



**SYLLABUS OF DISCIPLINE
“BOTANY”**

Degree of higher education – Bachelor
Speciality – 201 “Agronomy”
Branch of knowledge – 20 Agrarian sciences and food
Study year – 1, semester – 2
The form of study – full-time
The number of ECTS credits – 5
The language of teaching – English

Lecturer of Discipline

Anatolii P. Tertyshnyi, Phd in Biology, Associate Professor, Department of Botany, Dendrology and Forest Tree Breeding, 03041, Ukraine, Kyiv, str. Henerala Rodimtseva 2, the First Educational Building 1a (Botanical garden NUBiP of Ukraine), +38(044) 527-85-18, e-mail: tertyshnyy@ukr.net
Course page on the Moodle platform
<https://elearn.nubip.edu.ua/enrol/index.php?id=1085>

DESCRIPTION OF THE DISCIPLINE

The study of educational materials of the discipline “Botany” helps future bachelors of Speciality 201 “Agronomy” to obtain the appropriate level of theoretical knowledge, formation and development of special skills, practical skills using the laws of development of plants as major components of biosphere.

Competences of EP:

Integral competence (IC):

The ability to solve complex specialized tasks and practical problems in agronomy, which involves the application of theories and methods of the relevant science and is characterized by the complexity and uncertainty of conditions.

General competences (GC):

GC 1. The ability to realize one's rights and responsibilities as a member of society, to realize the values of a civil (free democratic) society and the need for its sustainable development, the rule of law, the rights and freedoms of a person and a citizen in Ukraine.

GC 3. Ability to abstract thinking, analysis and synthesis.

GC 5. Ability to communicate in a foreign language.

GC 6. Knowledge and understanding of the subject area and understanding of professional activity.

GC 7. Ability to apply knowledge in practical situations.

GC 8. Skills of performing safe activities.

GC 9. Ability to search, process and analyze information from various sources.

GC 11. Efforts to preserve the environment.

Professional competences of the specialty (PC):

PC 3. Knowledge and understanding of basic biological and agrotechnological concepts, rules and theories related to the cultivation of agricultural and other plants.

PC 5. The ability to evaluate, interpret and synthesize theoretical information and practical, production and research data in the fields of agricultural production. Ability to apply methods of statistical processing of research data related to technological and selection processes in agronomy.

Program learning outcomes (PLO):

PLO 2. Strive for self-organization and self-education.

PLO 5. Conduct a literature search in Ukrainian and foreign languages and analyze the information obtained.

PLO 9. To possess at the operational level, the methods of observation, description, identification, classification, as well as the cultivation of objects and maintaining the stability of agrocenoses with the preservation of natural diversity.

PLO 16. To organize effective and safe working conditions.

STRUCTURE OF DISCIPLINE

Theme	Hours (lectures/practical works)	Results of study	Tasks	Evaluation
Semester 2				
Module 1				
Theme 1. Introduction to botany	2/1	Has to know terms, systematic and main groups of plants;	Laboratory works, tests	5
Theme 2. Propagation. Plant systematic. Introduction to	4/3			10

systematic. LUCA, Bacteria, Arkarya		Can operate on the botanical terminology and methods of investigation of plants that are necessary to study plants on practice. The variety of plants induces the study of specific features of different groups of plants, their development, phylogenic relations and value for agriculture.		
Theme 3. Amorphea: Fungi. Archaeplastida: Glaucophyta, Rhodophyta, Viridiplantae. Nonvascular & vascular seedless Embryophyta.	1/1			5
Module 2				
Theme 4. Spermatophyta, Gymnospermatophyta . General characteristic and classification of Flowering plants (Magnoliophyta, APG IV) .	6/8	Has to know terms, systematic and main groups of plants; Can operate on the botanical terminology and methods of investigation of plants that are necessary to study plants on practice. The variety of plants induces the study of specific features of different groups of plants, their development, phylogenic relations and value for agriculture.	Laboratory works, tests	5
Theme 5. Characteristic of Magnoliophyta families (APG IV). ANA GRADE Nymphaeales Nymphaeaceae Austrobaileyales Schisandraceae MAGNOLIIDS Piperales Aristolochiaceae Piperaceae Magnoliales Magnoliaceae Laurales Lauraceae MONOCOTS Acorales Acoraceae Alismatales Alismataceae Araceae Butomaceae Liliales Liliaceae Asparagales Amaryllidaceae Asparagaceae Iridaceae Orchidaceae Zingiberales	15/25			25

