



Midwestern State University  
Robert D. & Carol Gunn College of Health Sciences &  
Human Services  
Department of Radiologic Sciences  
RADS 4733- Sectional Anatomy

**Course Number:** RADS 4733 x 30    3 credits    Summer 2024

**Course Title:**        Sectional Anatomy

### Professor

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### Course Overview

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***Prerequisite(s): None***

This course is a study of human anatomy viewed in sectional planes. Students will compare planar anatomy to sectional anatomy and recognize anatomical structures in computed tomography and magnetic resonance imaging. Studies will include the cranium, brain, spine, neck, chest, abdomen, pelvis, and extremities.

### Course Objectives

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Radiologic technologists should demonstrate increased awareness of how the human body is arranged three-dimensionally. This course provides opportunities to recognize relationships between standardized anatomical structures prior to working with variations found in "live" patients.

Upon completion of this course, a student will:

- Recognize anatomic structures in various planes.
- Relate planar anatomy to line drawings of related cross-sectional anatomy.
- Describe the spatial relationship of one structure to another.
- Differentiate between the appearances of anatomic structures among different modalities such as Computed Tomography. (CT) and Magnetic Resonance Imaging (MRI).
- Identify the strengths and weaknesses of each imaging modality for identifying specific pathological processes.

## Teaching Strategies

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Independent reading assignments, study guides, Desire2Learn (D2L) modules, Sectional anatomy assignment, optional learning activities, open book module quizzes, and a closed book proctored final exam are used in this course.

## Course Materials

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### Textbooks

#### Required:

Kelley, L.L. & Petersen, C.M. (2018). *Sectional anatomy for imaging professionals*. (4th ed.). St. Louis, MO: Elsevier [ISBN: 978-0-323-41487-6]

**List price:** \$134.99 (prices may vary depending on the vendor. E-books may vary.)

American Psychological Association. (2010). *Publication manual of the American Psychological Association* (7th ed.). Washington, DC: American Psychological Association. [ISBN 978-1-4338-3216-1]

**List price:** \$27.99 (prices may vary depending on the vendor)

### Internet connectivity

Students need an up-to-date computer with an internet connection in this course.

### Proctor Specifications and

#### Computer Requirements:

- PC Users: A well-working computer running Windows XP or higher with 1024 MB of RAM or higher.
- Mac Users: A well-working computer running Mac OS X or higher.
- Headphones or working speakers connected to the computer.
- A reliable high speed internet connection (minimum 768 Kbps/384 Kbps Download/Upload).
- A web browser with Adobe Flash Player installed.
- All tests will be through Respondus with lockdown browser
- The final will be given through Respondus with lockdown browser plus webcam

## Course Requirements

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The student must:

- Complete reading assignments.
- Successfully complete the required online examinations, including a proctored final exam.
- Complete Sectional Anatomy PowerPoint Assignment.
- Meet all submission deadlines.

## Communication with Instructor

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Contact information for the instructor is listed at the beginning of this syllabus. Email is the preferred mode of communication. **Students must use their standardized MSU Student email for correspondence about this course.** When emailing the instructor, please use the following subject header:

**4733\_your last name\_topic of message Example: 4733\_Smith\_Quiz 4** When there is a need to contact a student, the instructor will use the student's students.mwsu.edu email account. The instructor 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 going to [MSU IT Help](#).

The instructor will respond or at least acknowledge email messages from students within a maximum of five (5) business days when MSU is in session. Beyond standard university holidays and breaks, the instructor will notify students of any extended periods of time when email contact is not practical (professional meetings, etc.).

The instructor will be available to meet either in person or via telephone with any interested students by appointment.

## Evaluation

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### 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.

## Grade distribution

- 35% D2L open book module quizzes (4.375% each quiz x 8 modules)
- 25% Sectional Anatomy PowerPoint Assignment
- 40% Proctored D2L comprehensive closed book final exam

## Grade Scale

A = 100 - 90

B = 89 - 80

C = 79 - 70

D = 69 - 60

F = 59 and below

## Grade Rounding

The professor does NOT round up the final course grade. Please do not ask me to or ask for extra credit.

## 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 to be repeated according to the current department policies.

The last date to withdraw from this course and receive a grade of “W” is **Wednesday, July 31<sup>st</sup> at 4:00 pm CST**. All withdrawals **must be initiated by the student**. After this date dropping the course results in a grade of “F”.

## Late Work

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**Due Dates.** Assignments and quizzes must be submitted by the listed date and time that is found on the scheduled due dates in the course schedule found in the syllabus. If a student fails to meet a deadline the student will receive **no (0) credit** for the assignment not submitted on time.

