Faculty of Medicine in Rijeka

Curriculum
2025/2026

For course

Occupational Medicine

Study program:	**Medical Studies in English (R)** University integrated undergraduate and graduate study
Department:	**Department of Family Medicine**
Course coordinator:	**doc. dr. sc. Varnai Veda Marija, dr. med.**
Year of study:	**6**
ECTS:	**1.5**
Incentive ECTS:	**0 (0.00%)**
Foreign language:	**Possibility of teaching in a foreign language**

Course information:

Course aims:

The **course Occupational Medicine** is an obligatory course at the sixth year of the Integrated undergraduate and graduate university study of Medicine. It consists of 15 hours of lectures, 3 hours of seminars and 2 hours of practicals. The course has two aims. The first aim is to learn about the factors affecting the work environment, and the second aim is to learn how to assess biological factors arising in or from the workplace. It is necessary to recognize changes in the body provoked by the work environment, especially if the values of different chemicals exceed permitted values (dose-response curves in toxicology), which can cause various diseases. Therefore, medical doctors are an indispensable part of every industrial plant, presented directly to help the employer as well as employees to protect the environment and workers´ health.

Course content:

Occupational medicine: assessment of factors affecting the work environment, lighting, thermal environment, non-ionizing and ionizing radiation, biological effects, dosimetry, radiation protection. Workplace chemical factors, gases, vapors, aerosols. Assessment of occupational capacity, functional diagnostics, ergometry, spirometry. Workplace accidents, occupational diseases. The vision and hearing tests, audiometry. Pneumoconiosis, pneumopathy, exposure to heavy metals. Disability prevention, professional orientation and selection. Occupational health management, motivation for work, occupational psychology.

Sports medicine: basis of physiology, kinesiology, theory and methodology of sports training, anaerobic and aerobic sources, conditioning, tests.

Course teaching:

Classes are conducted in the form of lectures, seminars and practicals organized in the field and industrial sites. During the course, there will be written tests covering the factors that affect the work environment, a multiple-choice test and a short seminar paper. There is an oral exam planned for the end of classes.

List of assigned reading:

1. Gardiner K, Rees D, Adisesh A, Zalk D, Harrington M. Pocket Consultant. Occupational Health. 6th Edition. John Wiley & Sons Ltd, 2022
2. Varnai VM. Lectures (PowerPoint presentations)

List of optional reading:

Curriculum:

Lectures list (with titles and explanation):

L1. History of OM

The first written documents that mention OM, occupational diseases.

P2. Environmental and personal factors

Interaction between occupational mechanical, physical, chemical, biological and psychosocial factor, personal factors in the development of an occupational disease.

L3. Noise

Acquisition of audiometry reading skills, assessment if noise performance. Vibration division, vibration disease, 3 levels of noise protection

P4. Heating environment

Heating equatation. Heating factors. Clinical manifestations.

P5. Brightness

Vision requirements at the workplace. Vision impairment, glare protection. Working on the computer

L6. Chemical factors

Classification into gases, vapors and aerosols. Calculation of TWA.

L7. Non-ionizing radiation

Classification, units of measurement, absorbed doses, dosimetry.

L8. Ionizing radiation

Classification, units of measurement, absorbed doses, dosimetry.

L9. Metals

Heavy metals – lead, mercury, chromium, nickel, cadmium, copper, zinc.

P10. Crude oil. Petroleum.

Distillation. Aliphatic and aromatic hydrocarbons.

L11. Pneumoconiosis

Occupational lung diseases, diagnostic X-ray.

P12. Injuries at work.

Prevention.

P13. Working Phsyology

.

L14. Sports medicine

.

L15. Compensatory curves

Physiological changes

Practicals list (with titles and explanation):

P1 Fire brigade. Description, P2 Work protection. Protection of the fire

Rijeka Public Fire Brigade. Workplace hazards, fire suppression equipment, protective clothes. Measurement of workplace noise. Firefighters – divers, compressed air, health status of firefighters. Decompression sickness. Recompression. Medical examination. Psychological examination. There are 2 hours of practicals.

Seminars list (with titles and explanation):

S1 Noise assessment , S2 Brightness, S3 Chemical factors

There are 3 hours of seminars that cover workplace noise, lighting and chemical factors. Students need to calculate after measurements and conclude if working conditions are satisfying

Student obligations:

Students are obligated to regularly attend all forms of classes according to the Study Regulations.

Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):

ECTS credit grading system:

Student grading is conducted according to the current University of Rijeka Study Regulations and the Ordinance on Student Assessment and Evaluation at the Faculty of Medicine in Rijeka (adopted by the Faculty Council of the Faculty of Medicine in Rijeka). Student work is assessed and evaluated during classes and on the final exam. Out of **100 grade points**, the student can achieve **70 grade points** during classes and **30 grade points** on the final exam.

Assessment is conducted using the ECTS (A–E) system derived by absolute distribution and numerical system (1–5). Out of a maximum of 70 grade points, the student has to achieve 35 grade points to access the final exam. Students who achieve less than 35 grade points have the right to one retake.

During classes, students achieve grade points for active participation in classes, solving assignments and taking the midterm exams.

The following is evaluated during classes (maximum of 70 grade points):

a. Midterm exam covering the general part of OM **(6–15 grade points**) • three questions about the factors affecting the work environment
b. Compulsory solving of assignments – factors affecting the work environment **(6–15 grade points)** • calculate noise, lighting and chemical factors
c. Midterm exam covering the visitation to workplaces (industry) **(9–20 grade points)** • describe types of industry, health hazards; protective measures
d. Midterm exam covering the special part of OM **(6–20 grade points)** • four questions (metals, pneumoconiosis, plastics, pesticides).

