

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

Ternopil Volodymyr Hnatiuk

National Pedagogical University

EDUCATIONAL AND PROFESSIONAL PROGRAM

**“GENERAL EDUCATION (BIOLOGY AND HUMAN HEALTH,
CHEMISTRY)”**

The first (Bachelor) level of higher education

in specialty 014 General education (Biology and human health)

The field of knowledge 01 Education/Pedagogy

**Qualification : Bachelor of general education. Teacher of biology, health
education and chemistry**

APPROVED BY THE ACADEMIC COUNCIL

The Head of the Academic Council

_____/V. P. Kravets

(protocol №13 dated June «26» 2018)

Educational program enacts from September «01» 2018

(order №178 dated June «26» 2018)

Ternopil 2018

**Profile of the educational and professional program "General
education(Biology)"
in specialty 014.15**

1 – General information	
Full name of higher educational institution and structural unit	Ternopil Volodymyr Hnatyuk National Pedagogical University, the faculty of chemistry and biology
The degree of higher education and the name of the qualification in the language of the original	The first level of higher education. Teacher of biology and health education.
The official name of the educational program	Educational and professional Bachelor`s program in specialty 014 General education (Biology, human health and chemistry)
Type of diploma and the volume of the educational program	The bachelor's degree, unitary, 240 credits ECTS, the term of study – 3 years and 10 months
Availability of accreditation	The order of Ministry of education and science of Ukraine, dated April «14» 2015, №553. Expiration date July «01» 2025
Cycle/Level of program	NRC (NQF - national qualifications framework) Ukraine - level 6, FQ-EHEA - first cycle, EQF-LLL - level 6
Prerequisites	Availability of full secondary education on the basis of Independent testing (entrance examination)
Teaching languages	Ukrainian
The duration of the educational program	Up to 2025
Internet address of the permanent description of the educational program	
2 - The purpose of the educational program	
To create an educational environment for a first-level higher education students to form the general and professional competences in the fields of biology, human health, chemistry, pedagogy and psychology at a proper level, enabling them to gain access to employment and obtaining the next level of higher education.	

3 - Characteristics of the educational program	
Subject area (branch of knowledge, specialty)	<p>Biology and human health; branch of knowledge – 01 Education / Pedagogy; specialty: 014 Secondary education.</p> <p>The training program consists of 2 cycles and state assessment:</p> <ul style="list-style-type: none"> • general training cycle (67.5 ECTS credits, 2025 hours); • cycle of professional training (172,5 ECTS credits, 5,115 hours); • normative educational disciplines (87 ECTS credits, 2670 hours); • selective academic disciplines (54.5 ECTS credits, 1635 hours); • practical training (27 ECTS credits, 810 hours).
Orientation of the educational program	<p>Educational and professional, has applied orientation. Provides preparation for the performance of functional duties of teachers of the following subjects: biology and health education, chemistry, head teachers in secondary schools, organisers clubs of biological and valeological direction in institutions of additional education, teacher of a vocational school of a lower degree, formation of readiness for self-education and professional self-improvement throughout life.</p>
The main focus of the educational program	<p>General education in the field 01 Education / Pedagogy in specialty 014 Secondary education (Biology and human health).</p> <p>Specialties: 014.05 General education (Biology and human health) and 014.06 General education (Chemistry)</p> <p>Teacher training for teaching the school subjects such as biology and health education, chemistry.</p> <p>Key words: higher education, bachelor, teacher, biology, human health, chemistry.</p>
Peculiarities of the program	<p>Interdisciplinary and bipartisan training of specialists in the field of knowledge 01 Education / Pedagogy involves the introduction of terminological foreign vocabulary in a professional direction, conducting the separate training courses in English language, international mobility. The program is implemented in an active educational environment.</p>
4 - Eligibility of graduates for employment and further training	

