



Course Syllabus: RADS 4743 Magnetic Resonance Imaging

Robert D. & Carol Gunn College of Health Sciences & Human Services

The Shimadzu School of Radiologic Sciences

Course Information

Name	RADS 4743x10-Magnetic Resonance Imaging (online)
Credit	3 hours
Term	Fall 2019
Dates	August 24, 2019-December 13, 2019
Time Commitment	Students should expect to spend at least 9 hours per week on course material (15 week term)
Prerequisites	None

Professor

Kimberly Onstott MSRS, RT(R)(CT)(MR) Assistant Professor, Radiologic Sciences

E-mail: kimberly.onstott@msutexas.edu

Use this format in the subject line: 4743_your last name_topic of the message

E-mail is the best way to reach me. If I have not responded within 72 hours, please email me again.

Phone: (940) 397-4332

Office location: Midwestern State University

3410 Taft Blvd

Centennial Hall 430Q

Wichita Falls, TX 76309

Office hours: Tuesday-Wednesday 10am-3pm (by appointment)

Communicating with the Professor

I prefer email so there is a record of the communication and often I am away from my desk. Phone calls may be answered by email when appropriate. I will respond or at least acknowledge all student communications within five (5) business days. If this time period will be 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 explores the basic physical and technical principles of MRI scanning. Related clinical applications, system components, image characteristics, quality control methods, limitations, and future developments are introduced.

Course Objectives

Radiologic technologists interested in magnetic resonance imaging should demonstrate increased awareness of MRI safety, recognition of MRI instrumentation and coils, and basic knowledge of MRI physical principles and data acquisition. This course provides opportunities to become familiar with various MRI theories and concepts used in the MRI suite.

Upon completion of this course, the student will:

- Recognize radiofrequency coils and other components of the MRI scanner.
- Define the parts of the atom and explain how the parts of the atom are used in MRI.
- Describe the effect of intrinsic and extrinsic parameters on MRI scanning, the patient, and image quality.
- Differentiate between pulse sequences and identify the strengths and weaknesses of each one.

Teaching Methodology

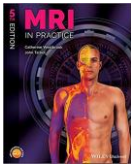
Independent reading assignments, Desire2Learn (D2L) modules, Discussion boards, PowerPoint presentations, two course projects, Open book module quizzes, and a Closed book proctored final exam are used in this course.

Course Materials

Textbooks

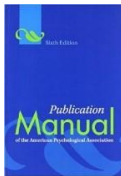
Required

Westbrook, C., Roth, C.K., & Talbot, J. (2019). *MRI in Practice*. (5th Ed.). Oxford: Blackwell Publishers. [ISBN-13: 978-1119391968 or ISBN-10: 9781119391968] *Access code not needed, but recommended*



Recommended

American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author. [ISBN 9781433805615]



Computer Requirements

You need access to an up-to-date computer with an internet connection in this course. D2L does not work well with Internet Explorer. Use a different browser when working in D2L. Only Word documents will be submitted

in this course. If using a MAC, documents can be saved as Word files using these instructions:

<http://osxdaily.com/2014/08/06/save-pages-file-as-word-format/>

Proctor Specifications

- Web Camera 640x480 resolution minimum, 1280x720 resolution recommended.
- PC Users: A well-working computer running Windows Vista or higher (Windows 10 S is not supported).
- Mac Users: A well-working computer running Mac OS X 10.5 or higher. Mac OS X 10.10 Yosemite recommended
- A reliable high speed internet connection
 - minimum download .768 Mbps
 - minimum upload .384 Mbps
- A functioning microphone (sometimes web cameras have built-in microphones).
- One of the following compatible web browsers:
 - Google Chrome (preferred)
 - Mozilla Firefox
 - Safari
- The following plugins for your web camera:
 - Adobe Flash Player v12
 - Adobe Shockwave player

Detailed instructions for ProctorU are in the RADS 4773 D2L course shell under the section labeled Final Examination.

