Form number H-3.01

CABINET OF MINISTERS OF UKRAINE
NATIONAL UNIVERSITY OF LIFE AND ENVIRONMENTAL SCIENCES OF UKRAINE

Considered and approved at
Specialized academic councils of NULES of Ukraine
«____» _____ 20__ _.
(Minute №_____)

«APPROVED»
Rector of NULES of Ukraine
_____ acad. D. Melnichuk

«____» _____ 20__ _

CURRICULUM
for specialist training in 2013

Educational qualification level	«Bachelor»
Branch of knowledge	0514 Biotechnology
Field of study	6.051401 «Biotechnology»
Form of training	full time
Term of study	3 years 10 months
Qualifications	Bachelor graduates specialist biotechnology

Education and Research Instituteof	Plant Science, Environment and Biotechnology
Faculty	"Biotechnology"

I. STUDY PLAN
training specialists EQL "Bachelor" on 2013-2014 academic year
branch of knowledge "Biotechnology"

Year	2013 year																		2014 year							
	September				30	October			28	November				December				30	January			27	February			24
	2 7	9 14	16 21	23 28	IX 5 X	7 12	14 19	21 26	X 2 XI	4 9	11 16	18 23	25 30	2 7	9 14	16 21	23 28	XII 4 I	6 11	13 18	20 25	I 1 II	3 8	10 15	17 22	II 1 III
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
I																		-	-	:	:					
II																		-	-	:	:					
III																		-	-	:	:					
IV																		-	-	:	:					

Year	2014 year																									
	March				31	April			28	May				June				30	July			28	August			
	3 8	10 15	17 22	24 29	III 5 IV	7 12	14 19	21 26	IV 3 V	5 10	12 17	19 24	26 31	2 7	9 14	16 21	23 28	VI 5 VII	7 12	14 19	21 26	VII 2 VIII	4 9	11 16	18 23	25 30
	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
I														:	:	O	O	O	O	-	-	-	-	-	-	-
II														:	:	O	O	O	O	-	-	-	-	-	-	-
III														:	:	X	X	O	O	-	-	-	-	-	-	-
IV									:	:	X	X	//	П	//											

Nomenclature:

	-	Auditorium classes	X	-	Practical training
:	-	Exams	II	-	Preparation of Bachelor Theses
-	-	Breaks	//	-	State certification (State certification exam and Bachelor Theses defence)