Eligibility for employment	Types of economic activity (according NACE Rev. 2 009: 2010): 85.31 General education; 85.32 Vocational education Professional types of work (according to state classier 003: 2010): 2320 Teacher of a general educational institution Teacher of a lower secondary vocational school 2331 Teacher of a general educational institution 2359.2 Educator-organiser Organiser of extracurricular and after school work with children
Further training	Ability to study according to the program of the second (Master's) level in the same specialty (which is consistent with the obtained Bachelor's degree) or in another specialty.
5 - Teaching and assessment	
Teaching and studying	<i>Main approaches:</i> student centered, active, valued; electronic, distant and self-study. <i>Educational technologies:</i> problem developing, interactive, informational and communicative, project oriented, contextual education.
Assessment	Spoken and written current and final controls, defense of practice reports, defense of term papers.
6 - Program competencies	
Integral competency	Ability to solve complex specific problems and practical problems in the branch of general education, which involve the application of theories and methods of pedagogical and biological sciences, and are characterized by the complexity and variability of the pedagogical conditions of the organization of educational process in the main (basic) general school.
General competencies	GC1 Knowledge and understanding of the subject area (biology and human health, chemistry) and the specifics of professional activity for the formation of a scientific picture of the living world. GC2 Recognition and adherence of moral and ethical aspects of professional activity and the necessity of intellectual honesty. GC3 Social activity, the ability to bear the civil responsibility for the state of the environment, to

	<p>show a tolerant attitude to different opinions and views in a multicultural environment.</p> <p>GC4 Readiness to work autonomously and in a team, to lead a group, to show a creative approach, initiative.</p> <p>GC5 Ability to search, process and analyze information, ability to identify problems and formulate tasks, collect data, to analyze them and propose solutions.</p> <p>GC6 Ability to design own activity in the branch, application of acquired knowledge in life and professional situations.</p> <p>GC7 The ability to evaluate critically the information of various sources, rethink their own and others' experiences, analyze their professional and social activities and make constructive decisions.</p> <p>GC8 Ability to communicate in the state language both orally and in writing.</p> <p>GC9 Ability to use knowledge of foreign language in the professional work.</p> <p>GC10 Ability to adapt to dynamic present and future, to act in a new situation, readiness to use the acquired experience to preserve own health and health of others.</p> <p>GC11 Readiness for self-study and self-improvement throughout life.</p> <p>GC12 Ability to apply mathematical methods, modern digital technologies and devices for solving biological, valeological and chemical problems, to create informational products and apply them in school practice.</p>
Professional competencies	<p>PC1 Ability to operate with modern terminology, scientific concepts, laws, concepts, teachings and theories of biology and human health, chemistry.</p> <p>PC2 Ability to reveal the general structure of biology and human health, chemistry for the formation of the scientific picture of the world. Ability to characterize natural systems of different levels of organization on the basis of the relationship of fundamental laws of nature and society.</p> <p>PC3 Ability to characterize the achievements of biological and chemical sciences, to determine their role in the life of society in order to ensure the sustainability of the development of biological systems, to implement the strategy of sustainable</p>

