

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY NATIONAL AGRARIAN UNIVERSITY
FACULTY OF AGROTECHNOLOGIES AND NATURAL RESOURCE MANAGEMENT
DEPARTMENT OF ECOLOGY AND BOTANY

MODULE SYLLABUS
EC 14. ECOLOGICAL PLANNING AND ECOLOGICAL PROJECTS


(compulsory)
Implemented in the “Ecology” Academic Program

Area of specialization 101 “Ecology”

Qualification: PhD
at the third (educational and scientific) level of higher education

Author:

I. M. Kovalenko, Doctor of Biological Sciences, Professor of Ecology and Botany Department

Module syllabus viewed and agreed at the Ecology and Botany Department meeting	Minutes № 19 dated June 07, 2021
	Head of Department  _____ (signature) <u>V. G. Skliar</u> (surname, initials)

Approved by:

Guarantor of the Academic program

I. M. Kovalenko

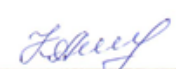
Dean of the Faculty

I. M. Kovalenko

Syllabus review (attached) is provided by :



V. G. Skliar



G.O. Klymenko

Syllabus review data:

The academic year in which changes are made	The Academic program attachment number with changes description	Changes revised and approved		
		Minutes No and date of the department meeting	Head of Department	Guarantor of the Academic program

1. MODULE OVERVIEW

1.	Title	Ecological Planning and Ecological Projects			
2.	Faculty/Department	Faculty of Agrotechnologies and Natural Resource Management / Department of Ecology and Botany			
3.	Type (compulsory or optional)	Compulsory			
4.	Program(s) to which module is attached	Ecology			
5.	Module can be suggested for (to be filled in for optional types)	Academic program - Ecology Specialty– 101 «Ecology»			
6.	Level of the National Qualifications Framework	8 level			
7.	Semester and duration of module	Full time II semester / 9 weeks			
8.	ECTS credits number	3 credits(90 hours)			
9.	Total workload and time allotment	Directed study			Self-directed study
		Lectures	Practical	Labs	
	I semester	18	18		54
10.	Language of instruction	Ukrainian, English			
11.	Module leader contact information	Kovalenko Ihor Mykolaiovych			
11.1	Module leader contact information	Doctor of Biological Sciences, Professor of Ecology and Botany Department, room 204 a., kovalenko_977@ukr.net			
12.	Module description	The study of the educational subject forms the knowledge about existing environmental problems, the organization of environmental management at different levels; systems of ecological planning and the basic principles of its creation, creation and successful functioning conditions of ecological projects.			
13.	Module aim	Indepth knowledge formation of the environmental planning principles, development and implementation of environmental projects.			
14.	Module Dependencies (prerequisites, co-requisites, incompatible modules)	The educational component is based on the study of such educational subjects as: "Environmental management and audit", "Economics of nature".			
15.	The policy of academic	When performing practical work, writing module, attestation, test and			

	integrity	examination work, the PhD student must follow the rules of academic integrity. If the facts of write-off or academic dishonesty are identified, the work done by the student is not credited.
16.	Link in Moodle	https://cdn.snau.edu.ua/moodle/course/view.php?id=4811

2. CORRELATION BETWEEN MODULE LEARNING OUTCOMES (MLOs) AND PROGRAM LEARNING OUTCOMES (PLOs)

(101 «Ecology»)

MLOs: On successful completion of the module the PhD student will be able to:	PLOs (indicate the number according to the numbering given in the AP) ¹				How assessed
	3	5	12	14	
<i>MLOs</i> 1. Distinguish the basic principles of environmental planning, know its functions	X				Report, discussion, interrogation, test control.
<i>MLOs</i> 2. Scientifically substantiate options for rational use of natural resources in the future	X		X		Report, discussion, interrogation, test control. Preparation of a report with a multimedia presentation. Verification and analysis of completed tasks.
<i>MLOs</i> 3. Compile environmental development programs of interstate, state, regional and local significance		X	X		Report, discussion, interrogation, test control. Preparation of a report with a multimedia presentation. Verification and analysis of completed tasks.
<i>MLOs</i> 4. Develop plans to prevent adverse natural and man-made situations	X		X		Report, discussion, interrogation, test control. Preparation of a report with a multimedia presentation. Verification and analysis of completed tasks. Mastering skills and abilities in observation.
<i>MLOs</i> 5. Create measure programs to ensure the environmental territory safety with the possibility of intellectual property rights registration for projects.	X	X			Report, discussion, interrogation, team work, test control. Preparation of a report with a multimedia presentation. Verification and analysis of completed tasks. Applicants' observation in the process of performing tasks.