Dean ___________________ J. Kolomiets

II. CURRICULUM

№	Name of educational discipline	Amount		Form of control			Auditorium classes, hours				Self study	Practical training		Distribution of weekly hours per semester courses and							
								include						I year		II year		III year		IV year	
														Semesters							
														1c	2 c.	3 c.	4 c.	5 c.	6 c.	7 c.	8 c
		hours	credits	Examination	Credits	Course project	total	lecture	Laboratory work	Practical classes		Practical training	Research practical training	Number of weeks per semester							
														17	18	17	18	17	18	17	13
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. Cycle of humanitarian and socio-economic training *																					
1.1. Normative academic disciplines																					
1	Ukrainian language (for professional purposes)	108	3	e			51	17	34		57			3							
2	History of Ukraine	108	3	e			54	36		18	54				3						
3	History of Ukrainian Culture	72	2	e			34	17	17		38			2							
4	Foreign Language	216	6	e	c		140			140	76			2	2	2	2				
5	Philosophy	108	3	e			54	36		18	54						3				
6	Political Science	72	2	e			36	18		18	36								2		
7	Physical Education**	216	6		5c		174			174	42			2	2	2	2	2			
Total for Cycle		900	25	6	8		543	124	51	368	357			9	7	4	7	2	2		
1.2. Selective academic disciplines																					
1	Ethics and Aesthetics	54	1,5		з		17	17			37							2			
Total for Cycle		54	1,5		з		17	17			37							2			
2. Cycle of natural science (basic) training																					
2.1. Normative Cycle of natural science (basic) training																					
1	Higher Mathematics	270	7,5	e	c		105	35		70	165			3	3						
2	Physics	270	7,5	e	c		105	35		70	165			3	3						
3	General and Inorganic Chemistry	234	6,5	e	c		140	70		70	94			4	4						
4	Organic Chemistry	234	6,5	e			102	34	68		132					6					
5	Analytical Chemistry	234	6,5	e		c.p.	102	34	68		132	36				6					
6	Physical and Colloid Chemistry	252	7	e	c		122	70	52		130						3	4			
7	Engineering and Computer Graphics	144	4		2c		70	17	53		74	36		2	2						
8	Computational Mathematics and Programming	144	4	e	c		87	35	52		57			3	2						
9	Ecology	54	1,5		c		36	18	18		18				2						
10	Biochemistry	252	7	e			102	68	34		150							6			
Total for Cycle		2088	58	8	8	1	971	416	345	210	1117	72		15	16	12	3	10			
2.2. Selective academic disciplines																					
1	Biophysics and methods of analysis	108	3		c		54	18	36		54								3		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
2	Instrumental methods of analysis	108	3	e			36	18	18		72								2		
3	Biology (Botany)	108	3		c		68	34		34	40	36						4			
4	Biology (Zoology)	108	3		c		54	36		18	54						3				
5	Mathematical modeling and computer applications in biotechnology	108	3		c		54	18	36		54								3		
6	Computer Technology and Programming Fundamentals	108	3		c		52	26	26		56										4
Total for Cycle		648	18	1	5		318	150	116	52	330						2	4	8		4
3. Cycle professional and practical training *																					
3.1. Normative academic disciplines																					
1	Cell biology	180	5	e	c		88	35	53		92					2	3				
2	General Microbiology and Virology	288	8		2c		140	70	70		148	72			4	4					
3	General Biotechnology	270	7,5	e			102	68	34		168	36		6							
4	Genetics	270	7,5	e	c		122	52	70		148				3	4					
5	Safety	54	1,5		c		34	17		17	20							2			
6	Basics of labor	54	1,5	e			36	18		18	18								2		
7	Biotechnological processes and equipment manufacturing	432	12	e		c.p	108	72	36		324						6				
8	Electrical and electronics base	144	4	e			72	36	36		72						4				
9	Automation biotech industries	108	3	e			68	34		34	40									4	
10	Regulatory support biotech industries	180	5		c		68	34	34		112					4					
11	Fundamentals of	180	5		c		92	54		38	88								5		
12	Economics and Organization biotech industries	108	3	e		c.p	52	26		26	56										4
Total for Cycle		2268	63	8	7	2	982	516	333	133	1286	144		6	7	14	16	2	7	4	4
3.2. Selective academic disciplines																					
3.2.1. Elective Courses University																					
1	Basics of Biodiversity	81	2,25	e			54	18		36	27	36					4				
2	Ecology virus	81	2,25	e		c.p	51	17		34	30							3			
3	Biosafety (the use of biotechnology)	108	3		c		51	17	36		57							3			
4	Plant Physiology	126	3,5	e			90	36	54		36								5		
5	Industrial Biotechnology	216	6	e		c.p	72	36	36		144	36							4		
6	Applied Ecology	162	4,5	e			72	36	36		90								4		
7	Bioengineering	162	4,5		c		68	34		34	94									4	
8	Introduction to the profession	81	2,25		c		68	34		34	13									4	
9	Immunogenetics	81	2,25		c		51	17	34		30									3	
10	Essentials of Molecular Biology	126	3,5	e			78	39		39	48										6
11	Technology microbial synthesis of drugs	81	2,25	e			68	34	34		13							4			
12	Technology of production of microbial products for agriculture	81	2,25		c		68	17	51		13									4	
Total for Cycle		1386	38,5	7	5	5	791	335	279	177	595	72					4	10	13	15	6