	<p>development of the biosphere.</p> <p>PC4 The ability to apply modern methods of biological and chemical research to substantiate the integrity and unity of nature (structure, functions, lifehoods, reproduction, origin, classification, distribution, etc.), to use and interpret the results of research.</p> <p>PC5 Ability to adhere to the principle of scientific knowledge in the transmission of biological, valeological and chemical knowledge into the area of school subjects such as biology, health education and chemistry.</p> <p>PC6 Ability to apply the acquired knowledge from the subject branch, modern methods and educational technologies for the formation in students of general secondary schools the key and subject competences in accordance with the requirements of the state standard in the educational field "Natural science".</p> <p>PC7 Ability to choose methods and means of studying biology and health education, chemistry, aimed at developing students' abilities, taking into account their individual and age peculiarities, interpersonal relationships of peers in the group and classroom, awareness of equal opportunities and gender issues.</p> <p>PC8 Ability to integrate the content, forms and methods of teaching biology, health education and chemistry to form in students the scientific picture of the world.</p> <p>PC9 Ability to integrate planning, organization and implementation of training projects, preparation of analytical reporting documentation and presentations.</p> <p>PC10 The ability to provide objective control and assessment of educational achievements from the biology and chemistry students, to perform diagnostics, forecasting of efficiency and correction of educational process on the basis of study of psychological and pedagogical peculiarities of formation the key and subject competences in students.</p> <p>PC11 The ability to apply modern methods and educational technologies, including information and digital, to ensure the high quality of the educational process.</p>
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	PC12 The ability to conduct safe educational research in biology, health education, and chemistry in laboratory and environmental conditions.
7 - Program outcomes of studying	
<p>POS1 To have the knowledge of the basics of philosophy, history and culture of Ukraine, which contribute to the socialization of the individual, the development of their general political culture and activity, the formation of national dignity and patriotism, and the perception of ethical values.</p> <p>POS2 Understanding of the importance of culture as a form of human existence, the ability to appreciate biodiversity and multiculturalism of the world and be guided in its work by modern principles of respect, tolerance, dialogue and cooperation, formation of a conscious attitude to environmental problems, awareness of biosphere ethics.</p> <p>POS3 Understanding the causal relationships of the development of society and their ability to use them in professional and social activities, the ability to apply modern scientific and technological achievements of the world culture and civilization.</p> <p>POS4 Knowledge and understanding of the basics of biological and chemical sciences on the level necessary for work in the main (basic) general secondary school. Operation with modern terminology, scientific notions, laws, concepts, doctrines and theories.</p> <p>POS5 Knowledge of the modern system of organization of nature and methodology of natural sciences, patterns of structure, functioning of natural systems, including the human body, their development and interaction, the main functional features for maintaining the constancy of composition, structure, interconnection with inanimate nature.</p> <p>POS6 Knowledge of the essence of experimental methods and the ability to use them both under the direction of the teacher and independently, to test the hypotheses of the study of the phenomena of living and inanimate nature and their explanation based on biological and chemical laws, theories and regularities.</p> <p>POS7 Ability to apply theoretical knowledge and practical methods of various branches of biological and chemical sciences at the operational level for the development of the formation of a holistic scientific picture of the world.</p> <p>POS8 Ability to characterize natural systems of different levels using modern methods of biology, chemistry to explain their role to ensure sustainable development of nature, to use knowledge for their protection, reproduction and balanced development. Formation of a healthy way of life of a person.</p> <p>POS9 Possession of practical methods of studying biology and health education, chemistry, ability to ask the correct questions, use standard equipment, plan, compile projects and carry out experiments, collect and analyze data, carry out a thorough analysis of errors and critically evaluate the results.</p> <p>POS10 Ability to perform computer calculations related to biological and chemical problems using appropriate software and at least one programming language.</p> <p>POS11 To have the skills to work independently or in a team, the ability to get a</p>	

result within a limited time, taking into account professional integrity and the impossibility of plagiarism. Ability to speak a foreign language, including special terminology to find information.

POS12 Ability to analyze the state regulatory documents for planning and designing the main types of educational activities of students, creating an equitable and righteous educational environment.

POS13 Ability to apply modern educational technologies, accessible to broadcast a system of scientific biological and chemical knowledge in the areas of educational subjects such as biology and chemistry, taking into account age and individual characteristics of students.

POS14 Possession of information and communication technologies and the ability to apply them in the educational process of biology and chemistry to form in students the key and subject competences in accordance with the requirements of the state standard in the educational field "Natural Science".

POS15 Ability to organize the student cooperation, to control and objectively evaluate their educational achievements, to work effectively in the teaching staff of an educational institution, in other professional associations and to critically evaluate the professional skills of their coworkers.

POS16 Need and ability to study throughout life and independently improve professional competencies acquired during training.

POS17 Possession of knowledge and skills in respect of the safe working conditions and environmental protection.

POS18 Ability to use mathematical methods, to create mathematical models of natural phenomena and processes. Awareness of the variability of mathematical methods in solving of the biological problems.

8 - Resource support of the program

Personnel support	Project team: 1 doctor of agricultural sciences, 4 candidates of sciences, associate professors (2 - biological sciences, 2 - pedagogical). Guarantor of the educational program: Barna L.S. - candidate of pedagogical sciences, associate professor. The program involves scientific and pedagogical staff with academic degrees and academic degrees. In order to raise the professional level, all scientific and pedagogical workers undergo an internship once in five years, including overseas studying.
Material and technical support	Profile teaching laboratories, offices, scientific and research laboratories of the faculties, center of scientific and methodological natural sciences, agrobiological laboratory, greenhouse, herbarium, zoological and geological museums, experimental educational and production sites in secondary schools and Ternopil regional center of ecological

	and naturalistic creativity of pupils' youth (according to the agreements).
Information, studying and methodological support	Availability of sufficient quantity of educational and methodical literature, periodicals, electronic educational and methodical complexes of educational disciplines (on the Moodle platform)
9 - Academic mobility	
National Credit Mobility	Carried out by individual contracts of participants of the educational process
International Credit Mobility	Natural and Humanitarian University in Sedltse (Agreement dated April 17 2013 - April 17 2018); Victor Franklin Higher Pedagogical School in Carintiia, Austria (Agreement dated February 2 2009 - July 1 2020 Jan Dlugosz Academy in Chestokhowa, Poland (Agreement dated October 10 2016 - Unlimited)
Studying of foreign applicants for higher education	None