Additional Resources (not required):

If you are studying for the MRI Registry, in addition to the textbook for this course these resources might be helpful:

Textbook



Review Questions for MRI

Carolyn Kaut Roth, William Faulkner Wiley-Blackwell; 2nd ed. 2013

Online

- MRI ARRT – Certification page
ARRT- The American Registry of Radiologic Technologists
ARRT's MRI certification page provides details about MRI certification eligibility, including education, ethics, and examination requirements. [EARNING CREDENTIALS USING THE POSTPRIMARY PATHWAY](#)
- MRI Safety-ACR Guidance Document on MR Safe Practices: 2013

PDF American College of Radiology [ACR Guidance Document on MR Safe Practices: 2013](#)

- MRI Safety-ACR Manual on Contrast Media: 2018

American College of Radiology
PDF [ACR Manual on Contrast Media 10.3](#)

Course Requirements

The student must:

- Participate in the course by completing the introductions and by continuously logging in to the D2L course to review instructor updates and news items
- Complete reading assignments, watch instructional videos, visit selected internet websites
- Successfully complete the required online examinations, including a proctored final exam
- Complete an online presentation project.
- Complete the virtual laboratory assignment
- Meet all submission deadlines

Assignments

There will be chapter quizzes, one presentation project, one virtual laboratory project, 3 discussion boards, and one final examination. See more detailed descriptions of each at the end of this syllabus

Important Dates

Date	Assignment
August 24	Class opens Review course syllabus Modules 1-4 available Quizzes 1-4 available until October 9 at 23:59
September 3	Introductions in Discussion Board due by 23:59
September 10	Introductions 2 replies due by 23:59
September 10	Presentation Topic to Discussion Board due by 23:59
October 1	MRI Question Discussion-original post due by 23:59
October 1	Modules 5-12 open
October 8	Quizzes 1-4 due by 23:59
October 15	MRI Question Discussion-2 replies by 23:59
October 28	Last day to withdraw with a "W" grade by 4:00 pm campus time
October 29	Presentation Project-uploaded to Discussion Board and to Dropbox by 23:59

November 12	Virtual Laboratory Project to Dropbox by 23:59
November 19	Presentation Project Discussions- 2 replies by 23:59
November 26	All quizzes close at 23:59
November 26- December 3	Closed Book Proctored Final Exam The exam must be complete and submitted for grading by 23:59 on December 3. (2 hours, multiple choice format and short answer, all quizzes and projects must be complete before taking the final

Course Modules

Module	Title
Module 1	Chapter 1-Basic Principles
Module 2	Chapter 2-Image Weighting and Contrast
Module 3	Chapter 3-Encoding and Image Formation
Module 4	Chapter 4-Parameters and Trade-offs
Module 5	Chapter 5-Pulse sequences
Module 6	Chapter 7-Artifacts
Module 7	Chapter 7-Instrumentation and Equipment
Module 8	Chapter 10-MRI Safety
Module 9	Chapter 11-Contrast Agents in MRI
Module 10	Chapter 6 Flow Phenomena
Module 11	Chapter Chapter 12 Functional Imaging Techniques
Module 12	Wrapping up

Evaluation

Grade Distribution

- **15% Discussion board postings and responses**
- **20% Module Quizzes**
- **20% Presentation Project**
- **15% Virtual Laboratory Assignment**
- **30% Comprehensive Final Exam (Proctored with ProctorU)**

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 a due date, outside of 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 4743 course home page
2. Select Notifications
3. 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.
4. If you want to receive these updates on your mobile, select “Register your mobile”
5. Check the box next to “News - new item available” and then check any other boxes you wish to receive an email notification from.

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 News section of the course so that everyone can benefit from it. You might look there first, because your questions and answers may be located there.

Late Work

Due Dates

Most assignments are due on Tuesdays (see Important Course Dates above). Assignments must be submitted by 23:59 (11:59 pm) Central Standard 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.

Progression

Each assignment in this course builds off of the previous assignment. If any assignment has not been completed NO other assignments after that assignment will be accepted for grading. It is the student’s responsibility to consult with the professor if an assignment due date has been missed.

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 kimberly.onstott@mwsu.edu as soon as possible and on or before the scheduled due date. I will grant extensions 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 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

HIPAA Requirement

Do not place ANY patient name on your assignments. Any proper name that appears on an assignment, other than yours will be considered a HIPAA violation and the assignment grade may be dropped to as low as a zero, depending on the severity of the violation.

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.

Technical Difficulties

On occasion, you may experience problems with accessing D2L, accessing class files located within D2L, connecting with your internet service, or you may encounter other computer related problems. 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 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 8am and 5pm.
- Use the D2L help link in D2L.
- Contact your professor.
- For other computer access issues, go online to the MSU [Information Technology Website](#).

Attendance

This is an online course and there are no mandatory sessions. However, the student should be vigilant in logging in to D2L. The student should expect to log in at least 3 times per week. Regular checks will ensure that messages from the professor 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 4:00pm on October 28, 2019. All withdrawals **must be initiated by the student**. After this date dropping the course results in a grade of “F”.

