**1. Course unit title:** Biophysics

**2. Course unit code:** ФАМФ\_6.\_2.04\_2,0

**3. Type of course unit:** obligatory

**4. Semester**: 3

**5. Number of ECTS credits allocated:** total hours — 60 (ECTS credits — 2,0 ); auditory hours — 34 (lectures — 18 , practical studies — 16 )

**6. Name of lecturer:** Sergei Stetsyk— teacher

**7. Results of studies:**

As a result of study of the module a student must:

* **to know** terms and determinations which are used in biophysics; physical principles of structure and biophysical bases of functioning of cellular structures, cages, organs and systems of organism; basic physical and physical and chemical laws which are the basis of functioning of the biological systems; molecular mechanisms of transporting of matters, breathing, metabolism and energy; ionic mechanisms of generation of biopotentials; physical bases of breathing, circulation of blood, digestion and selection; mechanisms of transformation and code of information are in the biological systems.
* **able to expose** the physical and mainly physical and chemical mechanisms of vital functions and conformity to law of functioning of biological objects and systems; to apply the laws of mechanics, optics, acoustics, thermodynamics, hydrodynamics for description of processes which take place in the biological systems; to carry out the kinetic and analytical going near the study of the difficult systems and foresee their conduct; to apply the methodical receptions of realization of biophysical researches.

1. **Method of studies: audience**
2. **The obligatory previous and concomitant modules are needed:**

cell biology, mathematics, physics, chemistry, biochemistry.

**10. Table of contents of the module :**

Biophysical processes in the organism; molecular biophysics: albuminous molecules; structure of albumen; nucleic acids; biosynthesis of albumen; physical properties of cages : functions of cages and cellular structures; cellular membranes; membrane transporting of matters; passive electric properties of biofabrics : electric resistance of cages, nervous impulse.

**11.** **Recommended literature:**

1. Посудін Ю.І. Біофізика і методи аналізу навколишнього середовища: Підручник-К.: 2011 -331 с.
2. Чалий О.В., Агапов Б.Т., Цехьістер Я.В. та ін. Медична і біологічна фізика: Підручник для студентів вищих медичних закладів освіти ІІІ-ІV рівнів акредитації. – К.: Книга плюс, 2004. – 760 с.
3. Горго Ю.П., Маліков М.В., Богдановська Н.В. Екологічна біофізика людини. – Запоріжжя: Запорізький національний університет, 2005. – 175 с.
4. **Forms and methods of studies:** lectures, laboratory employments, independent work
5. **Methods and evaluation criteria:**

* current control (40%) : verbal questioning, work on practical employments; implementation of individual independent works,
* final control (60%, test) : testing during module or result controls (60%)

**14.** **Language of studies:** Ukrainian