<i>MLOs 6.</i> Conduct special state studies of the natural objects		X			Report, discussion, interrogation, test control. Preparation of a report with a multimedia presentation. Verification and analysis of completed tasks. Mastering skills and abilities in observation.
<i>MLOs 7.</i> Find prospects for the development of ecosystems, anticipation of possible changes in the state of the environment and individual natural objects			X		Report, discussion, interrogation, team work, test control. Preparation of a report with a multimedia presentation. Verification and analysis of completed tasks. Applicants' observation in the process of performing tasks.

3. MODULE INDICATIVE CONTENT

Topics. (List of issues to be addressed within the topic)	Distribution of hours				Learning resources ²
	Directed study			Self-directed study	
	Lectures	Practicals	Labs		
Topic 1. Features of planning activities for environmental protection	2	2		6	1,2,3,5,17
Topic 2. The place of environmental monitoring in environmental activities	2	2		6	2,3,4,8,14,18
Topic 3. Functions of ecological forecasting	2	2		6	4,11, 12, 14, 16
Topic 4. Features of creating environmental forecasts	2	2		6	2,3,4,7,10
Topic 5. The aim of environmental projects. Intellectual property law in environmental research	2	2		6	4,6,9,14,18
Topic 6. Fundamentals of project development in the field of environmental protection	2	2		6	7,9,11,16
Topic 7. Development and management of environmental projects	2	2		6	2,3,10
Topic 8. Programs creation of nature protection measures of the territory	2	2		6	3,4,7,12,17
Topic 9. Features of successful environmental programs implementation	2	2		6	8,9,11, 15,18
Total hours	18	18		54	

4. TEACHING AND LEARNING METHODS

MLOs	Teaching methods (directed study)	Hours	Learning methods (self-directed study)	К-ТЬ ГОДИН
1. Distinguish the basic principles of environmental planning, know its functions	conducting lectures with the use of multimedia presentations and calculated practical work	6	- processing of unfamiliar (new) terms, - processing of additional material on relevant topics	8
2. Establish scientifically the options for rational use of natural resources in the future	conducting lectures with the use of multimedia presentations and calculated practical work	6	- processing of additional material on relevant topics, - analysis of the work performed during the tasks and preparation for the defense of works, - writing essays and / or reports	8
3. Compile environmental development programs of interstate, state, regional and local significance	conducting lectures with the use of multimedia presentations and calculated practical work	4	- processing of additional material on relevant topics, - analysis of the work performed during the tasks and preparation for the defense of works, - writing essays and / or reports	8
4. Develop plans to prevent adverse natural and man-made situations	conducting lectures with the use of multimedia presentations and calculated practical work	6	- processing of additional material on relevant topics, - analysis of the work performed during the tasks and preparation for the defense of works, - writing essays and / or reports	8
5. Develop measure programs to ensure the environmental safety of areas with the intellectual property possibility of project registration.	conducting lectures with the use of multimedia presentations and calculated practical work	4	- processing of additional material on relevant topics, - analysis of the work performed during the tasks and preparation for the defense of works, - writing essays and / or reports	6
6. Conduct special studies of the natural objects state.	conducting lectures with the use of multimedia presentations and	6	- processing of additional material on relevant topics,	8

	calculated practical work		- analysis of the work performed during the tasks and preparation for the defense of works, - writing essays and / or reports	
7. Find ecosystem development prospects, calculation of possible changes in the state of the environment and individual natural objects	conducting lectures with the use of multimedia presentations and calculated practical work	4	- processing of additional material on relevant topics, - analysis of the work performed during the tasks and preparation for the defense of works, - writing essays and / or reports	8
Total hours		36		54

