

**The University of Texas at El Paso
College of Health Sciences
Doctor of Physical Therapy Program**

PT 6109 CRN 23733

Imaging

Spring 2024

COURSE SYLLABUS

Credit Hours: 1

Contact Hours: 15 hours

Lecture: 15 hours; Lab: 0 hours; Clinic: 0 hours

Schedule: Monday, 9: 00 am – 10 am, Mesa Bldg. Rm 126

Coordinator/Instructor(s):

Faculty: Dr. Bala Kathirvelu, MBBS, PhD.
Office location: Mesa Bldg. 115T
Phone #: 915-747-7260
E-mail: bkathirvelu@utep.edu
Office hours: Appointments available by request

Teaching Assistant: N/A

Course Description: This course introduces the student to physical principles of imaging methods and provides a framework for interpreting medical images. Medical imaging systems include conventional X-ray, computed tomography (CT), magnetic resonance imaging (MRI), nuclear medicine (PET and SPECT), and ultrasound. Basic concepts in medical image processing and analysis, as well as medical applications, will be introduced.

Course Prerequisites for DPT Students: The UTEP DPT Program curriculum is a lock-step curriculum. Therefore, students must pass all courses in the prior semester of the DPT Program in order to enroll in courses in the subsequent semester. Faculty may consider exceptions for PT 6116 PT Capstone Project I and PT 6117 PT Capstone Project II.

Course Objectives: *At the end of this course, the student will be able to:*

1. Identify the basic physics and related tissue consequences behind each imaging modality. (7A: Diagnostic Imaging) [Comprehension]
2. Identify the primary diagnostic applications for radiographs, ultrasound, computed tomography, magnetic resonance imaging, bone scanning, PET scanning, SPECT, scan, fluoroscopy, and arthrography. (7A: Diagnostic Imaging) [Comprehension]
3. Identify specific views of and select structures on medical imaging. (7A: Diagnostic Imaging) [Comprehension]
4. Recognize select types of fracture and stages of healing in children and adults on medical imaging. (7A: Diagnostic Imaging; 7D19v) [Comprehension]

5. Recognize normal anatomy, aberrant structures, fibrocartilaginous pathology, and disease processes related to the joint, tendon, and disc on medical imaging. (7A: Diagnostic Imaging) [Comprehension]
6. Identify indications, contraindications, and the appropriateness criteria that guide the selection of medical imaging. (7A: Diagnostic Imaging) [Comprehension]
7. Analyze patient cases utilizing clinical reasoning to determine if medical imaging may be indicated. (7A: Diagnostic Imaging; 7D16) [Evaluation]

- **Cultural / Linguistic Engagement and Competence:** n/a
- **Evidence-Based Practice and Research:** n/a
- **Clinical Reasoning:** Clinical reasoning is woven across the course during teaching that involves imaging from various orthopedic conditions.
- **Interprofessional Collaborative Practice:** n/a

Methods of Instruction: Lecture, assignments and readings. (one class topic might be online content depending on time)

Methods of Evaluation: Evaluation of course content will consist of quizzes, a midterm exam, and a **comprehensive final** examination. (**Respondus software** will be used during all online exams and quizzes)

<u>Item</u>	<u>Grade Composition</u>
Quizzes (MCQs/ written) 8 Qz. each 5p	40 %
Mid-Term Exam (written/ MCQs)	30 %
Final Exam (written/ MCQs)	30 %
Total	100%

Grading Scale: The following letter grade scale is used for the UTEP Doctor of Physical Therapy Program:

<u>Letter Grade Scale</u>	<u>Numerical Grade Scale</u>
A	90-100
B	80-89
C	75-79
F	Below 75

*If you get a grade below 80% on any examination or assignment, you are required to arrange a meeting with the instructor to develop study strategies for performance improvement.

Required Textbooks and Other Learning Resources:

- 1) McKinnis LN. *Fundamentals of Musculoskeletal Imaging, 5th Edition*.