**Emergency Extension.** If you have a major event such as a death in the family, illness, hospitalization, or other extenuating circumstances, email the instructor at [shanna.tole@msutexas.edu](mailto:shanna.tole@msutexas.edu) as soon as possible on or before the scheduled due date. All course work must be completed in the semester the course is taken. The professor does not give incomplete grades.

## Attendance

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This is an online course and there are no mandatory sessions. However, the student should be vigilant in logging in to D2L. Regular checks will ensure that messages from the instructor are received in a timely manner.

## Special Needs

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

The Office of Disability Services (ODS) provides information and assistance, arranges accommodations, and serves as a liaison for students, instructors, 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 on the basis of disability must register with the [Office of Disability Services](#) in the Counseling Center, Clark Student Center Room 168 (940)397-4140. Documentation of disability from a competent professional is required.

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

The ADA Coordinator may be contacted at 940-397-4140, or 3410 Taft Blvd., Clark Student Center Room 168.

## Administrative Process

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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:

Department Chair – Dr. Beth Veale (940-397-4611)

College Dean - Dr. Jeff Killion (940-397-4679)

Dean of Students – Matthew Park (940-397-7500)

## Honor System

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RADS 4733 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 4733 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.

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 instructor 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,

- Turning in another person'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.<sup>1</sup>

All assignments will be submitted to TurnItIn.com, a computerized service that checks for plagiarism. Any suspicious results will be investigated.

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 instructor 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.

### **Use of Artificial Writing Generators**

The use of any artificial writing generator (ex: Chat GPT) is strictly prohibited. The use of artificial writing generators can and will be deemed a violation of the university's honor system. Any or all parts of a written assignment identified as having elements of writing attributed to an artificial writing source will automatically receive a zero (0) for a grade. ***Students will not be allowed to make up those assignments.*** This program uses software that detects AI generators. For more policy information regarding cheating and plagiarism, see the Honor System section in this syllabus.

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 entire University Academic Dishonesty Policy which can be found in the [Student Handbook-2021-22](#)
- [Plagiarism.Org](#), or
- the Instructor

#### References

[1iParadigms. \(2014\). What is plagiarism? Retrieved from http://www.plagiarism.org/plagiarism-](#)

#### 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***

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#### **Campus Carry**

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes has 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 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](#). Students are encouraged to watch the video entitled "Run. Hide. Fight." which may be electronically accessed via the University police department's webpage: ["Run. Hide. Fight."](#)

# CLASS ACTIVITIES AND ASSIGNMENTS

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## Modules

The course content is divided into eight (8) individual Modules. Each module contains a study guide and an associated quiz. The course content is divided into modules by chapters. Additional resource material is available through the Internet.

See the Course Schedule at the end of this syllabus for all deadlines.

### Module Reading

Module	Content and Chapter
Module 1	Introduction to Multi-planar Anatomy
Module 2	Cranium and Facial Bones
Module 3	Brain
Module 4	Spine and Neck
Module 5	Thorax
Module 6	Abdomen
Module 7	Pelvis
Module 8	Extremities

With each module, there are interactive labeling activities to reinforce your learning. Although the labeling activities are not graded, they are highly recommended. You may attempt these as many times as needed, and you may refer back to them at any time during this course. Once you feel comfortable with the module notes, the associated pages in your textbook, and the learning activities, you should complete the associated module exams.

### Independent Reading Assignments

Students should complete the reading assignments listed in the module notes, and answer the chapter objectives before taking the open book module quizzes. See the Course Schedule at the end of this syllabus for specific information about module quiz due dates.

The illustrations in the text are orientated in the same direction as CT and MR scans. The course includes images that are coronal (front to back), sagittal (side to side), as well as axial or transverse (top to bottom). While the text is more or less self-explanatory, the individual modules in the course begin with diagrams relating to planar anatomy. These diagrams are included to assist the student in becoming familiar with the relationship between the anatomical structures when viewed in cross-sectional orientation.



## Module Quizzes - 35%

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 module quiz consisting of randomized multiple-choice and/or matching questions. It is important to know the module content before attempting the module quizzes because they are **timed**. Quiz questions will be from information learned in the modules and reading. Review the important key items and the objectives before attempting a quiz.

Be sure to start the quizzes well in advance of the close time for the exams. If you are not finished by the time the exam period closes, the exam you are working on will shut down even if you have not finished. Also, save your answers continuously to avoid losing your answers.

### Due dates

All quizzes are open the day that classes begin, so you may work ahead but you must complete the first quiz before other quizzes can be accessed. When one quiz is completed, you will have access to the next quiz. **Quizzes not completed by the final due date will receive a zero (0)**. Under no circumstances will an extension be made to incomplete quizzes not completed by the close date. Students should contact the instructor in extenuating circumstances before the close date of the quizzes; such cases will be dealt with on an individual basis (see the section on late work). All quizzes must be completed before taking the Final Exam. See the course schedule for the due dates for the quizzes.