5. ASSESSMENT

5.1. Summative assessment (indicated as needed)

5.1.1. To assess the expected learning outcomes provided

№	Summative assessment methods	Grades	Deadline
Module 1			
1.	Practical work 1.1. Scientific principles of ecological planning	3 /3%	Up to 3 rd week
2.	Practical work 1.2. Functions of ecological planning	3 /3%	Up 4 th week
3.	Practical work 1.3. Classification of natural resources	3 /3%	Up 5 th week
4.	Practical work 1.4. Fundamentals of natural resources rational use	3 /3%	Up 6 th week
5.	Practical work 1.5. Environmental monitoring	3 /3%	Up 7 th week
6.	Module test	5 /5%	Up 8 th week
7.	Efficiency report (multiple choice test)	15 /15%	Up 8 th week
Module 2			
8.	Practical work 2.1. The role of environmental forecasting in environmental protection	4 /4%	Up 10 th week
9.	Practical work 2.2. Algorithms for creating environmental forecasts	4 /4%	Up 11 th week
10.	Practical work 2.3. Environmental projects and programs	4 /4%	Up 12 th week
11.	Practical work 2.4. Functions and classification of environmental projects	4 /4%	Up 13 th week
12.	Practical work 2.5. Management and implementation of environmental projects taking into account intellectual property rights	4 /4%	Up 14 th week
13.	Module test	15 / 15%	Up 15 th week
14.	Exam	3 /30%	Examination period

5.1.2. Assessment criteria

Component	Unsatisfactory	Satisfactory	Good	Excellent
Module 1				
Practical work	<i>0 points</i>	<i>1 point</i>	<i>2 points</i>	<i>3 points</i>
1.1. Scientific principles of ecological planning	Practical work is not done or done incorrectly	Not all tasks are calculated	All requirements and tasks are done, but the applicant is not	All requirements and tasks are fulfilled, the obtained results are clearly interpreted, the

			sufficiently oriented in the theoretical material	opinion and the vision of a certain problem are formed.
Practical work 1.2. Functions of ecological planning	<i>0 points</i>	<i>1 point</i>	<i>2 points</i>	<i>3 points</i>
	Practical work is not done or done incorrectly	Not all tasks are calculated	All requirements and tasks are done, but the applicant does not sufficiently orient in the theoretical material	All requirements and tasks are fulfilled, the obtained results are clearly interpreted, the opinion and the vision of a certain problem are formed.
Practical work 1.3. Classification of natural resources	<i>0 points</i>	<i>1 point</i>	<i>2 points</i>	<i>3 points</i>
	Practical work is not done or done incorrectly	Not all tasks are calculated	All requirements and tasks are done, but the applicant does not sufficiently orient in the theoretical material	All requirements and tasks are fulfilled, the obtained results are clearly interpreted, the opinion and the vision of a certain problem are formed.
Practical work 1.4. Fundamentals of natural resources rational us.	<i>0 points</i>	<i>1 point</i>	<i>2 points</i>	<i>3 points</i>
	Practical work is not done or done incorrectly	Not all tasks are calculated	All requirements and tasks are done, but the applicant does not sufficiently orient in the theoretical material	All requirements and tasks are fulfilled, the obtained results are clearly interpreted, the opinion and the vision of a certain problem are formed.
Practical work 1.5. Environmental monitoring	<i>0 points</i>	<i>1 point</i>	<i>2 points</i>	<i>3 points</i>
	Practical work is not done or done incorrectly	Not all tasks are calculated	All requirements and tasks are done, but the applicant does not sufficiently orient in the theoretical material	All requirements and tasks are fulfilled, the obtained results are clearly interpreted, the opinion and the vision of a certain problem are formed.
Module control: control work, recitation, written test	<i>0-5 points</i>			
	It is measured depending on the number of correct answers			
Efficiency report (multiple choice test)	<i>0-3 points</i>	<i>3-7 points</i>	<i>7-13 points</i>	<i>13-15 points</i>
	Depends on the number of the test correct answers	Depends on the number of the test correct answers	Depends on the number of the test correct answers	Depends on the number of the test correct answers
Module 2				
Practical work 2.1. The role of environmental forecasting in environmental protection	<i>0-1points</i>	<i>2 points</i>	<i>3 points</i>	<i>4 points</i>
	Practical work is not done or done incorrectly	Not all tasks are calculated	All requirements and tasks are done, but the applicant does not sufficiently orient in the theoretical	All requirements and tasks are fulfilled, the obtained results are clearly interpreted, the opinion and the vision of a certain problem