Class attendance

The student can be absent from up to 30% of classes due to health reasons, which is justified by a medical certificate (doctor's note). Attendance at seminars and practicals is compulsory. If the student is unjustifiably absent from more than 30% of classes, they lose the right to take the final exam. In this way, the student obtains 0 ECTS credits and an F grade.

Grading in the ECTS system

Student success is expressed by the ECTS grading scale in percentages from 0 to 100%. The passing grade at the graduate level cannot be lower than 50%.

I. A – 90–100% points
II. B – 75–89.9% points
III. C – 60–74.9% points
IV. D – 50–59.9% points

Conversion into the numerical system:

I. A – excellent (5)
II. B – very good (4)
III. C – good (3)
IV. D – sufficient (2)

Other notes (related to the course) important for students:

-

COURSE HOURS 2025/2026

Occupational Medicine

Lectures (Place and time or group)	**Practicals** (Place and time or group)	**Seminars** (Place and time or group)
27.10.2025		

L1. History of OM:
• P02 (16:00 - 19:00) [3608]
  ○ OM_398
 	
P2. Environmental and personal factors:
• P02 (16:00 - 19:00) [3608]
  ○ OM_398
 	
L3. Noise:
• P02 (16:00 - 19:00) [3608]
  ○ OM_398
 	
P4. Heating environment:
• P02 (16:00 - 19:00) [3608]
  ○ OM_398		

doc. dr. sc. Varnai Veda Marija, dr. med. [3608]		
28.10.2025		

P5. Brightness:
• P09 - TEACHING IN ENGLISH (16:00 - 19:00) [3608]
  ○ OM_398
 	
L6. Chemical factors:
• P09 - TEACHING IN ENGLISH (16:00 - 19:00) [3608]
  ○ OM_398
 	
L7. Non-ionizing radiation:
• P09 - TEACHING IN ENGLISH (16:00 - 19:00) [3608]
  ○ OM_398
 	
L8. Ionizing radiation:
• P09 - TEACHING IN ENGLISH (16:00 - 19:00) [3608]
  ○ OM_398		

doc. dr. sc. Varnai Veda Marija, dr. med. [3608]		
29.10.2025		

L9. Metals: • P09 - TEACHING IN ENGLISH (16:00 - 19:00) [3608] ◦ OM_398 P10. Crude oil. Petroleum.: • P09 - TEACHING IN ENGLISH (16:00 - 19:00) [3608] ◦ OM_398 L11. Pneumoconiosis: • P09 - TEACHING IN ENGLISH (16:00 - 19:00) [3608] ◦ OM_398 P12. Injuries at work.: • P09 - TEACHING IN ENGLISH (16:00 - 19:00) [3608] ◦ OM_398		
doc. dr. sc. Varnai Veda Marija, dr. med. [3608]		
03.11.2025		
P13. Working Phsyology: • P01 (16:00 - 19:00) [3608] ◦ OM_398 L14. Sports medicine: • P01 (16:00 - 19:00) [3608] ◦ OM_398 L15. Compensatory curves: • P01 (16:00 - 19:00) [3608] ◦ OM_398		
doc. dr. sc. Varnai Veda Marija, dr. med. [3608]		
06.11.2025		
		S1 Noise assessment , S2 Brightness, S3 Chemical factors: • P02 (15:00 - 17:15) [3608] ◦ OMA
doc. dr. sc. Varnai Veda Marija, dr. med. [3608]		
07.11.2025		
	P1 Fire brigade. Description, P2 Work protection. Protection of the fire: • P09 - TEACHING IN ENGLISH (15:00 - 16:30) [3608] ◦ OM_398	
doc. dr. sc. Varnai Veda Marija, dr. med. [3608]		

List of lectures, seminars and practicals:

LECTURES (TOPIC)	Number of hours	Location
L1. History of OM	1	P02
P2. Environmental and personal factors	1	P02
L3. Noise	1	P02

P4. Heating environment	1	P02
P5. Brightness	1	P09 - TEACHING IN ENGLISH
L6. Chemical factors	1	P09 - TEACHING IN ENGLISH
L7. Non-ionizing radiation	1	P09 - TEACHING IN ENGLISH
L8. Ionizing radiation	1	P09 - TEACHING IN ENGLISH
L9. Metals	1	P09 - TEACHING IN ENGLISH
P10. Crude oil. Petroleum.	1	P09 - TEACHING IN ENGLISH
L11. Pneumoconiosis	1	P09 - TEACHING IN ENGLISH
P12. Injuries at work.	1	P09 - TEACHING IN ENGLISH
P13. Working Phsyology	1	P01
L14. Sports medicine	1	P01
L15. Compensatory curves	1	P01

PRACTICALS (TOPIC)	Number of hours	Location
P1 Fire brigade. Description, P2 Work protection. Protection of the fire	2	P09 - TEACHING IN ENGLISH

SEMINARS (TOPIC)	Number of hours	Location
S1 Noise assessment , S2 Brightness, S3 Chemical factors	3	P02

EXAM DATES (final exam):

1.	04.12.2025.
2.	20.02.2026.
3.	19.06.2026.
4.	02.07.2026.
5.	02.09.2026.
6.	16.09.2026.