**MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION,**

**MINISTRY OF SCIENCE, HIGHER EDUCATION, AND INNOVATION OF THE KYRGYZ REPUBLIC**

**Kyrgyz-Russian Slavic University, a Higher Education Institution**

**Named After B.N. Yeltsin, the First President of the Russian Federation**

**ANDORSED BY**

The director of the Institute of Clinical Medicine and Biomedical Technologies

Abilova S.S.

4.11.2026y

# Chemistry

Course Outline (Module)

| | |
|---|---|
| Assigned to Academic Curriculum | 310501_26_1GM.pli.xml<br>560001 General Medicine |
| Qualification | Specialist |
| Mode of Study | Intramural |
| Total credit value | Credit points |
| Course Hours | 60 |
| including: | |
| in-class learning | 32,3 |
| individual work | 27,7 |

Scope of testing semesters:
exam credits

| Course hours scheduling (per semester) | | | | | | |
|---|---|---|---|---|---|---|
| Semester Academic Year | 1 (1.1) | | 2 (1.2) | | Total | |
| Weeks | | | | | | |
| Type of training | AC | CO | AC | CO | AC | CO |
| Lectures | 8 | 8 | | | 8 | 8 |
| Lab practical | 24 | 24 | | | 24 | 24 |
| Practical session | | | | | | |
| Contact work during the period of theoretical training | 0,3 | 0,3 | | | 0,3 | 0,3 |
| Including interactive session | 4 | 4 | | | 4 | 4 |
| Total in-class session | 32,3 | 32,3 | | | 32,3 | 32,3 |
| Face-to-face learning | 32 | 32 | | | 32 | 32 |
| Individual work | 27,7 | 27,7 | | | 27,7 | 27,7 |
| Total | 60 | 60 | | | 60 | 60 |

## 1. COURSE OUTLINE OBJECTIVES

- to acquire knowledge related to the structure, properties and mechanism of functioning of biologically active substances;
-to establish a solid foundation for studying such disciplines as biological chemistry, microbiology, physiology, pathological physiology;
- to form scientific vision of basic physical and chemical regularities in the behavior of biochemical processes;
- to develop integral perception of chemistry which allows to understand functioning of the organism as a whole and its interaction with the environment.

## 2. PLACE OF THE COURSE IN THE EDUCATIONAL PROGRAM

Educational Program Units: B1.B

**2.1 Students' Preliminary Training Requirements:**

2.1.1 Mathematics

2.1.2 Biology

2.1.3.Chemistry

**2.2. Course Units and Practical Sessions imposing the prior Proficiency**

2.2.1 Biochemistry

2.2.2. Normal physiology

2.2.3 Pharmacology

2.2.4 Clinical biochemistry

## 3. STUDENTS' COMPETENCIES RESULTING FROM THE COURSE UNIT

**(MODULE)**

**GCC (3):** is capable of independently acquiring new knowledge and applying it in practice using modern information technologies in their professional activities.

**Knowledge:**

*Level 1.*

-the key fundamental principles upon which the theoretical framework for the organization and planning of scientific research is based;

**Skills:**

*Level 1.*

-review the literature on the problem, clarify key concepts, provide a preliminary description of the research subject, and define the scope of the investigation;

**Expertise:**

*Level 1.*

- skills in taking a comprehensive approach to organizing and planning scientific research.

**ABC (1):** able to use basic physicochemical, mathematical, and natural science concepts and methods in solving professional tasks.

**Knowledge:**

*Level 1.*

- methodology of processing scientific and technical information to solve standard tasks of professional activity;
- basic laws of physical, chemical and biochemical concepts, information and communication technologies, including physical, mathematical concepts and research methods for solving professional tasks.

**Skills:**

*Level 1.*

- to use medical and biological terminology, information and communication technologies, and research methods to solve standard tasks of professional activity;
- to apply basic physical and chemical concepts and research methods to solve professional tasks;
- to search for scientific and technical information using general and specialized databases and apply specialized software when carrying out theoretical calculations and processing experimental data to solve standard tasks of professional activity.

**Expertise:**

*Level 1.*

- skills of working with scientific and educational portals;
- basic skills of using standard as well as specialized software and databases for statistical processing of research results and their presentation to the scientific community;
- biomedical and other terminology;
- elementary techniques of work in the biochemical laboratory;
- general safety regulations for handling computers, laboratory equipment and chemical reagents;
- skills of mathematical, chemical and biochemical thinking;
- skills of independent work with reference books, educational and scientific literature.

## 3. Final Students' Competences

### 3.1. Knowledge:

- general patterns of natural sciences;
- general physical chemical concepts, laws and methods of analysis
- fundamental theoretical principles for the organization and planning of scientific research.

**3.2. Skills:**

- to apply basic concepts of natural scientific disciplines;
- to predict the progress of biochemical processes occurring in living organisms;
- to interpret the obtained results at the modern level.
- to clarify key concepts, provide a preliminary description of the research subject, and define the scope of the investigation.

**3.3. Expertise:**

-the knowledge of the basic principles of the natural sciences, experimental skills for studying and analysis of biochemical processes;

- skills in taking a comprehensive approach to organizing and planning scientific research.