### Technical problems

If technical issues occur (cannot see an image, cannot see your grade, etc.) sometimes the easiest solution is to see if the issue can be corrected by simply changing browsers. Fewer occurrences have been noted by using Firefox or Chrome as a browser for D2L.

If students have technical difficulties during a quiz, they should use the Help link in D2L, contact the [MSU Information Systems Support](#) Staff, and send an email to the course instructor explaining what happened. Screenshots and/or taking a picture of your screen may help in diagnosing the problem.

### Scores

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:

- Module Quiz Number (1-8)
- 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 the 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.

## Sectional Anatomy PowerPoint Assignment - 25%

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The Sectional Anatomy Assignment is a short PowerPoint demonstration of knowledge. The purpose of this assignment is to enforce the appearance of anatomy as compared to pathological changes detected on different sectional imaging modalities (CT and MRI). Students should demonstrate that they have an understanding of the anatomy they chose, but perhaps more importantly, this assignment provides an opportunity for students to “step back” and see which imaging modality is the most appropriate for the anatomy and condition being examined to improve the diagnosis and treatment of the patients.

### ***Topic Approval (Must be submitted by due date)***

Students will pick one (1) organ, joint, or section of the spine (cervical, thoracic, or lumbar) and an associated specific pathology to research. Use the bulleted guidelines below when choosing your topic. ***Students must submit their topic requests to the appropriate discussion by the due date indicated on the course schedule or a grade of zero (0) for the entire assignment may be assigned.***

- You will be comparing CT and MRI modalities. You should do some research prior to submitting your topic for approval to determine that your chosen pathology can be imaged using both modalities.
- Two students cannot have the same topic. To avoid duplication, students should review the discussion board to see anatomy already selected by classmates. First come first served.
- Students may **NOT** use anatomy reports submitted previously for other classes. The instructor may not be aware that a student has previously used a particular topic. Even if the instructor approves the topic for this class and it is revealed later that the student is using the same topic, the student will receive a **zero (0)** on this assignment. Students would be wise to select topics they have not written about in the past. Refer to the Honor System section of this syllabus, the course instructor, and the links within D2L for more information on academic dishonesty.

The course instructor will let the student know his/her selected anatomy topic is approved by posting it on the discussion board.

### ***Sources:***

Students must use at least 3 – 5 current sources of information about this anatomy. The sources must be less than five years old. Students may use textbooks, scholarly journal articles (*Radiographics* is a great source), or other scholarly sources for information about the anatomy (including electronic sources). These articles can be retrieved electronically from databases such as CINAHL which is available through an online connection to the [Moffett Library](#).

Students should use only credible medical websites such as eMedicine.com. NO CUT AND PASTE of text information from websites. Wikipedia is convenient for casual use, but it is **NOT** a reliable source for this report because it is “open source.” This means that anyone can modify the content on the website so you might be using information from the website that is not current or accurate.

### ***Assignment Format:***

Students must identify the reliable sources they used to create the assignment using the appropriate APA format for the reference page. You do not need to include in-text citations. For help with APA formatting for the reference page, students should review the 7th edition of the APA Manual and other resources such as [The OWL at Purdue](#) website. This is a quick reference and not as detailed as the writing manual.

The assignment must be submitted in a legible font (e.g. Arial, Calibri, or Times New Roman is acceptable – Courier, Verdana, or other “fancy” fonts are not acceptable)

**Note:** All assignments that are turned in will be considered a completed assignment and will be graded as such. Proofread your work prior to handing it in.

### ***Images:***

You must give credit for images you obtain. You can either include the URL under each image, or you can include an in-text citation and provide a reference in the reference slide (these do not count as part of your required 3-5 references).

**HIPAA requirement:** Do not place ANY patient name or identification on your assignments. Any proper name that appears on an assignment, other than the student’s, 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.

### ***Audience:***

For this assignment, the intended reader is a staff radiographer. Students should prepare this assignment based on what the typical staff radiographer already knows. For example, students do NOT need to explain how x-rays were discovered or how they are produced to support that a CT chest with contrast is the most valuable study to see the thoracic aorta.

### ***Organization:***

Organization, flow, and grammar count as part of the assignment grade. The assignment MUST address all criteria listed and in the order given below. DO NOT include any more slides than what are listed for this assignment (points may be deducted for an inappropriate number of slides). You are to extrapolate information and properly summarize it. Slides must be written at a baccalaureate level.

### ***Creativity:***

Even though you must follow the set guidelines for each slide that are described in the submission format below, you can make this presentation as simple or as interactive as you want. You may include a voice over presentation if you are so inclined, but it is not required. You may add a background if you have a creative flair, but please be sure it is nothing distracting. It must be readable for anyone with color blindness, and must be professional. Your text should remain black. If you have a dark background use white. If you are unsure of what is appropriate either stick with the usual PowerPoint background, or do not include one.

