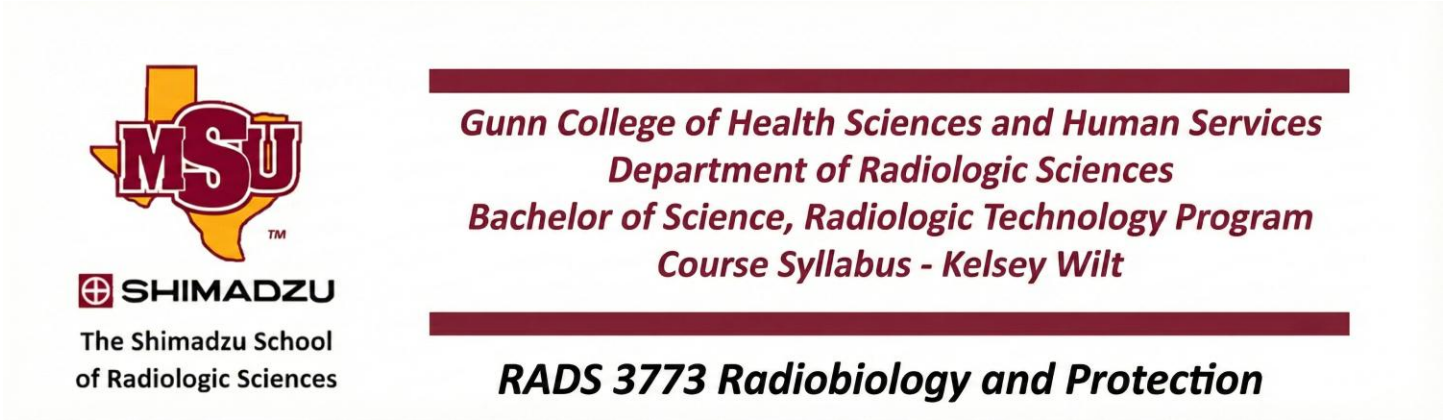


Course Information

Name	RADS 3773-X20 Radiation Biology and Protection (online)
Credit	3 hours
Term	Spring 2026
Dates	January 20, 2026 – May 15, 2026
Time Commitment	Students should expect to spend at least 9 hours per week on course material (15-week term)
Prerequisites	None

Professor

Kelsey Wilt, MSRS, R.T. (R) (CT)

Assistant Professor

E-mail: Kelsey.Wilt@msutexas.edu

Phone: (940) 397-3256 **Fax:** (940) 397-4845

Office: Midwestern State University
3410 Taft Blvd, Centennial Hall 430L
Wichita Falls, TX 76309

Office hours: Monday 01:00-03:00PM, Tuesday 10:00-12:00PM, and Wednesday 01:00-02:00PM

Communicating with the Professor

I prefer email because it provides a record of the communication, and I am often away from my desk. Phone calls may be answered by email when appropriate. I will respond to or at least acknowledge all student communications within five (5) business days. If this time period is longer because I am out of town or for another reason, a news item will be posted online in D2L for the class. Please always give me the time asked for to respond before repeating your request.

Course Description

This course offers an advanced study of radiobiology and radiation protection. Topics include interactions of radiation with matter, biological effects of ionizing radiation, quantities and units of measurement, dose response curves, and patient and personnel protection.

Course Objectives

Upon completion of this course, the student will:

- Explain the effects of radiation exposure on biological systems.
- Describe the biophysical mechanisms of radiation damage and the somatic and genetic effects of radiation exposure on humans.
- State typical dose ranges for routine radiographic procedures
- Explain basic methods and instruments for radiation monitoring, detection and measurement.
- Identify methods for protecting personnel and patients from excessive radiation exposure.
- Apply appropriate radiation protection practices.