In an emergency or extenuating circumstance, a student may request a grade of “Incomplete” 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 grade of “Incomplete” will automatically convert into a grade of “F”.

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. Interim Department Chair – Beth Veale (940-397-4575)
2. College Dean - Dr. Jeff Killion (940-397-4594)
3. Dean of Students – Matthew Park (940-397-7500)

Honor System

RADS 4743 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.

All components of RADS 4743 are designed to represent the efforts of each student individually 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 service will be used in this course. Student assignments will be uploaded to the service for identification of similarities to other student papers and published works.

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.

Academic dishonesty (cheating, plagiarism, etc.) will not be tolerated in this class. Whenever a student is unsure of whether a particular situation will be interpreted as academic dishonesty, he/she 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. Cases may also be referred to the Dean of Students for possible dismissal from the university. 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" in 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 for plagiarism.

Senate Bill 11

Senate Bill 11 Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the [University's campus carry webpage](#). If you have questions or concerns, please contact MSU Chief of Police [Patrick Coggins](#) by email at mpatrick.coggins@msutexas.edu.

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 her desk.

4743_your last name_topic of message

Example: 4743_Smith_Lab question

When there is a need to contact a student, the professor will use the student's students.mwsu.edu email account. The professor is not responsible for sending emails to any other email account (set up your email to forward messages to an email you check often to avoid potentially missing any correspondence). Faculty members will not be responsible for keeping up with other email addresses for students. If you have not established this account or you need help forwarding messages, do so as soon as possible by contacting [information systems](#).

The professor 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. Always include your course number and topic in the subject line of the email.

Magnetic Resonance Imaging Assignment Details

- 15% Discussion board postings and responses
- 20% Module Quizzes
- 20% Presentation Project
- 15% Virtual Laboratory Assignment
- 30% Comprehensive Final Exam

Order of Content

Students can proceed through the course content at their own pace within the boundaries set by the Course Schedule and the MSU Academic Calendar. See the Course Schedule for specific information about activities and due dates. Not all of the modules are taught in the order presented in the textbook.

Independent Reading

Students should read each assigned chapter and practice answering the multiple-choice questions available on the companion website available with the book.

Students should review any internet resources associated with each chapter and watch all instructional videos.

PowerPoint presentations

For each Module you will find PowerPoint presentations that students may use as reinforcement for the material in the chapters. The animations provided are helpful and can be made interactive by downloading the PowerPoint and playing as a slideshow. You will not be responsible for all of the material in these presentations, but they are recommended for further review.

Discussions 15%

The purpose of the discussions is to interact with your peers and to start thinking about the different topics in MRI.

Post an original response in each of the discussion areas and reply to at least two of your peers by the due dates in the course schedule.

1. Introductions (original post and 2 replies)

Introduce yourselves in the introduction discussion board and reply to at least two of your peers. There are a wide variety of technologists in this course from entry-level to seasoned technologists, and a wide variety of technologists with experience in differing modalities. Please tell us about your radiology experience/s and include your level of knowledge in the modality of MRI and why you chose to take this course. You may also share personal information about yourself if you would like, such as hobbies, unique talents, or a picture of pets or family. Personal information is strictly optional. After your introductions, students may continue to use this discussion area to talk, network, or to ask each other questions.

2. An MRI Question (original post and 2 replies)

- In this discussion area students will post an MRI question. This may be a question about new technology in MRI, MRI research that has intrigued you, MRI protocols, MRI contrast media, MRI safety, or any number of MRI questions. Post something about MRI that you would like to know,

or have already found an answer to that you think would be a good MRI discussion question. Do not repeat your peer's questions. Review the discussion board before you post to be sure your question is not a duplicate question.

- Then Reply to two other posts. Provide an answer to your peer's question. Include at least one resource about the topic, such as a website, an article, or pages from a book that will support your answer.

3. Project Posting and Viewing (original post and 2 replies)

In this discussion area students will

- Upload their Research Project Presentations for classmates to view.
- Then Review at least two of your peer's presentations.
- Comment about what you learned from each presentation (4-8 sentences should be sufficient). Although you are free to comment on the creativity of the presentations, your 4-8 sentences should be centered on the topic of the presentation.