			material	are formed.
Practical work 2.2. Algorithms for creating environmental forecasts	<i>0-1points</i>	<i>2 points</i>	<i>3 points</i>	<i>4 points</i>
	Practical work is not done or done incorrectly	Not all tasks are calculated	All requirements and tasks are done, but the applicant does not sufficiently orient in the theoretical material	All requirements and tasks are fulfilled, the obtained results are clearly interpreted, the opinion and the vision of a certain problem are formed.
Practical work 2.3. Environmental projects and programs	<i>0-1points</i>	<i>2 points</i>	<i>3 points</i>	<i>4 points</i>
	Practical work is not done or done incorrectly	Not all tasks are calculated	All requirements and tasks are done, but the applicant does not sufficiently orient in the theoretical material	All requirements and tasks are fulfilled, the obtained results are clearly interpreted, the opinion and the vision of a certain problem are formed.
Practical work 2.4. Functions and classification of environmental projects	<i>0-1points</i>	<i>2 points</i>	<i>3 points</i>	<i>4 points</i>
	Practical work is not done or done incorrectly	Not all tasks are calculated	All requirements and tasks are done, but the applicant does not sufficiently orient in the theoretical material	All requirements and tasks are fulfilled, the obtained results are clearly interpreted, the opinion and the vision of a certain problem are formed.
Practical work 2.5. Management and implementation of environmental projects taking into account intellectual property rights	<i>0-1points</i>	<i>2 points</i>	<i>3 points</i>	<i>4 points</i>
	Practical work is not done or done incorrectly	Not all tasks are calculated	All requirements and tasks are done, but the applicant does not sufficiently orient in the theoretical material	All requirements and tasks are fulfilled, the obtained results are clearly interpreted, the opinion and the vision of a certain problem are formed.
Module control: control work, recitation, written test	0-15 points			
	It is measured depending on the number of correct answers			
Exam	<i>0-5 points</i>	<i>5-15 points</i>	<i>15-27 points</i>	<i>30 points</i>
	The applicant does not sufficiently orient in the theoretical material, the tasks are not done	The applicant does not sufficiently orient in the theoretical material, tasks are completed with mistakes	The applicant sufficiently orients in the theoretical material, tasks are completed	The applicant sufficiently orients in the theoretical material, all tasks are completed

5.1. Formative Assessment

№	Formative Assessment elements	Date
1	Oral interview after studying each topic	After completing the study of the topic
2	Oral answers to some questions during lectures and practical work	During the semester
3	Analysis of texts on the topics of the course developed by the	During the semester

	student individually	
4	Defense of practical works	After the work delivery
5	Oral feedback from the teacher and students on the individual task	During the semester

6. LEARNING RESOURCES

6.1. Key sources

1. Баб'як О.С., Біленчук П.Д., Чирва О.Ю. Екологічне право України: Навч. посібник. – К.: Атіка, 2000. – 216 с.
2. Василенко В.А. Теорія і практика розробки управлінських рішень: Навч. посібник. К.: ЦУЛ, 2002. 420с.
3. Галушкіна Т.П. Економіка природокористування. Навч. посібник. Харків: Бурун Книга, 2009. 480 с.
4. Гетьман А.П., Здоровко Л.М. Регіональний екологічний контроль: теорія правового регулювання: Монографія. – К.: Інститут законод. передбачень і правової експертизи, 2004. – 216 с.
5. Довідник з питань економіки природокористування і природоохоронної діяльності. К.: В-во «Геопринт», 2000. 409 с.
6. Джигирей В.С. Екологія та охорона навколишнього природного середовища. – К.: Знання, 2000. – 203 с.
7. Закон України “Про охорону навколишнього природного середовища”: офіційне видання. К.: Парламентське видавництво, 2020. - 52 с.
8. Злобін Ю. А. Загальна екологія / Ю. А. Злобін, Н. В. Кочубей. – Суми : Університетська книга, 2003. – 414 с.
9. Лазор О.Я. Державне управління у сфері реалізації екологічної політики в Україні: організаційно-правові засади: Монографія. – Львів: Ліга-Прес, 2003. – 542 с.

