



COURSE SYLLABUS

«Fundamentals of agriculture and crop science»

Degree of higher education – Bachelor
Specialization – 193 «Geodesy and Land Management»
Educational program – «Geodesy and Land Management»
Academic year – 2, **semester** – 4
Form of study – full-time, part-time
Number of ECTS credits – 3
Language of instruction – English

Lecturer of the course
Contact information of the lecturer (e-mail)
Course page on eLearn

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<https://elearn.nubip.edu.ua/course/view.php?id=1522>

COURSE DESCRIPTION

Purpose. Formation of future specialists' knowledge and skills theoretical and practical problems most rational use of arable land, agricultural landscapes, how to develop physical, chemical, biological and mechanical methods and techniques to improve soil fertility, crop yields and stability of agroecosystems. Crop science deals with the study of new varieties and hybrids of cultivated crops and wild plant species to the action of biotic, abiotic and anthropogenic factors of the environment, develops cultivation technology for yields with consistently high quality based on intensification, energy saving and environmental safety.

Competencies of the educational program:

Integrative competency (IC):

- *the ability to solve complex specialized problems of geodesy and land management.*

General competencies (GC):

- *the ability to learn and acquire modern knowledge.*
- *the ability to apply knowledge in practical situations.*
- *the ability to work independently.*
- *the ability to work as a team.*

Professional (special) competencies (PC):

- the Ability to use basic knowledge of agriculture as a fundamental discipline of agricultural science.
- knowledge and understanding of basic biological and agrotechnological concepts, rules and theories related to the cultivation of agricultural plants.
- the Ability to solve a wide range of problems and problems in agriculture using both theoretical and practical methods.

Program learning outcomes (PLO) of the educational program:

- *the ability to apply fundamental knowledge to analyze phenomena of natural and man-made origin when performing professional tasks in the field of geodesy and land management.*
- *the ability to apply theories, principles, methods of physical and mathematical, natural, socio-economic, and engineering sciences when performing tasks of geodesy and land management.*
- *the ability to choose and use effective methods, technologies, and equipment for carrying out professional activities in the field of geodesy and land management.*
- *convey information, ideas, problems, solutions, own experience and arguments to specialists and non-specialists.*
- *apply conceptual knowledge of natural and socio-economic sciences when performing tasks of geodesy and land management.*

COURSE STRUCTURE

Topic	Hours (lecture/practical)	Learning outcomes	Tasks	Assessment
Semester 1				
Content Module one. Scientific bases of agriculture. Weeds and their control in crops				
Topic 1. Agriculture – food, energy, and environmental safety of Ukraine	2	Understand the current state of the industry and make decisions about the development of agriculture as an industry, science and academic discipline.	Completing independent work (including in eLearn)	0–100
Topic 2. Scientific bases of agriculture. Plant life factors and laws of agriculture	2	Have fundamental knowledge about the development of agriculture as a science. Know the laws of agriculture and be able to implement them in production.	Completing independent work (including in eLearn)	0–100
Topic 3. Living conditions of agricultural plants and methods of their regulation	6	Assess the current state of the soil as a means of production, develop measures and manage the main indicators of soil fertility.	Completing independent work (including in eLearn)	0–100
Topic 4. The concept of weeds and their classification. Weed control measures in modern agriculture.	2/4	Have a basic knowledge about weeds and their control measures in crops.	Submitting laboratory work Biological features of weeds. Completing independent work (including in eLearn). Taking tests.	0–100
Content Module two. Crop rotation, soil tillage, and crop protection				
Topic 5. Scientific bases of crop rotations	2	To have the scientific basis for the necessity of alternation of crops in crop rotation.	Completing independent work (including in eLearn).	0–100
Topic 6. Placement of major field crops and fallow field in crop rotation	4/4	To have the principles of building crop rotation systems in farms of different soil and climate zones and	Submitting laboratory work The main crops in Ukraine. Preparing presentations and reports by students. Completing independent work (including in eLearn).	0–100

		forms of ownership. The ability to develop a scientifically based structure of sown areas.		
Topic 7. Design, introduction, and development of crop rotations. Classification of crop rotations	2/3	The ability to classify crop rotations according to the type of products produced in it and the ratio of the main groups of crops in the crop rotation.	Submitting laboratory work Methods of crop rotation design. Drawing up a crop rotation scheme. Completing independent work (including in eLearn).	0–100
Topic 8. Theoretical foundations of tillage. Technological operations (processes) in tillage	2	Understand the main technological processes of soil tillage and their importance. Have knowledge of soil tillage measures and their classification.	Completing independent work (including in eLearn).	0–100
Topic 9. Measures (techniques) of tillage. Tillage systems.	4/4	Have a fundamental knowledge of modern energy-saving tillage systems.	Submitting laboratory work Development of tillage systems in crop rotation. Completing independent work (including in eLearn).	0–100
Topic 10. Sowing of crops, fertilizers and crop protection	4	Have a basic knowledge about sowing and crop protection system	Completing independent work (including in eLearn). Taking tests.	0–100
Total for semester1				70
Exam				30
Total for course				100