Scores. The grades for the discussions are as follows:

- If you do not complete all three portions (1original post with a reply to at least two of your peers) you will not receive full credit.
- Substantial information must be included in all three portions.
- Posting an original post at the last minute does not provide enough time for your peers to respond. Posting an original post in the last days a discussion is open may result in a significant loss of points. Dates for original posts are in the course schedule. Post your original response on or before these dates.
- Post replies before the close of the discussions.
- Professional interactions are expected. Spelling, grammar, and substance really do count. Try not to veer off subject, and be respectful and considerate of your fellow students' submissions.

The discussion board counts as 15% of your grade. If you do not understand this requirement, please let me know.

Unit Quizzes -20%

When a student has reviewed a module and 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 questions. See the course schedule for the open and close dates for the quizzes.

It is important to know the module 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.

The first four quizzes are open the day that classes begin. The second set of quizzes are available approximately the middle of the semester (review the course schedule for dates).

The quizzes are designed to encourage practice with the material, so you may take each quiz up to 2 times before the due date (this does not include the comprehensive final exam). The grade will be an average of the attempts. Note: Only one attempt is required so you do not have to complete the quiz 2 times, however, it is highly recommended as it will give you additional practice with the material for your final exam.

Quizzes not completed by the due dates, may receive a zero (0). Students who know they will miss a due date because of extenuating circumstances should contact the professor as soon as the circumstance is known. Each circumstance will be considered on an individual basis. See the late policy above.

If students have technical difficulties during a quiz, they should use the 'Help' link located on the top toolbar

within D2L to contact the MSU Information Systems Support Staff and send an email to the course professor explaining what happened.

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

- Module Quiz Number (1-6)
- Question Stem
- Rationale Supporting Why the Student's Answer is Correct
- Include Page Numbers When Referencing the Textbook

For example, a student 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. The professor has to know the question stem to find the question in the database. After reviewing the situation, if the course professor 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.

Virtual Laboratory Project Assignment -15%

In the second part of the course virtual simulations will be included in three of the modules. The simulations are story based and are intended to be a fun interactive way to apply the information. The student will become a virtual student MRI technologist in an online environment. Similar to an actual MRI suite, the student will have to identify pulse sequences and imaging parameters. The student will encounter safety hazards, difficult patients, and/or difficult or unsafe coworkers. The student will also have an opportunity to identify and correct for image artifacts, and the student will have an opportunity to explore instrumentation and equipment in an MRI suite. The student will complete each scenario at his or her own pace while making decisions within the scenarios that will affect how the story plays out. Incorrect choices will not be penalized so the student may purposefully choose a wrong answer to see what might happen if a wrong choice is made. Questions at the end of the scenarios, however, will provide the professor an idea of whether the information was retained. The purpose of this project is for students to gain a better understanding of the fundamentals of MRI imaging by participating in the day to day operations of an MRI suite.

The second set of modules will not appear until October 1 and will not be available to the student until he or she has completed the modules and quizzes for **Modules 1, 2, 3, and 4,**

Submission

The student's activities will be recorded throughout the scenario program. Additionally, the student will complete a worksheet during their virtual activity.

- The student will submit the completed worksheet to the Virtual Laboratory Dropbox.
- Students must use the following format as the title of the assignment when saving the document:
Lastname_Virtual Laboratory Assignment
- All assignments must reflect baccalaureate level effort
- Submit to the dropbox as a single Word document by the due date in the course schedule.

Research Presentation Project -20%

Before beginning this project, a proposal form must have been submitted and your topic must be approved by the instructor. No project will be graded without approval of the topic.

A working knowledge of Microsoft Office PowerPoint (or other presentation software) is a fundamental skill for all baccalaureate level students. Students are encouraged to strengthen their PowerPoint and presentation skills, while presenting a topic in MRI. A professional product will be produced.

Even though you must follow the set guidelines that are described in the course content, you can make this presentation as simple or as interactive as you want (e.g. customized backgrounds, active links, interactive buttons and triggers).

Each student will create a 4-10 minute PowerPoint (or similar) presentation consisting of a minimum of eight (8) slides and a maximum of fifteen (15) slides based on at least three (3) PEER-REVIEWED or SCHOLARLY journal articles. The presentation must refer specifically to a topic in magnetic resonance imaging either in **research, new innovative technology, or a current hot topic in MRI**. For example, the student may summarize three journal articles that describe the effectiveness of MRI scanning for the staging of Alzheimer's disease, or summarize research on the techniques and uses of Surgical MRI. PowerPoint presentations should contain:

- A title slide with your name, date, course, and topic
- A slide with your objectives and/or outline of your presentation
- Relevant, up-to-date (within the past 5 years) information on your MRI topic
- Scan protocols (for research or pathology cases)
- Contraindications and/or concerns (example: non-ferrous surgical instruments in the MRI scan room)
- Labeled and relevant images (must give credit to the authors for these)
- An APA formatted reference page
- 4-10-minute audio/video presentation recorded by the student and uploaded to the discussion board for peer discussion. This presentation should also be uploaded to the dropbox for grading.