Other sources

10. Ілляшенко С.М., Прокопенко О.В. Менеджмент екологічних інновацій: Навчальний посібник. – Суми: Вид-во СумДУ, 2003. – 266 с.
11. Кібіч І.В. Менеджмент організації природоохоронної діяльності: Навчальний посібник. – Чернівці: Рута, 2002. – 104с.
12. Костецький В.В. Екологія перехідного періоду: право, держава, економіка (Економікоправовий механізм охорони навколишнього природного середовища в Україні). — К. : ІЗП і ПЗ, 2003. — С. 607.
13. Сафранов Т.А. Екологічні основи природокористування: Навчальний посібник. – Львів: „Новий світ 2000”, 2003. – 248 с.
14. Коваленко І. М. Екологія нижніх ярусів лісових екосистем: монографія / І. М. Коваленко – Суми: Університетська книга, 2015 – 360 с.
15. Chamberlain, James L.; Emery, Marla R.; Patel-Weynand, Toral, eds.2018. Assessment of nontimber forest products in the United States under changing conditions. Gen. Tech. Rep. SRS–232. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 260 p.<https://doi.org/10.2737/SRS-GTR-232>.
16. Purwestri, Ratna & Hájek, Miroslav & Hochmalová, Miroslava & Sane, Mathy & Kaspar, Jan. (2020). Bioeconomy in the National Forest Strategy: A Comparison Study in Germany and the Czech Republic. Forests. 11. 608. [10.3390/f11060608](https://doi.org/10.3390/f11060608).
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18. Kovalenko I., Karbivska U., Kurgak V., Gamayunova V., Butenko A., Malynka L., Onychko V., Masyk I., Chyrva A., Zakharchenko E. (2020). Productivity and Quality of Diverse Pipe Pasture Grass Fodder Depends on the Method of Soil Cultivation. ActaAgrobotanica/2020/ Volume 73 / Issue 3/ Article 7334.

Information sources

- ✓ Екологія. Право. Людина – <http://epl.org.ua/>
- ✓ ЗУ «Про охорону навколишнього середовища» - <https://zakon.rada.gov.ua/laws/show/1264-12#Text>
- ✓ ЗУ «Про екологічну експертизу» - <https://zakon.rada.gov.ua/laws/show/45/95-%D0%B2%D1%80#Text>

Academic Program (Syllabus) Review
ECOLOGICAL PLANNING AND ECOLOGICAL PROJECTS

Parameter by which the educational program (syllabus) of the educational component is assessed by the guarantor or a member of the project team	Yes	No	Comment
Learning outcomes according the educational component (MLOs) correspond to the NQF	+		
Learning outcomes according the educational component (MLOs) correspond to the stipulated PLOs (for compulsory EC)	+		
The results of training in the educational component provide an opportunity to measure and assess the level of their achievement	+		

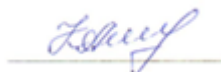
Member of the project group Ecology Academic Program



V.G. Skliar

Parameter by which the educational program (syllabus) of the educational component is assessed by the teacher of the relevant department	Yes	No	Comment
General information about the educational component is sufficient	+		
Learning outcomes for the educational component (MLOs) correspond to the NQF The list of training resources contains the necessary software products to achieve DRN	+		
Learning outcomes for the educational component (MLOs) provide an opportunity to measure and assess the level of their achievement	+		
Learning outcomes (MLOs) relate to the students competencies, not the content of the discipline (contain knowledge, skills, abilities, not topics of the curriculum of the discipline)	+		
The content of the EC is formed in accordance with the structural and logical scheme	+		
Learning activity (teaching and learning methods) allows students to achieve expected learning outcomes (MLOs)	+		
The educational component involves learning through research that is appropriate and sufficient for the corresponding level of higher education	+		
The assessment strategy within the educational component is in line with the policy of the University / faculty	+		
The provided assessment methods allow to assess the degree of achievement of learning outcomes in the educational component	+		
The workload of students is adequate to the volume of the educational component	+		
Recommended learning resources are sufficient to achieve learning outcomes (MLOs)	+		
The literature is relevant	+		
The list of training resources contains the necessary software products to achieve MLOs	+		

Reviewer



G.O. Klymenko