



Jordan University of Science and Technology
Faculty of Applied Medical Sciences
Radiologic Technology Department

RA465 Magnetic Resonance Imaging Lab

First Semester 2023-2024

Course Catalog

1 Credit Hours. This course introduces the student to the principles of the MRI. It contains physical and clinical aspects of the imaging process. The physical part introduces the student to the principles of magnetization and nuclear magnetic resonance (NMR), principles of image contrast formation, image weighting and formation, pulse sequences, instrumentation and equipment and MRI safety. On the other hand, the clinical aspect provides the student with a basic knowledge of the imaging protocols and parameters. These protocols include the imaging of head and neck, spine, chest, abdomen, pelvis, lower limbs, and upper limbs

Text Book

Title	MRI in practice
Author(s)	Westbrook C. et al.
Edition	3rd Edition
Short Name	MRI in practice
Other Information	

Instructor

Name	Dr. Maram Alakhras
Office Location	-
Office Hours	Sun : 12:30 - 14:00 Mon : 11:00 - 12:30 Wed : 11:00 - 12:30 Thu : 09:00 - 10:30
Email	mmalakhras@just.edu.jo

Class Schedule & Room

Section 1:
Lecture Time: Sun : 08:30 - 10:30
Room: LAB

Section 2:
Lecture Time: Sun : 10:30 - 12:30
Room: LAB

Section 3:
Lecture Time: Tue : 08:30 - 10:30
Room: LAB

Section 4:
Lecture Time: Tue : 10:30 - 12:30
Room: LAB

Teaching Assistant

Rasha Elshayib(Sections 1, 2, 3, 4)

Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Atomic structure Motion in the atom MR active nuclei The hydrogen nucleus	From MRI in practice
Week 2	Image weighting and appearances	From MRI in practice
Week 3	Image contrast mechanisms and their uses in clinical practice	From MRI in practice
Weeks 4, 5	Pulse sequences and their applications in clinical practice	From MRI in practice
Weeks 6, 7	MRA and flow phenomena	From MRI in practice
Weeks 8, 9	Artefacts, causes and solutions	From MRI in practice
Week 10	Instrumentation and equipment	From MRI in practice
Weeks 11, 12, 13, 14, 15	MRI imaging protocols	From MRI in practice
Week 16	Final exams week	

Mapping of Course Outcomes to Program Outcomes

Course Outcome Weight
(Out of 100%)

Assessment
method

Link the understanding of physical principles to the parameters selected to different tissues	20%	
Understand and apply a suitable protocol to image different anatomy and pathology	30%	
Operates the MRI machine	20%	
Identify the different contrast media used in the MRI	10%	
Recognize the different artifacts and render them	10%	
Protect him/herself, the patient and the workers in the MRI department	10%	

Evaluation	
Assessment Tool	Weight
In class quizzes	20%
Worksheets	10%
Mid-term exam	20%
Final exam	50%

Policy	
Cheating	University regulations will be applied on cases of cheating and/or plagiarism
Statement on Professionalism	Professional behavior is expected of students at all times. Attitude and professional behavior are a minimum criterion for passing this class. Examples of unprofessional behavior include but are not limited to: missing classes, tardiness, lack of attention for a speaker, talking to others during lecture, leaving a lecture prior to its completion without prior authorization of the instructor, working on other class material during class, and sleeping during class.
Cell phone	The use of cellular phone is prohibited in class rooms and during exams. The cellular phone must be switched off in class rooms and during exams.
Attendance	No points will be counted for attendance of this class, however attending the lectures will greatly enhance your grade. The student is responsible for any information discussed in lecture sessions. It is imperative to attend all classes!
Absences	University regulations will be applied. Students are not allowed to be absent for more than 20% of lectures for any reason or excuse. If a student exceeds the absence limit, he or she will not be allowed to sit for future course exams. (Please review university regulation for more details)
Make-up exams	Make-up exams is entitled for students who miss the exam with accepted legal or medical excuse endorsed by the instructor within 24 hours after the scheduled exam (Please review university regulation for more details)

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