Teaching Methodology

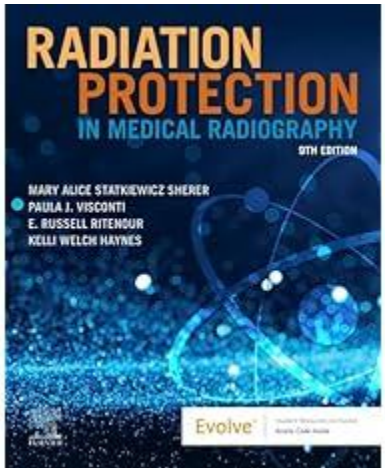
This course is taught using an online methodology. There will be reading assignments, tests, class discussion boards, an individual project, and a closed-book proctored final examination.

Course Materials

Textbooks

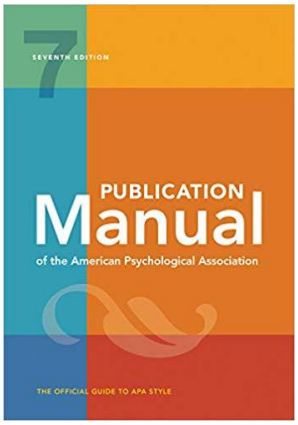
Required

Sherer, M.A., Visconti, P.J., Ritenour, E.R., & Haynes, K.W. (2021). *Radiation protection in medical radiography* (9th Ed.). St. Louis, MO: Elsevier. [ISBN: 978-0323825030]



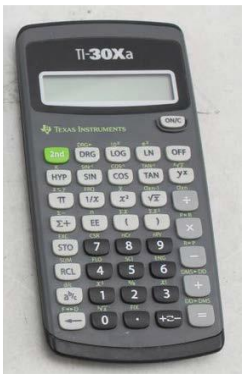
Required

American Psychological Association. (2020). *Publication manual of the American Psychological Association* (7th Ed.). Washington, DC: Author. [ISBN 978-1-4338-3216-1]



Recommended

TI-30XIIS Scientific Calculator **-or-** TI-30Xa Scientific Calculator



The course documents provide instructions on how to use these calculators for some advanced math problems.

The TI -30XIIS is around $20.00 and the TI-30Xa is around 13.00. **The instructor may not be able to help you with other types of calculators. These two calculators are approved for use on the comprehensive final examination.**

Computer Requirements

You need access to an up-to-date computer with an internet connection for this course. Chrome is the preferred browser. D2L may not work well with Microsoft Edge.

Assignments

There are four types of assignments in this course. The grading will be as follows:

1.	Module Quizzes	30%
2.	Radiologic Incident PowerPoint Course Project	20%
3.	Radiologic Incident Discussion Participation	20%
4.	Comprehensive Final Examination (proctored)	30%

Important Dates

All times are MSU campus time

Date	Assignment
January 20	Class opens Review the course syllabus
February 3	Module 1 Test due by 11:59 pm Discussion Board 1 closes at 11:59 pm
February 17	Module 2 Test due by 11:59 pm
March 3	Module 3 Test due by 11:59 pm Discussion Board 2 closes at 11:59 pm
March 17	Module 4 Test due by 11:59 pm
March 24	Module 5 Test due by 11:59 pm Discussion Board 3 closes at 11:59 pm
April 9	Last day to withdraw with a "W" by 4:00 pm campus time
April 14	Module 6 Test due by 11:59 pm
April 21	Discussion Board 4 closes at 11:59 pm
April 28	Radiologic Incident PowerPoint Course Project due by 11:59 pm Final Exam is due by 11:59 pm

Course Modules

Module 1: Introduction & Interaction of X-Radiation with Matter

Module 2: Radiation Quantities & Units and Radiation Monitoring

Module 3: Overview of Cell Biology and Molecular & Cellular Radiation Biology

Module 4: Early & Late Radiation Effects on Organ Systems

Module 5: Dose Limits for Exposure to Ionizing Radiation, Equipment Design for Radiation Protection and Radioisotopes & Radiation Protection

Module 6: Management of Patient & Imaging Personnel Radiation Dose during Diagnostic X-Ray Procedures

Grading

Grade Distribution

- 30% Module Tests
- 20% Radiologic Incident Powerpoint Course Project
- 20% Radiologic Incident Discussion Boards
- 30% Comprehensive Final Exam

Grade Scale

A=100-90
B=89-80
C=79-70
D=69-60
F=59 and below

Grading Cycle

All assignments are graded together as a group to maintain a higher level of consistency. Grading begins on the first business day after the due date, excluding university holidays and professional meetings, and is typically completed before the next due date. You may track your progress through the Gradebook in D2L.