NOTE: Available on Access Physiotherapy F.A. Davis PT Collection

UTEP Library website

<https://fadavispt.mhmedical.com/Book.aspx?bookid=3055>

Recommended Textbooks and Other Learning Resources:

- 1) Netter, F. H. (2019). *Atlas of human anatomy* (7th edition and above). Philadelphia, PA: Saunders/Elsevier. Electronic book available at the [UTEP Library](#)

Resources Available for Student Success:**Confidential Resources:**

- **Center for Accommodations and Support Services (CASS):** If you have or suspect a disability and need accommodations, you should contact the Center for Accommodations and Support Services (CASS) at 747-5148. You can also e-mail the office at cass@utep.edu or go by their office in Union Building East, room 106 (next to the UTEP post-office). For additional information, visit the CASS website at <http://sa.utep.edu/cass>.
- **The UTEP Student Health Center:** Union East Suite 100; 915.747.5624; www.utep.edu/chs/shc
- **The UTEP Counseling and Psychological Services:** 202 Union West, 915.747.5302; www.utep.edu/student-affairs/counsel

Additional Resources:

- Division of Student Affairs. 915.747.5076, www.utep.edu/student-affairs
- DPT Library Research Guide: <http://libguides.utep.edu/pt>
- Writing Center: 915.747.5112. <https://uwc.utep.edu>
- Computer Labs: Independent Learning Center (ILC), 1st floor Campbell Building
- Military Student Success Center: 915.747.5342, www.utep.edu/student-affairs/mssc
- Student Wellness Program. 915.747.6738, www.utep.edu/chs/wellness

University Policies: All students are responsible for following UTEP policies and procedures found in the Handbook of Operating Procedures at www.utep.edu/vpba/hoop

Program Policies: All DPT students are responsible for following all policies and procedures documented in the current DPT Student Handbook. Course policies found in the DPT Student Handbook apply to all courses in the DPT curriculum. The current DPT Student Handbook may be found on the DPT Student Resources site on Blackboard.

Academic Integrity: The UTEP DPT Program has a “zero tolerance policy” for scholastic dishonesty. DPT students must demonstrate academic integrity at all times. The current DPT Student Handbook outlines specific definitions, expectations, details,

and consequences related to academic integrity and scholastic dishonesty. Additional information related to academic integrity is available through the UTEP Division of Student Affairs at www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html

In this class, cheating is considered to be copying from another student during an in-class quiz or exam, using material gleaned from the internet or other reference books without proper citations, submitting written homework copied from other students or prepared by another student, or using notes, crib sheets, smart phones, smart watches, etc. during testing. You are not permitted to make copies of any written or practical exam questions.

Course-Specific Policies:

Attendance Policy - Absences: Refer to current DPT Student Handbook “Attendance and Classroom Behavior” for the DPT Program policy. Additional course-specific policy are as follows:

It is essential that you attend every class. As a student enrolled in a professional program, it is also expected that every student will be seated and attentive as soon as class begins. Tardiness is unprofessional and impacts your fellow peers by interrupting the classroom dynamics.

If you miss a class, you must contact your instructor via email: bkathirvelu@utep.edu within 24 hours of the missed class. If you miss a class, you are responsible for the material that was covered in lecture, and any announcements that were made in class that you missed.

There will be no make-up exams unless arrangements are made prior to the scheduled date, or under extraordinary circumstances.

Missed exams will be entered as a zero grade unless the student has made prior arrangements with the instructor. The instructor will try to arrange a convenient make-up date for both of our schedules. Make-up quizzes and exams will cover the same content but the format of the test may be different.

It will not be the policy of this instructor to routinely allow students to take advantage of missing quizzes and exams with the expectation that they will be able to make up the work later.

I consider extraordinary circumstances worthy of an excused absence to include: military duty, jury duty, documented hospitalization, documented illness, funerals, and/or religious observations.

Students must accept responsibility for their studies and for their required attendance to all lectures. The University of Texas at El Paso is striving to give every student the opportunity to become a successful student. In college, as in life, actions have consequences.

Incompletes:

An Incomplete Grade (I) indicates that a student has not completed a major course assignment (usually a final exam or culminating final assessment) due to extraordinary circumstances, such as serious illness, death in the family, etc. The grade is applied only in those instances where the student has a reasonable chance of completing the outstanding work and passing the course. It is not intended to give an extension of time for a student delinquent in meeting major course responsibilities.