### ***Submission Format:***

The assignment must contain and be limited to the following slides:

**Slide 1: A title** that includes:

- The name of the pathology
- The name of the student
- University affiliation
- Course number and section
- Date
- Instructor's name

**Slide 2: Identify the pathology** and give a brief description of important information regarding the pathology.

**Slide 3: Diagnostic procedures.** Briefly explain the steps needed to produce an image in both modalities. This should include items such as patient position, contrast used and how much, region of interest, any specific protocols (slice thickness, pitch, weighted imaging, MR protocols, etc). Do not go into a lengthy discussion. You do not need to say remove all jewelry, articles of clothing and so forth.

**Slide 4: CT imaging comparison.** Show a CT image of a “normal” section of your chosen anatomy and compare it to an “abnormal” CT image demonstrating the same anatomy including your chosen pathology. Using labels identify **all** pertinent anatomical structures in **both** images. ***Do not use images which are already labeled or copied and pasted with the labels already attached from the internet.*** There should label at least five (5) anatomical parts on both images. Do not forget to identify the pathology. Make sure both images are CT images.

\*Note: Make sure these are CT images. Not all images found on the internet are accurately labeled. If you are unsure, refer to your textbook or ask your professor.

**Slide 5: MRI imaging comparison.** Show an MRI image of a “normal” section of your chosen anatomy and compare it to an “abnormal” MRI image demonstrating the same anatomy including your chosen pathology. Using labels identify **all** pertinent anatomical structures in **both** images. ***Do not use images which are already labeled or copied and pasted with the labels already attached from the internet.*** There should label at least five (5) anatomical parts on both images. Do not forget to identify the pathology. Make sure both images are MRI images.

\*Note: Make sure these are MRI images. Not all images found on the internet are accurately labeled. If you are unsure, refer to your textbook or ask your professor.

**Slide 6: Conclusion.** Determine from your research, the best modality that would aid the radiologist/physician in terms of diagnosis and treatment and why.

**Slide 7: References.** The Reference list must be in APA format according to the 7th edition APA Manual. Another useful resource is the [OWL at Purdue](#) website.

To allow sufficient time for grading and providing feedback, late submissions will NOT be accepted. ***Any assignment not submitted or submitted after the deadline will be assessed a grade of zero “0”.*** Early submissions are appreciated; however, they will not be

returned until the end of the semester after all submissions have been graded. The PowerPoint must be submitted as one document to the [Sectional Anatomy Dropbox](#) in the course.

Students must use the following format as the title of the assignment when saving the document: **Lastname\_topic**

**Example: Smith\_Brain\_Cerebral aneurysm**

**Note:** All assignments received are considered complete and will be graded as such.

## **Comprehensive Final Exam - 40%**

**\*Note- All quizzes must be completed before the Final Exam is taken.\***

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### **Exam Format**

The proctored comprehensive final examination is closed book, matching and multiple-choice format. The exam is a timed, 2 hour (120 min) test.

The comprehensive exam will be administered using Desire2Learn (D2L) and Respondus with webcam online proctoring service.

To prepare for this exam:

- Review prior quizzes in the course
- Review the Module notes
- Review learning activities
- Review textbook

### **What to Bring**

- You must have a computer with a very good internet or WiFi connection and a webcam
- No smart watches or any other electronic devices will be allowed.
- Students are not allowed to print the final exam.
- No textbooks or notes may be used.

### **Technical Problems**

- If you are disconnected during your exam, you must immediately send an email to your professor. All exams taken after business hours will not have the luxury of technical help should something go wrong. Use discretion when preparing to take the exam.
- \*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.

- A 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. You are cautioned that if you schedule the exam on a weekend, you do so knowing there is no technical assistance available at the university to help in case a problem arises.

**All course requirements must be completed before a grade is awarded.** Students must complete the final and all coursework 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.

See the Course Schedule below.

<b>RADS 4733 X30 Summer 2024 Course Schedule</b>	
Date	Activity <i>* Note: These are Central Times*</i>
June 3	Class begins - All quizzes are open
June 10	<b>Sectional Anatomy PowerPoint Topic</b> due by 11:59 pm
July 15	Sectional Anatomy PowerPoint due by 11:59 pm
July 31	<b><i>Last day to withdraw with a grade of "W" by 4:00 pm CST</i></b>
July 31	All eight (8) Module Quizzes are due by 11:59 pm
August 5 - August 8 Final exam	<b>Closed Book Proctored Final Exam</b> The exam must be complete and submitted for grading by 11:59 pm CST on August 8, 2024.