ASSESSMENT POLICY

<i>Policy regarding deadlines and resits:</i>	Assignments submitted after the deadline without valid reasons will be graded lower. Resitting of modules will be allowed with the permission from the lecturer and in the presence of valid reasons (e.g. medical reasons).
<i>Academic honesty policy:</i>	Cheating during tests and exams is strictly prohibited (including the use of mobile devices). Coursework and research papers must contain correct citations for all sources used.
<i>Attendance policy:</i>	Class attendance is mandatory. In case of objective reasons (such as illness or international internships), individual learning may be allowed (in online format by the approval of the dean of the faculty).

SCALE OF ASSESSMENT OF STUDENT KNOWLEDGE

Student rating, points	National grade based on exam results	
	exams	credits
90-100	excellent	passed
74-89	good	
60-73	satisfactory	
0-59	unsatisfactory	not passed

RECOMMENDED SOURCES OF INFORMATION

Basic:

1. Землеробство. Навчальний посібник / Танчик С. П. та ін. Київ. : ЦП «Компринт», 2022. 350 с.
2. Центило Л. В., Танчик С. П., Цюк О. А. Управління родючістю ґрунту за зберігаючого землеробства. Вінниця «Твори», 2021. 361 с.
3. Танчик С. П., Рожко В. М., Карпенко О. Ю. Землеробство з основами ґрунтознавства. Навчальний посібник. Київ. 2021. 442 с.
4. Танчик С. П., Примак І. Д., Літвінов Д. В., Центило Л. В. Сівозміни: підручник. 2019. 364 с.
5. Танчик С. П., Цюк О. А., Центило Л. В. Наукові основи систем землеробства. Монографія. Вінниця: ТОВ «Нілан ЛТД», 2015. 314 с.
6. Гудзь В. П., Примак І. Д., Танчик С. П. Землеробство. К.: Центр учбової літератури, 2014. 432 с.
7. Примак І. Д., Манько Ю. П. та ін. Екологічні проблеми землеробства. К.: Центр учбової літератури, 2010, 455 с.
8. Косолап М. П., Кротінов О. П. Система землеробства no-till. К.: Логос, 2011. 352 с.

Auxiliary:

1. Камінський В. Ф., Літвінов Д. В., Шиліна Л. І. Агробіологічні основи короткоротаційних сівозмін Лісостепу. Монографія, 2019. 228 с.
2. Шувар І. А., Роїк М. В., Іванишин В. В., Сендецький В. М., Центило Л. В. Сидерація в технологіях сучасного землеробства: монографія. Івано-Франківськ : Симфонія форте, 2016. 180 с.
3. Примак І. Д., Косолап М. П., Войтович М. В. та ін. Механічний обробіток ґрунту: історія, теорія, практика. Навчальний посібник. Вінниця. ТОВ «Твори», 2019. 425 с.
4. Циліорик О. І. Система мульчувального обробітку ґрунту в сівозмінах Північного Степу. Монографія. Дніпро: Новий Світ, 2019. 297 с.
5. Шевченко М. В. Наукові основи систем обробітку ґрунту в умовах нестійкого та недостатнього зволоження. Монографія. Харків, 2019. 209 с.
6. Танчик С. П. No-till і не тільки. Сучасні системи землеробства. Навчальний посібник. К. : Юнівест Медіа, 2009. 159 с.
7. Землеробство. Терміни та визначення понять : ДСТУ 4691:2006. – [Чинний від 2006-12-11]. К. : Держспоживстандарт України, 2008. 37 с. – (Національний стандарт України).

Information resources

1. Державна служба статистики України [Електронний ресурс] – Режим доступу до ресурсу: <http://www.ukrstat.gov.ua/>.
2. worldometers [Електронний ресурс] – Режим доступу до ресурсу: <https://www.worldometers.info/uk/>.
3. Інтернет-бібліотека Організації економічного співробітництва та розвитку (ОЕСР) [Електронний ресурс] – Режим доступу до ресурсу: https://www.oecd-ilibrary.org/agriculture-and-food/data/oecd-agriculture-statistics_agr-data-en.
4. Продовольча та сільськогосподарська організація Об'єднаних націй (ФАО) [Електронний ресурс] – Режим доступу до ресурсу: <http://www.fao.org/countryprofiles/index/ru/?iso3=UKR>.