

Faculty of Medicine in Rijeka

**Curriculum
2025/2026**

For course

Regeneration Medicine

Study program: **Medical Studies in English (R)** (elective)
University integrated undergraduate and graduate study
Department: **Department of Anatomy**
Course coordinator: **prof. dr. sc. Jerković Kraljić Romana, dr. med.**

Year of study: **1**
ECTS: **1.5**
Incentive ECTS: **0 (0.00%)**
Foreign language: **Possibility of teaching in a foreign language**

Course information:

List of assigned reading:

List of optional reading:

Curriculum:

Lectures list (with titles and explanation):

L1 Introductory lecture

To acquaint course participants with the regenerative capacity of different types of tissues, the potency of body cells and their ability to grow and differentiate into various cell types, methods of cell and gene therapy, previous results of cell and gene therapy in tissue regeneration, possibilities of clinical application, and regenerative medicine as a means of slowing down the aging of cells, tissues, and the organism.

Definition of regenerative medicine, the most important discoveries and insights, possibilities and limitations.

Mitotic/postmitotic cells, cell cycle, cell potency, differentiation, cell culture. Stem cells (embryonic, mesenchymal, origin, markers, manipulation, application of stem cells in therapy)

Seminars list (with titles and explanation):

Cell and gene therapy

Types of therapy, vectors. Application, examples. Advantages/disadvantages. Immunological aspect

Tissue engineering

Cell lines, manipulation. 3D biomaterials/scaffolds/bioreactors (growth factors). Vascular prostheses.

Regeneration of skeletal musculature

The student will get acquainted with seminars on satellite stations, SP stations. Extracellular matrix. Skeletal muscle as a secretory organ.

Wound healing

The student will learn about the types of wounds and the stages of wound healing.

Regeneration of bone, cartilage, and tendons

The student will become familiar with methods of regenerating bone, cartilage, and tendons.

Pancreas regeneration

The student will give a presentation on diabetes and therapy.

Regeneration of the cardiovascular system

The student will learn the ways in which the cardiovascular system can be regenerated.

Regeneration of the nervous system

The student will be introduced to the knowledge of the application of cellular and gene therapy in modern regenerative medicine.

Kidney regeneration

The student will learn about kidney regeneration methods

Tooth regeneration

Getting acquainted with the procedure of tooth regeneration

"Anti-aging" theory

Protein synthesis and aging. Hormones, growth factors, and cytokines. Oxidative damage to cells (ROS). The impact of lifestyle.

Student obligations:

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

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

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COURSE HOURS 2025/2026

Regeneration Medicine

Lectures (Place and time or group)	Seminars (Place and time or group)
02.03.2026	
L1 Introductory lecture: <ul style="list-style-type: none">• ONLINE (18:00 - 20:15) [133]<ul style="list-style-type: none">◦ RM	
prof. dr. sc. Jerković Kraljić Romana, dr. med. [133]	
03.03.2026	
Definition of regenerative medicine, the most important discoveries and insights, possibilities and limitations.: <ul style="list-style-type: none">• ONLINE (17:00 - 18:30) [133]<ul style="list-style-type: none">◦ RM	
prof. dr. sc. Jerković Kraljić Romana, dr. med. [133]	
04.03.2026	
	Cell and gene therapy: <ul style="list-style-type: none">• P03 - IT CLASSROOM (16:30 - 19:30) [133]<ul style="list-style-type: none">◦ RM Tissue engineering: <ul style="list-style-type: none">• P03 - IT CLASSROOM (16:30 - 19:30) [133]<ul style="list-style-type: none">◦ RM
prof. dr. sc. Jerković Kraljić Romana, dr. med. [133]	
06.03.2026	
	Regeneration of skeletal musculature: <ul style="list-style-type: none">• ONLINE (16:30 - 20:15) [133]<ul style="list-style-type: none">◦ RM Wound healing: <ul style="list-style-type: none">• ONLINE (16:30 - 20:15) [133]<ul style="list-style-type: none">◦ RM
prof. dr. sc. Jerković Kraljić Romana, dr. med. [133]	
13.03.2026	
	Regeneration of bone, cartilage, and tendons: <ul style="list-style-type: none">• ONLINE (16:30 - 20:15) [133]<ul style="list-style-type: none">◦ RM Pancreas regeneration: <ul style="list-style-type: none">• ONLINE (16:30 - 20:15) [133]<ul style="list-style-type: none">◦ RM
prof. dr. sc. Jerković Kraljić Romana, dr. med. [133]	
16.03.2026	

	<p>Regeneration of the cardiovascular system:</p> <ul style="list-style-type: none"> • P03 - IT CLASSROOM (16:30 - 20:15) [133] <ul style="list-style-type: none"> ◦ RM <p>Regeneration of the nervous system:</p> <ul style="list-style-type: none"> • P03 - IT CLASSROOM (16:30 - 20:15) [133] <ul style="list-style-type: none"> ◦ RM
prof. dr. sc. Jerković Kraljić Romana, dr. med. [133]	
18.03.2026	
	<p>Kidney regeneration:</p> <ul style="list-style-type: none"> • P03 - IT CLASSROOM (16:30 - 19:30) [133] <ul style="list-style-type: none"> ◦ RM <p>Tooth regeneration:</p> <ul style="list-style-type: none"> • P03 - IT CLASSROOM (16:30 - 19:30) [133] <ul style="list-style-type: none"> ◦ RM
prof. dr. sc. Jerković Kraljić Romana, dr. med. [133]	
20.03.2026	
	<p>"Anti-aging" theory:</p> <ul style="list-style-type: none"> • ONLINE (16:30 - 18:00) [133] <ul style="list-style-type: none"> ◦ RM
prof. dr. sc. Jerković Kraljić Romana, dr. med. [133]	

List of lectures, seminars and practicals:

LECTURES (TOPIC)	Number of hours	Location
L1 Introductory lecture	2	ONLINE
Definition of regenerative medicine, the most important discoveries and insights, possibilities and limitations.	3	ONLINE

SEMINARS (TOPIC)	Number of hours	Location
Cell and gene therapy	2	P03 - IT CLASSROOM
Tissue engineering	2	P03 - IT CLASSROOM
Regeneration of skeletal musculature	2	ONLINE
Wound healing	1	ONLINE
Regeneration of bone, cartilage, and tendons	2	ONLINE
Pancreas regeneration	2	ONLINE
Regeneration of the cardiovascular system	2	P03 - IT CLASSROOM
Regeneration of the nervous system	2	P03 - IT CLASSROOM
Kidney regeneration	2	P03 - IT CLASSROOM
Tooth regeneration	1	P03 - IT CLASSROOM
"Anti-aging" theory	2	ONLINE

EXAM DATES (final exam):
