SYLLABUS

1. Course title:

CELL AS A MEDICINE

2. Code:

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

○ Mandatory ◉ Elective

6. Prerequisites:

None

7. Class restrictions:

8. Duration / semester:

1 2

9. Weekly contact hours:

9.1. Lectures:	2
9.2. Seminars:	0
9.3. Laboratory/Practice classes:	0

10. Faculty:

Faculty of Pharmacy

11. Department/study program:

Pharmacy (integrated first and second cycle of study)

12. Lecturer:

dr.sc. Suada Ramić, associate professor

13. Lecturer's e-mail:

suada.ramic@untz.ba

14. Web site:

www.frmf.untz.ba

15. Course aims:

Every cell in the organism carries some secret, structural and functional perfection. Today, regenerative medicine, which uses the cell as medicine, is increasingly important.
Goal of the course is to provide students with additional knowledge and modern knowledge about regenerative medicine, which uses stem cells as medicine in modern therapy. What have scientists achieved so far, and what are their further goals?
The aim of the course is to familiarize students with new achievements in the field of tissue engineering, the creation of living tissue and organ equivalents using stem cells.

16. Learning outcomes:

At the end of the semester/course, successful students, who continuously performed their duties during the entire teaching period, will be able to more easily follow, understand and connect modern achievements on the subject, which will be useful for their further studies and work. The latest achievements of regenerative medicine in the therapy of various diseases and their eradication are of special importance.

17. Course content:

• The cell, the structural and functional perfection of the human organism.
• The secret of aging. Why do human cells age?
• Embryonic stem cells – medicine of the future.
• Adult stem cells. Stem cells of the umbilical cord, placenta, and amniotic fluid.
• Regenerative medicine. Stem cell treatment.
• Banks of stem cells, frozen embryos, spermatozoa, and egg cells.
• Tissue engineering. Creation of living tissue equivalents. Therapeutic cloning.
• Teratogenic effects of drugs.
• Amniotic fluid cytology.
• Fertilization mechanism and conditions of medically assisted (in vitro) fertilization.
• Choice of the gender of the child.

18. Learning methods:

During the entire semester, the student is obliged to attend lectures regularly. During the semester, the teacher will monitor the attendance of students on a special form. The student acquires the right to sign if he has attended 80% of the lectures. If the student fulfills the aforementioned obligations, he receives a maximum of 5 points, and a minimum of 4 points based on regular attendance.

19. Assessment methods:

The knowledge, acquired during the course, will be verified through a test in the 8th week of the semester. It includes following teaching units: Cell, structural and functional perfection of the human organism. Significance of cell proliferation and differentiation. Embryo freezing, yes or no? Why do human cells age? The importance of good nutrition during pregnancy, food as medicine. Preconception protection. Embryonic stem cells. The medicine of the future. Regenerative medicine. Adult stem cells. Stem cells of the umbilical cord, placenta and amniotic fluid. Stem cell treatment. Morphofunctional changes of organ systems at the cellular level in women during pregnancy.
On the test, the student can achieve a maximum of 45 points, (2 points for questions with the correct answer, 2 points for questions of the type of description or labeling of a picture or scheme, 1-4 points for questions with completion of a sentence and 1-6 points for questions of the essay type). In order to pass the test, the student must achieve a minimum of 24 points.
The final exam will be held in the 15th week of the semester and will be taken in writing. The final exam includes the following teaching units: Banks of stem cells, frozen embryos, spermatozoa, egg cells. Tissue engineering. Therapeutic cloning. Amniotic fluid cytology. Prenatal diagnostics. Medically assisted fertilization. Teratogenic effects of drugs. Cosmetic products and pregnancy. The influence of tobacco smoke and alcohol on the cells of the human body. Choosing the gender of the child - can a parent order the gender of the child?
A student can achieve a maximum of 50 points on the final exam (2 points for questions with the correct answer, 2 points for questions of the type of description or labeling of a picture or scheme, 1-4 points for questions with the completion of a sentence and 1-6 points for questions in the essay type) . In order to pass the final exam, the student must score a minimum of 27 points.

20. Assessment components:

The final grade consists of attendance and active participation in classes (lectures and exercises), passed tests, and final exam.

< 55.00 5 F
55.00 – 64.99 6 E
65.00 – 74.99 7 D
75.00 – 84.99 8 C
85.00 – 94.99 9 B
95.00 – 100 10 A

21. Required reading list:

• Pantić V. Biologija ćelije.Beograd,1997.
• Authorized teacher scripts (prof. dr.sc. Zlata Žigić and prof.dr.sc. Suada Ramić).

22. Web sources:

23. Applicable starting from the academic year:

2018/2019

24. Adopted in the Faculty/Academy session:

17.11.2025.