Feedback

Feedback varies throughout the course. The News section of the course is where I will send messages to the entire class. It is best to set up your D2L account to receive an email notification (to the email of your choice) when News items are posted, so you do not miss important updates.

1. Click the down arrow in the News section on the 3773 course home page
2. Select Notifications
3. Check the box next to “News - new item available” and then check any other boxes you wish to receive an email notification from.
4. Check the email address you wish to send email notifications. If you need to change this, select “change your email settings” and enter the new email address. This email address should be an email address you check frequently.

You are welcome to email questions to clarify concepts or look for further explanations. If I come across

repeated questions, I will provide feedback or supplementary resources in the course's News section so everyone can benefit. You might look there first, because your question may be located there.

Late Work

Due Dates

Assignments are due on Tuesdays (see Important Course Dates above). Assignments must be submitted by 23:59 (11:59 pm) Central time, on scheduled due dates in the course schedule. If a student fails to meet a deadline, the student will receive no credit for the assignment not submitted on time. However, each assignment must be completed before the next assignment can be turned in for a grade. This includes work that was late and given a "zero" grade. All coursework must be completed in the semester the course is taken. The professor does not give incomplete grades.

Emergency Extension

If you have a major event, such as a death in the family, illness, hospitalization, or other extenuating circumstances, email the professor at Kelsey.Wilt@msutexas.edu as soon as possible, on or before the scheduled due date. Extensions are granted on an individual basis. If an extension is granted, typically the following guidelines will be followed.

1. The assignment may be up to one week late and still qualify for full credit. After the one-week extension has passed, ten points per day can be deducted until the assignment is no longer worth any credit.
2. When the assignment is completed, you must send a follow-up email to let the professor know it is ready to grade. Failure to notify the professor could lead to a grade of zero.
3. **Avoid End-of-Course Late Work:** Please note that there are University deadlines for submitting grades at the end of the semester. All work must be turned in at least a week before grades must be posted.
4. If a course includes interaction between students in the discussion board, and if extenuating circumstances will prevent you from participating, an alternate assignment may be considered at the discretion of the professor.

Final Course Grade

A final course score of 70% 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 radiology program policies.

Module Tests (30%):

There are six module tests. Each test is 30 minutes long with 25 multiple-choice questions. The Respondus Lockdown Browser is used for all Module Tests. There is a required practice test you will need to take to ensure your computer is working correctly before you can take the Module One Test. You may take the practice test as many times as you need. Each Module Test can be attempted only once, and your grade will be posted immediately at the end of the test. For the due dates, please refer to the schedule in D2L and this syllabus. **No late submissions will be accepted**.

Radiologic Incident PowerPoint Course Project (20%):

For this project, you will select one of the radiologic incidents from a database on D2L and prepare a narrated PowerPoint presentation. Please read the course content for complete instructions. In the online instructions, you will find what to include in your PowerPoint and how to record your narration.

Radiologic Incident Discussion Board Participation (20%):

You will participate in three discussion boards where you will post a 3 – 4 paragraph post based upon a specific article you will read. For the fourth discussion board, you will professionally critique another student's post from one of the first three discussion boards. Please read the course content for complete instructions. In the online instructions, you will find what should be included in your posts and the outside research expectations for each post. **All discussions MUST be submitted by the published due date (see the course calendar). Because discussion boards depend upon timely student submissions, no late submissions will be accepted.**

Comprehensive Final Examination (30%):

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

The final examination must be completed by April 26, 2022, 11:59 pm. Incomplete final exams will be scored as a zero, and the student will fail the course. If you know you will miss a due date because of extenuating circumstances, you should contact me immediately. Acceptance of an extenuating circumstance is at my discretion. Since the final examination is open for one month, only the most extraordinary of circumstances

will be considered.