Guidelines that are more specific, a grading rubric, and support are provided in the course content.

Note: You will not be allowed to take the final exam if the PowerPoint has not been completed. Follow the deadlines posted in the course schedule.

Proctored Final Exam- 30%

Exam Format

- The final examination is a proctored, "closed-book", comprehensive examination of multiple-choice and short answer questions. The final exam is a timed, 2 hour (120 min) test consisting of 50 questions.
- 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 Berlex tutorials and the PowerPoint presentations.
- The comprehensive proctored final exam will be administered using Desire2Learn (D2L) and ProctorU online proctoring.

What to Bring

- You may bring scratch paper with only ProctorU's phone number on it.
- No textbooks or notes may be used.
- No smart watches or any other electronic devices will be allowed.
- Students are not allowed to print the final exam.

ProctorU Scheduling

- You may schedule your exam for any time within the testing dates in the course schedule. You must have ALL of your course work complete when you take your final or the final will not be accessible in D2L.
- For ProctorU instructions, please read the ProctorU Student Instruction Guide in the course and visit the MSU ProctorU Webpage.
- Be aware certain equipment is required. Review the ProctorU instructions as soon as possible.
- Contact a ProctorU representative to check your equipment and bandwidth real time before your test date. If anything changes after this check (new computer, updates, ISP changes, etc.), REPEAT the check.
- All appointments should be made at least three days in advance. To make an appointment, simply create an account by visiting the MSU ProctorU Webpage. Once logged in, click on the new exam link and select the exam, date, and time you desire. You must submit payment (based on the length of the exam) at that time - usually about \$25.00. You will receive an email confirming your reservation at the email address you provided to ProctorU.
- Late registrations and Take it Now features are subject to availability. Note: If a proctor is not available because you did not schedule your exam in advance, the final is considered missed and a grade of zero will be given.
- Be mindful when you schedule your final exam. If you schedule the exam outside of the 5-day work week (M-F), there may be no one at MSU available to help if you have technical problems.

Technical Problems

- If you are disconnected during your exam, you must immediately send an email to your professor, and immediately contact ProctorU by phone. All exams are monitored and a log is created by the proctor and by D2L.
- *All times will be documented*
- The exam must be taken within the scheduled test dates, regardless of any technical issues that may arise. This is the student's responsibility.
- Late submissions will not be accepted.
- My suggestion is to take the exam during the first days it is available (listed below) to avoid receiving a zero due to technical issues. If you have to reschedule, it must be within the scheduled dates and times.
- See the [Technical Difficulties](#) section above for help options.

All course requirements must be completed before a grade is awarded. Students must complete the final and all course work by the dates published in the course schedule.

Note:

All assignments received are considered complete and will be graded as such. Any decision of the instructor is final and there will be no further changes made.

Scroll down to view the Course Schedule.

Course Schedule

All times are Central Standard Time (CST)

Date	Assignment
August 24	Class opens Review course syllabus Modules 1-4 available Quizzes 1-4 available until October 9 at 23:59
September 3	Introductions in Discussion Board due by 23:59
September 10	Introductions 2 replies due by 23:59
September 10	Presentation Topic to Discussion Board due by 23:59
October 1	MRI Question Discussion-original post due by 23:59
October 1	Modules 5-12 open
October 8	Quizzes 1-4 due by 23:59
October 15	MRI Question Discussion-2 replies by 23:59
October 28	Last day to withdraw with a "W" grade by 4:00 pm campus time
October 29	Presentation Project-uploaded to Discussion Board and to Dropbox by 23:59
November 12	Virtual Laboratory Project to Dropbox by 23:59
November 19	Presentation Project Discussions- 2 replies by 23:59
November 26	All quizzes close at 23:59
November 26- December 3	Closed Book Proctored Final Exam The exam must be complete and submitted for grading by 23:59 on December 3. (2 hours, multiple choice format and short answer, all quizzes and projects must be complete before taking the final)

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.