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
3.2.2. Disciplines chosen by the student (Environmental Biotechnology)																					
1	Environmental Toxicology	144	4	e			51	17	34		93									3	
2	Environmental security in agriculture	108	3		c		65	26		39	43										5
3	Terrestrial Ecosystems and methods of biomonitoring	108	3		c		51	17		34	57									3	
4	GIT and environmental display	135	3,75		c		52	26		26	83										4
5	Bioconversion of waste	108	3	e			65	39	26		43										5
6	Ecobiotechnology	153	4,25	e		c.p	68	34	34		85									4	
Total for Cycle		756	21	3	3	1	352	159	94	99	404									10	14
3.2.2. Disciplines chosen by the student (Agricultural Biotechnology)																					
1	Agricultural Biotechnology	144	4		c		52	26	26		92										4
2	Biometods of plant protection	108	3	e			65	26	39		43										5
3	Energetical biotechnology	135	3,75	e			51	17	34		84									3	
4	Technologies Bioproduction	108	3		c		65	26	39		43										5
5	Fundamentals of Plant Biotechnology	108	3	e		c.p	51	17	34		57									3	
6	Biotechnological processes agritechnologies	153	4,25		c		68	17	51		85									4	4
Total optional		756	21	3	3	1	352	129	223		404									10	14
Total for selective component		8100	225	33	37	5	3974	1717	1218	1039	4126	324	72	30	30	30	30	30	30	30	28
Practical training		396	11									324	72								
Preparation and defense of bachelor's work		144	4																		
Number of course projects						5															
Number of credits					37																
Number of examinations				33																	
HOWEVER FOR EQL		8640	240	33	37	5	3974	1717	1218	1039	4126	324	72	30	30	30	30	30	30	30	28

III. DEGREE REQUIREMENTS

Disciplinary areas	Hours	Credits	%
1. Normative academic disciplines	5256	146	60,84
1.1. Cycle of humanitarian and socio-economic training *	900	25	
1.2. Cycle of natural science (basic) training	2088	58	
1.3. Cycle professional and practical training *	2268	63	
2. Selective Courses	2844	79	32,91
2.1. Elective Courses University	2088	58	
2.1.1. Cycle of natural science (basic) training *	702	19,5	
2.1.2. Cycle professional and practical training *	1386	38,5	
2.2. Disciplines chosen by the student	756	21	
2.2.1. Cycle of natural science (basic) training *	-		
2.2.2. Cycle professional and practical training *	756	21	
3. Інші види навантаження	540	15	6,25
HOWEVER FOR EQL	**8640**	**240**	**100**

IV. TIME SCHEDULE, WEEKS

Year of study	Auditorium classes	Breaks	Practical training	Preparation of Bachelor Theses	State certification	Breaks	Sum
1	35	4	4			9	52
2	35	4	4			9	52
3	35	4	4			9	52
4	30	4	2	1	2	2	42
Sum per program	**135**	**16**	**14**	**1**	**2**	**29**	**198**

V. PRACTICAL TRAINING

№	Practical training	Semester	Hours	Credits	Number of weeks
1	Training	2	144	4	4
2	Training	4	144	4	4
3	Training	6	72	2	2
4	Training	6	72	2	2
5	Training	8	72	2	2

VI. COURSE WORK AND PROJECT

№	Name of educational discipline	Hours	Credits	Course work	Course project
1	Analytical Chemistry	144	4	c.p.	
2	Ecology virus	126	3,5	c.p.	
3	Biotechnological processes and equipment manufacturing	144	4	c.p.	
4	Industrial Biotechnology	126	3,5	c.p.	
5	Economics and Organization biotech industries	126	3,5	c.p.	
6	Ecobiotechnology / Fundamentals of Plant Biotechnology	54	1,5	c.p.	

VII. STATE CERTIFICATION

№	State certification	Hours	Credits	Number of weeks
1	State exam	27	0,75	1
2	Bachelor Theses defence	81	2,25	1

«APPROVED
Vice-rector of study work _____N. Ridei
Chief of study department_____O. Zazymko
Director _____G. Demydas

«DEVELOPED»
Dean of faculty _____ J. Kolomiets