The final examination uses the Respondus Lockdown Browser with Webcam. There is a practice test that must be completed before you may take the final examination.

Exam Format

- The proctored comprehensive final examination is closed-book and consists of 100 random multiple-choice questions.
- The exam is a timed, 2-hour (120 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 include the PowerPoint presentations.

What to Bring

- You may bring one sheet of blank scratch paper.
- A non-programmable scientific calculator (see above for recommended calculators).
- No smart watches or any other electronic devices will be allowed.
- You are not allowed to print the final exam.
- No textbooks or notes may be used.

Technical Difficulties

On occasion, you may experience problems accessing D2L, accessing class files within D2L, connecting to your internet service, or encountering other computer-related issues. Make the professor aware of a technical problem as soon as possible. If a problem occurs on our end, such as D2L failure, then a due date extension will typically be granted**. However, keep in mind it is your responsibility to have (or have access to) a working computer in this class.** ***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 to an email should be emailed to me as soon as a problem is encountered. Failure to do so may result in the loss of points, regardless of connection issues.
For help options:

- For D2L issues, go online 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 me.
- For other computer access issues, go online to the MSU Information Technology Website.

Radiobiology and Protection Course Policy Details

Professional Conduct

All students are expected to comport themselves professionally at all times 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

This is an online course, and there are no mandatory sessions. However, you should be vigilant in logging in to D2L. You should expect to log in at least 3 times per week. Regular checks will ensure that my messages are received in a timely manner**.** This course is on a schedule that will be strictly adhered to. See the Important Dates section above for specific due dates.

Requesting a Withdrawal

The last opportunity to drop this course with a grade of "W" is 4:00 pm on April 9, 2026. The student must initiate all withdrawals. After this date, dropping the course results in a grade of "F." Withdrawal from this course will result in the student being dismissed from the BSRT program.

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

Occasionally, you may experience problems with accessing D2L, accessing class files located within D2L, connecting with your internet service, or other computer-related problems. Make the professor aware of a technical problem as soon as possible. If a problem occurs because of a system error, such as D2L failure, then a due date extension will typically be granted**. However, remember that it is your responsibility to have (or have access to) a working computer in this class.** ***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 as soon as a problem is encountered. Failure to do so may result in points being lost, 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

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

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

1. 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

RADS 3773 adheres to the MSU Code of Conduct.

In particular, academic dishonesty, however minor, breaches 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 3033 are designed to represent each student's individual efforts or, as appropriate, each student group's efforts and are NOT to be shared, copied, or plagiarized from other sources. When students submit their work for grading, they attest that they have 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 belonging to 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 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.

Artificial Intelligence (AI) Usage Policy

In this course, the use of Generative AI tools (such as ChatGPT, Claude, Gemini, etc.) is permitted with specific limitations to ensure academic integrity and the development of critical research skills.

- Research & Sourcing: You may use AI tools for preliminary research and topic exploration. However, to ensure the validity and scholarly weight of your work, at least 50% of the sources cited in any assignment must be retrieved directly from the MSU Moffett Library online databases.
- Writing & Content: The use of AI in the writing process is strictly limited to spelling and grammar correction. AI tools are not permitted to generate text, arguments, analysis, or the bulk content of any assignment, including research papers, posters, and discussion board posts.
- Verification: To maintain the integrity of your research, you must be prepared to provide PDF copies of all sources used upon request.
- Consequences: Failure to adhere to these guidelines will be treated as a violation of academic integrity. A violation will result in a grade of zero for the assignment. Egregious cases of academic dishonesty involving AI may result in a failing grade (F) for the course, and may result in dismissal from the program and university, and an ethics violation referral to the ARRT.

Academic dishonesty (cheating, plagiarism, AI, etc.) will not be tolerated in this class. Whenever a student is

unsure of whether a particular 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. Based on the severity of the cheating, plagiarism, or use of AI, 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.

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 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