2. List of components of the educational and professional program and their logical consistency

2.1 . List of components of educational and professional program

Code/ №	Components of the educational and professional program (educational disciplines, term papers, occupational practices, qualification work)	Credits	Assessment form
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
OBJECTIVE COMPONENTS OF EDUCATIONAL PROGRAM			
OC1	History of Ukraine and national culture	5	Exam
OC2	Philosophy	3	Exam
OC3	Ukrainian language (for professional purposes)	3	Credit, exam
OC4	Foreign language	7	Credit, exam
OC5	The basics of higher mathematics	3	Credit
OC6	Physics with the basis of biophysics	3	Credit
OC7	Ecology	5,5	Exam

OC8	Inorganic chemistry	4	Credit
OC9	Biological chemistry	6	Exam
OC10	Geology with the basics of geochemistry	3	Credit
OC11	Organic chemistry	5	Credit, exam
OC12	Physics and colloidal chemistry	3	Credit
OC13	Biotechnology and genetic engineering	3	Exam
OC14	Pedology	3	Exam
OC15	Botany	8	Exam
OC16	Physiology of plants	6	Exam
OC17	Microbiology with the basics of virology	3,5	Credit
OC18	The basics of agriculture	4	Exam
OC19	Zoology	12	Exam
OC20	Genetics with the basics of selection	4	Exam
OC21	Evolutionary studying	6,5	Exam
OC22	Human anatomy	6	Exam
OC23	Cytology and histology with the basics of embryology	4	Credit
OC24	Physiology of humans and animals	7	Exam
OC25	Pedagogy	7	Credit, exam
OC26	Educational technologies	3	Credit
OC27	Psychology	5	Exam
OC28	Health education and the basis of occupational safety	3	Credit
OC29	Methodology of teaching biology, health education and chemistry	8	Credit, exam
OC31(30)	Educational practice	18	Credit
OC32(31)	Occupational practice	9	Credit
OC33(32)	Coursework	2	Credit
OC34(33)	Comprehensive qualifying state examination	2	
Total		174,5	
Selective components of the educational program			

SC1.1	Jurisprudence / Religious studies	2	Credit
SC1.2	Economy/Logic	2	Credit
SC1.3	Ethics and esthetics/Sociology	2	Credit
SC1.4	Latin language	3	Credit
SC1.5	Politology	2	Credit
SC1.6	History of biology	3	Credit
SC1.7	Modern informational technologies	2,5	Credit
SC1.8	Informational and technological means of learning	2	Credit
SC1.9	Analytical chemistry	3	Credit
SC1.10	General chemistry	3	Exam
SC1.11	Radiobiology	3	Credit
SC1.12	Molecular biology	2	Credit
SC1.13	Nature defense	3	Credit
SC1.14	Systematics of plants	7	Exam
SC1.15	General and pedagogy valeology	8	Exam
SC1.16	Individual development and age physiology	6	Credit
SC1.17	Basics of agrochemistry and agriculture	4	Credit
SC1.18	Innovative biology training technologies	4	Credit
SC1.19	Ecological and naturalistic activity of pupils	4	Credit
Total		65,5	
GENERAL		240	

Form of certification of higher education applicants

State certification of applicants of higher education is carried out in the form of the comprehensive qualifying state examination.

The comprehensive qualifying state examination is aimed at establishing educational and professional qualifications and includes tasks for checking the results of training in psychological and pedagogical disciplines, biology and human

health, chemistry and teaching methods in the main (basic) general secondary school and in the system of vocational education of the lower grade.

The comprehensive qualifying state examination is completed by the issuance of a document of a standard sample of awarding a bachelor's degree with a qualification: a bachelor of secondary education. Teacher of biology, health education and chemistry.