages for:

  a) L spine (be sure to delineate which vertebrae are being assessed)
  b) Rt. Femur
  c) Lt. Femur

- Based upon the original data, should the patient be classified normal, low bone mass (osteopenia) or osteoporosis?
- If any adjustments had to be made, would this change any possible diagnosis a doctor might make? If so what change would be made?

Your report will be filed on D2L. Either use the link in the Unit 7 content or under tests for the Unit 7 Project. This project will look like a test, but you have no time limit and may save it and come back to it later. It is open book. There are all ten case studies with the DXA reports and 6 questions to answer. BE SURE TO FOLLOW THE INSTRUCTIONS FOR ENTERING NUMBERS SO YOU DO NOT LOSE POINTS NEEDLESSLY.

The DXA reports are also available to download separately if that helps you see them better.

When you submit your project, it will be scored and you will see the correct answers for anything you missed.

COMPREHENSIVE FINAL EXAM - 40%:

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

ProctorU/Scheduling:

The comprehensive proctored final exam will be administered using Desire2Learn (D2L) and ProctorU online proctoring. For ProctorU instructions please read the ProctorU student instruction guide included in the content section of this course, and you may also follow the link below.

http://www.proctoru.com/portal/mwsu/index.php

ProctorU allows you to take an exam on demand or by appointment. All appointments should be made at least three days in advance. To make an appointment, simply create an account at **http://www.proctoru.com/portal/mwsu/index.php**. Once logged in, click on the "new exam" link and selecting the exam, date, and time you desire. **You must submit payment (based on the length of the exam) at this time - usually about $25.00.** You will receive an email confirming their reservation at the email address they provided to ProctorU. **Reservations made within 72 hours of an exam are subject to a $5 late registration fee.** Students without an appointment can take their exam on demand within 15, 30 or 45 minutes by using ProctorU's convenient ***Take it Now*** **feature. This premier feature is designed to give students added convenience and costs $8.75.** Late registrations and *Take it Now* features are subject to availability.

*Be mindful of when you schedule your final exam. If you schedule it outside of the 4 day summer work week (M-TR), there may be no one at MSU available to help if you have technical problems.

Late submissions will NOT be accepted

Note - The final exam will not be available to ProctorU until all of the quizzes have been attempted. If the student has missed a quiz, it is the student's responsibility to contact the professor for permission to take the final.

Final Examination Guidelines and Content:

Students are not allowed to print the final exam.

The Final Exam is CLOSED BOOK.

No textbooks or notes may be used.

The exam is two (2) hours in length and consists of 10 random questions that may be matching, multiple choices, or a mixture of both. The questions have been derived from the entire content of this course. Review all of your quizzes, your Unit notes, your learning activities, and your textbook.

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