The University Policy on examinations and quizzes:

When examinations are administered, students are to place all personal belongings out of sight and out of the way. The instructor may indicate where the students should sit. No hats, caps, or bulky clothing may be worn. Students will return examination papers and scantron to the exam monitor before exiting the exam. Exams will be 90-120 minutes, and if at all possible, students should not ask to leave the exam room before finishing the test.

If a student misses an exam, a make-up exam may be taken only if the student has informed the instructor of the absence prior to the beginning of the examination, and only if the absence is approved by the instructor. Only in rare instances will a student be excused from an examination or a quiz. Make-up exams/quizzes, while they will cover the same material, may differ from the original exam taken by the rest of the class in organization, format, or specific item data.

1. **Attendance Policy - Tardiness & Early Departures:** Refer to current DPT Student Handbook "Attendance and Classroom Behavior" for DPT Program policy.
https://www.utep.edu/chs/pt/Files/docs/Student%20Handbook%202025_02.pdf
2. **Electronic Devices:** Refer to current DPT Student Handbook "Electronic Devices" for DPT Program policy. Additional course-specific policy is as follows:

Cell Phones:

All cell phones should have the ringtone muted before the beginning of class. Cell phones can be disruptive and a distraction during valuable lecture time which can negatively impact all the students in the class. You may not take photos using your cell phone or a camera in the class/ Lab.

Email Response Time:

I check my email account daily and will try to respond to any requests promptly, within 24-hour window. However, during weekends and school holidays, I extend the window of response time up to 36--48 hours.

All UTEP students should use their college email account when communicating with the instructor. If another email account is used, it may be sent to a **quarantine** folder and the instructor will not have access to it--sometimes for several days. Faculty are not responsible for the content of lost or quarantined emails sent from an outside email account.

Blackboard (Bb) Usage Policy:

Students are encouraged to use Blackboard as a course resource. This syllabus is posted to Bb, which includes my contact information. PowerPoint lectures and other study materials will be posted on Blackboard for your use. It is a good idea to check Blackboard often to see if any additional study material has been posted.

- As a pre-professional enrolled in a professional graduate degree program, it is expected that every student show respect to each other, in the same way that we would show our respect to patients, clients, and other professionals in our field or in any interdisciplinary field with whom we interact.
 - Employ and practice your soft skills in this course: showing commitment, time management, positive attitude, motivation, flexibility, persistence and perseverance, empathy, punctuality, strong work ethic, self-awareness, staying calm in a difficult situation, and accepting responsibility, to name a few
 - This course contains a large quantity of material that must be committed to memory. Students should endeavor to study to keep current with the schedule of topics.
 - It is a very helpful tool to study in small groups and quiz each other on the material.
 - The quizzes, homework, and examinations are created to measure your knowledge of the important topics presented during lecture or assigned as reading in the textbook.
 - Experiment with your personal learning style
 - Please contact me with any concerns, complaints, questions, gripes, requests, as soon as possible so that I may address it/them immediately
3. **Professional Behavior Policy:** See DPT Student Handbook “Attendance and Classroom Behavior”, “Professional Behaviors” and “Unprofessional Behavior:” for general program policy. Additional course-specific is as follows:
4. **Late or Missed Assignments and Assessments Policy:** See current DPT Student Handbook “Written Examination Policy”. Additional course-specific policy is as follows:
5. **Skills Check Policy: NA**
6. **Practical Exam Policy: NA**

Course Content and Schedule: (Note: Students will be notified of changes via Blackboard or email. Additional details may be available in supporting course documents provided by the course instructor)

Course Schedule

22-Jan	Introduction & Plain Radiography
29-Jan	Plain Radiography
5-Feb	Chest X-Ray & Radiographic evaluation, CT
12-Feb	CT & MRI
19-Feb	MRI, USG and other imaging modalities
26-Feb	Orthopedic conditions
4-Mar	Midterm Exam
11-Mar	Spring Break
18-Mar	Spine
25-Mar	Upper Extremities
1-Apr	Upper Extremities & Lower Extremities
8-Apr	Lower Extremities
15-Apr	Laboratory testing
22-Apr	EMG & NCV
29-Apr	Neuroimaging
6-May	Final Exam (9-11)
	subject to change as needed.