



## Radiology

<b>1. IMPRINT</b>	
<b>Academic Year</b>	2024/2025
<b>Department</b>	Faculty of Medicine and Dentistry
<b>Field of study</b>	English Dentistry Division
<b>Main scientific discipline</b>	Medical sciences
<b>Study Profile</b>	General academic
<b>Level of studies</b>	Uniform MSc
<b>Form of studies</b>	Full-time program
<b>Type of module / course</b>	Obligatory
<b>Form of verification of learning outcomes</b>	Completion
<b>Educational Unit / Educational Units</b>	I-st Department of Clinical Radiology 02-004 Warsaw, 5 Chałubińskiego Str.; tel. 22 502-10-73, radiologia@wum.edu.pl; www.radiologia1.wum.edu.pl
<b>Head of Educational Unit / Heads of Educational Units</b>	Prof. Marek Gołębiowski MD, PhD
<b>Course coordinator</b>	Prof. Marek Gołębiowski MD, PhD; marek.golebiowski@wum.edu.pl 22 502-10-73
<b>Person responsible for syllabus</b>	Dorota Piotrowska-Kownacka MD, PhD; dorota.piotrowska-kownacka@wum.edu.pl 22 502-10-73
<b>Teachers</b>	Damian Wójcik M.Sc.Eng.; damian.wojcik@wum.edu.pl Piotr Palczewski MD PhD; piotr.palczewski@wum.edu.pl Marcin Błaż MD PhD; marcin.blaz@wum.edu.pl Dorota Piotrowska-Kownacka MD PhD; dorota.piotrowska-kownacka@wum.edu.pl Lek. med. Małgorzata Wiśniewska MD; malgorzata.wisniewska@wum.edu.pl

<b>2. BASIC INFORMATION</b>			
<b>Study year and semester</b>	III year , VI semester	<b>Number of ECTS credits</b>	1
<b>FORM OF ACTIVITY</b>		<b>Number of hours</b>	<b>ECTS credits calculation</b>
<b>Contact hours with academic teacher</b>			
Lectures (L)			
Seminars (S)		15	0,5
Exercises (E)			
e-learning (e-L)			
Practical classes (P c)			
professional practice (P P)			
<b>Student's preparation</b>			
preparation for a class and credits		15	0,5

<b>3. LEARNING OBJECTIVES</b>	
C1	Physics of various types of radiation.
C2	Anatomy and pathophysiology of human body
C3	Clinical pathophysiology

<b>4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING</b>	
<b>Code and number of effect of learning in accordance with standards of learning</b>	<b>Effects in time</b>
<b>Knowledge – Graduate knows and understands</b>	
B.W9.	methods of imaging tissues and organs and the principles of operation of diagnostic devices used for this purpose.
B.W10.	principles of operation of ultrasonic devices

F.W18	principles of radiological diagnosis
<b>Skills – skills can:</b>	
A.U1.	interpret anatomical relations illustrated with the basic methods of diagnostic tests in the field of radiology (overview and contrast media radiographs)
E.U5.	identify normal and pathological structures and organs in additional imaging examinations (X-ray, ultrasound, computed tomography –CT)
E.U6.	interpret the results of additional tests and consultations

## 5. ADDITIONAL EFFECTS OF LEARNING

Learning effect number	Effects in terms of
<b>Knowledge – Graduate* knows and understands:</b>	
W.1.	-
<b>Skills – Graduate can:</b>	
S1	-
<b>Social competence – Graduate is ready to:</b>	
K1	-

## 6. CLASSES

Form of activity	Subject topics and educational contents	Learning outcomes
Seminars	S1 – Seminar 1 - Physics of ionizing radiation. Theoretical basis of multimodal imaging. Physics, technics and methodology of each visualization methods. Digital radiography. Teleradiology.	A.U1., B.W9., B.W10., E.U5., E.U6., F.W18
	S2 – Seminar 2 - Radiobiology and radiological protection. Role and Value of the Clinical Radiologist: Recognising the Value and Responding to the Challenges. Radiological anatomy of human body (Radiography, US, CT, MRI, Angiography). Screening in radiology.	A.U1., B.W9., B.W10., E.U5., E.U6., F.W18.
	S3 – Seminar 3 - Abdominal Radiology. Imaging methods and abdominal organs estimation (parenchymal organs, gastrointestinal tract, retroperitoneal space).	A.U1., B.W9., B.W10., E.U5., E.U6., F.W18.
	S4 – Seminar 4 - Facial pathology imaging - technics, methodology, interpretation.	A.U1, B.W9., B.W10., E.U5., E.U6., F.W18.

	S5 – Seminar5 - Chest Imaging. Imaging methods. Pathological basis of chest diseases. Lung and cardiovascular pathologies.	A.U1., B.W9., B.W10., E.U5., E.U6., F.W18.
<b>7. LITERATURE</b>		
<b>Obligatory literature:</b>		
1. Brant and Helms' Fundamentals of Diagnostic Radiology , Authors: Klein, Jeffrey, MD, FACR. Emily N.; Brant, William E.; Helms, Clyde A., wyd. Lippincott Williams and Wilkins, 2018		
<b>Supplementary literature:</b>		
-		

<b>8. METHODS OF VERIFICATION OF LEARNING OUTCOMES</b>		
Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
	To pass the course an active participation in all seminars is required. At the end of the course, students are required to take a single-choice question test (15 min.). The test consists of 12 questions. Each student is allowed two attempts to pass the test. In case of absence, students are responsible for notifying faculty or the Radiology Department's office and arranging to make up missed class/take the test	2.0 (failed) 0-13 points all seminars and final test. 3.0 (satisfactory) 14-15 3.5 (rather good) 16-17 4.0 (good) 18,19,20 4.5 (more than good) 21,22 5.0 (very good) 23,24

<b>9. ADDITIONAL INFORMATION</b>
Dorota Piotrowska-Kownacka, responsible for teaching; <a href="mailto:dorota.piotrowska-kownacka@wum.edu.pl">mailto:dorota.piotrowska-kownacka@wum.edu.pl</a>

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<b>ATTENTION</b>
The final 10 minutes of the last class in the block/semester/year should be allocated to students' Survey of Evaluation of Classes and Academic Teachers