СИЛАБУС ДИСЦИПЛІНИ
«Agricultural chemistry (agrochemistry)»

Ступінь вищої освіти - Bachelor
Спеціальність 201 Agronomy
Освітня програма «Agronomy»
Рік навчання 2-3, семестр 4-5
Форма навчання __денна_(денна, заочна**)**
Кількість кредитів ЄКТС 8
Мова викладання __English__(українська, англійська, німецька)

Лектор курсу	**__Бордюжа Н.П._____**
Контактна інформація лектора (e-mail)	**__nadia_bordyuzha@ukr.net_____**
Сторінка курсу в eLearn	**https://elearn.nubip.edu.ua/course/view.php?id=2292**

ОПИС ДИСЦИПЛІНИ

The goal of the course is mastering for bachelor of the agronomy in theoretical knowledge and practical skills into basic of plant nutrition, their chemical composition and nutrients take up, soil properties in interaction with plant nutrition and fertilizers application, fertilizers classifications, fertilizers types and kinds, fertilizers production, fertilizers using and fertilizers influence on environment. And, this discipline helps formation practical skills in determination of the level of the crop nutrients supply, levels of the nutrients supply of the soils, identify of the fertilizers kinds and fertilizers forms, their interaction with soils, determination of the soil need in soil melioration.

Learning objectives is to develop the students' knowledge and skills in the use of fertilizers to maintain soil fertility and increasing the yield and quality of crops.

Learning outcome of course is the student's ability as a specialist:

to provide the best conditions for plant nutrition based on fertilizer properties and their interaction with the soil;

to determine the most effective forms, timing and methods of fertilizer application;

to develop the system of fertilizer application for different soil-climatic

Upon completion of this course, students should be able to

know:

- state and prospect of agricultural chemicalization in Ukraine and all over the world;
- chemical composition of plants, characteristics of their nutrition and ways of its regulation;
- soil properties connected with plant nutrition and fertilizers application;
- methods of soil chemical melioration;
- main types of mineral, organic fertilizers, modes of their manufacture and characteristics of usage; optimum conditions for storage and application;
- system of fertilization and agricultural chemistry service;
- fertilizers influence on the atmosphere.

be able to:

- to determine the plant nutrients supply level and provide optimum conditions of plant growing;
- to determine the necessity of chemical melioration realization and calculate the rate of meliorants;
- to be able to identify fertilizers and provide optimum conditions for their storage and transportation;
- to calculate rate and define forms and methods of fertilizers application; estimate economic and energy effectiveness of fertilizers application;
- to prevent biosphere contamination while fertilization.

СТРУКТУРА КУРСУ

Тема	Години (лекції/ лабораторні)	Результати навчання	Завдання	Оцінювання
Семестр 4				
Модуль 1				
Тема1 Agricultural chemistry, its objectives and main tasks.	2/0	To understand the goal, objects and task of agrochemistry	Delivery of laboratory work. Performing independent work (including elearn) Writing a modular test	**5**
Тема 2. Chemical composition of plants	2/4	To understand the plants needs in nutrients under knowledge of chemical composition of plants		**6**
Тема 3. Plant nutrition and methods of its regulation	2/0	To understand the mechanisms of plant nutrition and abilities for it regulation		**5**
Тема 4. Plant growth factor	2/0	To understand and analyses the factors that affected on plant growth To be able to identify its		**5**
Модуль 2				
Тема 5. Soil composition, soil property	3/4	To understand the soil composition and it properties and its effect on plant nutrition	Delivery of laboratory work. Performing independent work (including elearn) Writing a modular test	**8**
Тема 6. Soil sorption capacity	2/0	To understand the soil sorption capacity To know the types of its To be able to determine its effect on fertilizers interaction with soils.		**5**
Модуль 3				
Тема 7. Organic regime in soil	4/2	To understand the nutritive regimes in soils To know forms of the nutrients in soils and its availability for plants To know role of the different forms of nutrients into plant nutrition To be able to determine nutritive indicators into soils and to estimate its	Delivery of laboratory work. Performing independent work (including elearn) Writing a modular test	**6**
Тема 8. Nitrogen regime in soil	4/4			**8**
Тема 9. Phosphorus regime in soil	2/4			**6**
Тема 10. Potassium regime in soil	2/4			**6**
Тема 11. Soil acidity. Specify of soil acidity and plants	2/2	to understand reaction of soil solution, soil acidity and alkalinity	Delivery of laboratory work.	**5**