<p>Zingiberaceae Poales Bromeliaceae Cyperaceae Juncaceae Poaceae EUDICOTS Ranunculales Berberidaceae Papaveraceae Ranunculaceae SUPERROSIDS Saxifragales Grossulariaceae ROSIDS Vitales Vitaceae Fabales Fabaceae Rosales Cannabaceae Elaeagnaceae Moraceae Rosaceae Urticaceae Fagales Betulaceae Fagaceae Juglandaceae Cucurbitales Cucurbitaceae Malpighiales Euphorbiaceae Myrtales Lythraceae Sapindales Rutaceae Malvales Malvaceae Brassicales Brassicaceae Resedaceae</p>				
<p>Theme 6. Characteristic of families (APG IV). SUPERASTERIDS Caryophyllales Amaranthaceae Caryophyllaceae Polygonaceae Portulacaceae ASTERIDS Ericales Actinidiaceae Ericaceae Gentianales Apocynaceae Boraginales Boraginaceae Solanales Solanaceae Lamiales Lamiaceae Oleaceae</p>	<p>11/16</p>			<p>10</p>

Orobanchaceae Pedaliaceae Asterales Asteraceae Dipsacales Adoxaceae Caprifoliaceae. Apiales Apiaceae				
Theme 7. Elements of Phytocenology	3/3			5
Theme 8. Elements of Phytogeography	3/3			5
All hours per semester				70
Exam				30
Total				100

ASSESSMENT POLICY

Deadlines and Rescheduling Policy:	Assignments that are submitted late without valid reason will receive a lower grade. Modules can be rearranged with the permission of the lecturer if there are good reasons (for example, sick leave).
Academic Integrity Policy:	Copying during tests and exams is prohibited (including using mobile devices). Term papers and essays must have correct text references to the literature used
Attendance Policy:	Attending classes is mandatory. For objective reasons (for example, illness, international internship), training can take place individually (in online form with the agreement of the dean of the faculty)

A SCALE FOR EVALUATING STUDENTS' KNOWLEDGE

Sum of marks for all types of activity	National evaluation due to results of exams and tests	
	Exams	Tests
90-100	very good	Pass
74-89	good	
60-73	satisfactory	
0-59	unsatisfactory	Do not pass

RECOMMENDED SOURCES OF INFORMATION

- Berg L.R. Introductory botany: Plants, people, and the environment. 2nd edition, Thompson Brooks/Cole, 2008.
- Simpson M. G. Plant Systematics. 3rd Edition, Academic Press, 2019.
- Singh G. Plant Systematics: An integrated approach. 3rd edition, Enfield, N.H.: Science Publishers, 2010.
- Tertyshnyi A.P. Botany. Part 1: tutorial. Kyiv: Lira-K, 2020, 250 p.
- Верхогляд І.М. Introductory Plant Science course. Навчальний посібник. Київ: Фітосоціоцентр. 2010. 216 с.
- Верхогляд І.М. Plant Biology (Cytology, Botany and Biodiversity), словник. Київ: Фітосоціоцентр. 2010. 88 с.
- Верхогляд І.М. Plant Cytology and Botany, англ. Словник. Київ: Вид-во НАУ. 2006. 92 с.
- Тертишний А.П. Покритонасінні рослини Лісостепу України. Частина 1: Навчальний посібник. Київ: Видавництво Ліра-К, 2021. 706 с.
- Тертишний А.П. Покритонасінні рослини Лісостепу України. Частина 2: Навчальний посібник. Київ: Видавництво Ліра-К, 2022. 312 с.
- Якубенко Б.С., Григора І.М. Польовий практикум з ботаніки. Навчальний посібник. 2-е видання, перероблене та доповнене. К.: Арістей, 2008. 260 с.
- Якубенко Б.С., Григора І.М., Мельничук М.Д. Геоботаніка. Навчальний посібник. К.: Арістей, 2008. 444 с.
- Якубенко Б.С., Попович С.Ю., Григорюк І.П., Мельничук М.Д. Геоботаніка: тлумачний словник. За ред. д.б.н. Б.С.Якубенка та чл.-кор. НАН України І.П.Григорюка. К.: Фітосоціоцентр, 2022. 420 с.

Internet sources

- Angiosperm phylogeny website version <http://www.mobot.org/MOBOT/research/APweb/>
- Eurasian Dry Grassland Group <https://edgg.org/>
- European Vegetation Archive (EVA) <http://euroveg.org/eva-database>
- European Vegetation Survey <http://euroveg.org/>
- Global Biodiversity Information Facility (GBIF) <https://www.gbif.org>
- Global Index of Vegetation-Plot Databases (GIVD) <http://www.givd.info/>
- National Biodiversity Information Network <http://ukrbin.com>
- National Vegetation Classification (NVC) <https://incc.gov.uk/our-work/nvc/>
- Open data about biodiversity <https://www.inaturalist.org>

Society for ecological restoration (SER) <https://www.ser.org/default.aspx>
The Gymnosperm Database <https://www.conifers.org/index.php>
The International Association for Vegetation Science (IAVS) <http://iavs.org/>
The WFO <http://www.worldfloraonline.org/>
U.S. National Plant Germplasm System <https://npgsweb.ars-grin.gov>
Ukrainian geobotanical site <http://geobot.org.ua/>