Тема 12. Soil alkalinity	2/2	to know the reasons of soil acidity and alkalinity to be able to determine and estimate the reaction of soil solution	Performing independent work (including elearn) Writing a modular test	**5**
Семестр 5				
Тема 13. Soil chemical melioration	2/6	To understand the soil chemical melioration To know the principles of determination soil need into chemical melioration To be able to determine soil need into chemical melioration To know the types of chemical meliorates To be able to choose the right chemical meliorates for types of soils.	Delivery of laboratory work. Performing independent work (including elearn) Writing a modular test	**7**
Модуль 4				
Тема 14. Fertilizers, their properties and classification	2/0	To understand the principles for fertilizers classification To know the main properties of fertilizers	Delivery of laboratory work. Performing independent work (including elearn) Writing a modular test	**5**
Тема 15. Nitrogen fertilizers. Solid and fluid nitrogen fertilizers. Transformation of nitrogen fertilizers.	4/4	To know the types of mineral simple fertilizers To know the properties each fertilizer, it interaction with soils and its effect on plant growth To be able to predict the fertilizers transformation into soil and its possible losses To know the specify of fertilizers application To be able to recognize different fertilizers		**7**
Тема 16. Phosphate fertilizers. Retrogradation. Recommendations for fertilizers application	3/4			**6**
Тема 17. Potassium fertilizers. Recommendations for fertilizers application.	3/4			**6**
Модуль 5				
Тема 18. Multinutrient fertilizers. Technology of multinutrient fertilizers application	4/4	To know the types of multinutrients fertilizers and its production To know the properties each fertilizer, it interaction with soils and its effect on plant growth To be able to predict the fertilizers transformation into soil and its possible losses	Delivery of laboratory work. Performing independent work (including elearn) Writing a modular test	**7**

		To know the specify of fertilizers application To be able to recognize different fertilizers		
Тема 19. Micronutrient fertilizers. Modern classification of micronutrients. Chelated micronutrient fertilizers	4/4	To know the types of micronutrients fertilizers To know the properties each fertilizer, it interaction with soils and its effect on plant growth To be able to predict the fertilizers transformation into soil and its possible losses To know the specify of fertilizers application To be able to recognize different fertilizers		**7**
Тема 20. Biofertilizers	1/2	To know the classification of biofertilizers and its effect on plant growth	Delivery of laboratory work. Performing independent work (including elearn) Writing a modular test	**5**
Тема 21. Organic fertilizers: characteristic and types of fertilizers. Manure and composts.	2/2	To know the types of organic fertilizers To know the properties each fertilizer, it interaction with soils and its effect on plant growth To be able to predict the fertilizers transformation into soil and its possible losses To know the types of organic fertilizers storage and its transformation during this process To know the specify of fertilizers application To be able to recognize different fertilizers		**5**
Тема 22. Organic fertilizers: Poultry manure, Green manure, Peat. Technology of organic fertilizers application.	2/2			**5**
Модуль 6				
Тема 23. Fertilization system. Nutrients balance	2/0	To be able to calculate and estimate the nutrients balance for farms	Performing independent work (including elearn)	**5**
Тема 24. Fertilizers and environment protection	1/0	To understand importance of scientifically sound application of fertilizers for environmental safety		**5**
Всього за 1 семестр				**70**
Екзамен				**30**
Всього за курс				**100**

ПОЛІТИКА ОЦІНЮВАННЯ

Політика щодо дедлайнів та перескладання:	Роботи, які здаються із порушенням термінів без поважних причин, оцінюються на нижчу оцінку. Перескладання модулів відбувається із дозволу лектора за наявності поважних причин (наприклад, лікарняний).
Політика щодо академічної доброчесності:	Списування під час контрольних робіт та екзаменів заборонені (в т.ч. із використанням мобільних девайсів). Курсові роботи, реферати повинні мати коректні текстові посилання на використану літературу
Політика щодо відвідування:	Відвідування занять є обов'язковим. За об'єктивних причин (наприклад, хвороба, міжнародне стажування) навчання може відбуватись індивідуально (в он-лайн формі за погодженням із деканом факультету)

ШКАЛА ОЦІНЮВАННЯ СТУДЕНТІВ

Рейтинг здобувача вищої освіти, бали	**Оцінка національна за результати складання екзаменів заліків**	
	екзаменів	**заліків**
90-100	відмінно	зараховано
74-89	добре	
60-73	задовільно	
0-59	незадовільно	не зараховано