



**СИЛАБУС ДИСЦИПЛІНИ
«General plant pathology»**

Рівень вищої освіти - перший (бакалаврський)

Спеціальність 202 Захист і карантин рослин

Освітня програма «Захист і карантин рослин»

Рік навчання 3, семестр 5/6

Форма навчання денна, заочна

Кількість кредитів ЄКТС 8

Мова викладання англійська

Лектор курсу

**Контактна інформація
лектора (e-mail)**

Сторінка курсу в eLearn

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<https://elearn.nubip.edu.ua/course/view.php?id=3935>

Competence acquisition:

Integral competence (IC):

The ability to solve complex specialized tasks and practical problems of professional activity in plant protection and quarantine and to apply theoretical knowledge and methods of phytosanitary monitoring, inspection, analysis, expertise characterized by complexity and uncertainty of conditions.

General competences (GC)

GC 2. Ability to apply knowledge in practical situations.

GC 3. Knowledge and understanding of the subject area and understanding of professional activity.

Program Learning Outcomes (PLO)

PLO 6. Correctly use appropriate methods of observation, description, identification, classification, cultivation of objects of agrobiocenoses and maintenance of their stability in order to preserve natural diversity.

PLO 16. Know the main historical stages of development of the subject area.

COURSE STRUCTURE

Topic	Hours (lectures / laboratory / independe nt)	Learning outcomes	Tasks	Assessme nt
1.1. The history of the development of phytopathology	4/-/4	As a result of studying general phytopathology, the student should: to know the diagnostic signs and types of diseases, methods of identification of pathogens, having mastered the theoretical issues of their biology, ecology, systematics and ways of spreading; to be able to independently determine the types of diseases, establish their causative agents and taxonomic groups, justify measures that prevent the appearance of epiphytotia and	<i>Preparation for lectures</i> (preliminary familiarization with the presentation and full-text lecture and its appendices and cited sources of literature in eLearn).	3
1.2. Pathological process and its variability	1/2/4		3	
1.3. Harmfulness of plant diseases	1/2/2		3	
1.4. Classification of plant diseases	1/4/4		3	
1.5. Types of plant diseases	1/4/4		3	
1.6. Non-infectious plant diseases	4/4/4	limit the development of diseases caused by them.	methodological recommendations - during the practical session and independently - in eLearn).	5
1.7. Infectious diseases	4/4/4		5	
2.1. Properties of pathogens that determine disease-causing processes in plants	2/2/4		<i>Performing independent work</i> (tasks in	2

2.2. Bacteria and actinomycetes, mycoplasmas and rickettsia	2/4/4	eLearn). Preparation and writing of the test (descriptive part in the form of a written/oral answer - in classroom classes and/or test - in eLearn)	2
2.3. Viruses and viroids	2/4/4		2
2.4. Flower parasites	2/2/4		2
2.5. Morphological, biological and pathogenic properties of lower fungi, their taxonomy.	6/12/4		2
3.1. Morphological, biological and pathogenic properties of higher fungi, their taxonomy	12/12/4		5
3.2. Penetration of pathogens into the plant	2/4/4		5
3.3. The influence of environmental conditions on infection	2/4/4		5
3.4. Ways and methods of spread of the infectious beginning	2/2/4		5
3.5. The concept of areas and epiphytotypic diseases	2/2/4		5
4.1. Methods of diagnosing plant diseases. Molecular diagnostic methods.	2/14/12		5
4.2. Methods and means of protecting plants from diseases	8/8/12		5
4.2.1. Compliance with agrotechnical requirements for growing plants	1/1/2		
4.2.2. Immunological method of plant	1/1/2		

protection				
4.2.3. Biological method	2/2/2			
4.2.4. Physico-mechanical method	1/1/2			
4.2.5. Chemical method	2/1/2			
4.2.6. Quarantine measures	1/2/2			
	Additional points can be obtained for the preparation of a report and/or participation in a conference			up to 10 point
Total for the semester Exam All together				100*0,7 (maximal 70 points) 30 points 100 points

ASSESSMENT POLICY

<i>Deadlines and Rescheduling Policy:</i>	Practical/laboratory, independent work and/or control survey must be submitted in the scheduled time before the end of the study of current topics. Violation of the submission deadlines without a good reason gives the teacher the right to lower the grade. The rescheduling of the appropriate type of knowledge control takes place in the presence of good reasons (for example, sick leave) and is allowed until the end of the discipline course.
<i>Academic Integrity Policy:</i>	Writing, using mobile devices and additional literature during the relevant type of knowledge control and exam is strictly prohibited.
<i>Attendance Policy:</i>	Attendance at lectures and practical/laboratory classes is mandatory for all applicants. Lateness to classes is not allowed. For objective reasons (for example, illness, international internship), training may take place according to an individual curriculum approved in a specified manner.

STUDENTS' KNOWLEDGE ASSESSMENT SCALE

Student rating, points	The assessment is national for the results of passing exams	
	exams	
90-100	excellent	90-100
74-89	good	74-89
60-73	satisfactorily	60-73
0-59	unsatisfactorily	0-59

RECOMMENDED LITERATURE

Main:

1. Bhunjun C.S.; Phillips A.J.L.; Jayawardena R.S.; Promputtha I.; Hyde K.D. Importance of Molecular Data to Identify Fungal Plant Pathogens and Guidelines for Pathogenicity Testing Based on Koch's Postulates. *Pathogens* 2021. 10. 1096. <https://doi.org/10.3390/pathogens10091096>
2. Mapuranga J, Zhang N, Zhang L, Chang J, Yang W. Infection Strategies and Pathogenicity of Biotrophic Plant Fungal Pathogens. *Front Microbiol.* 2022 Jun 2;13:799396. doi: 10.3389/fmicb.2022.799396.
3. Modern Approaches in Plant Pathology. Elite Publishing House. 2023. 321 pp.
4. Principles of Plant Pathology. Mishra R. C. & Singh R. (eds.). 2023. 19 pp. <https://www.researchgate.net/publication/370025309>
5. Plant Pathology Concepts and Laboratory Exercises Third edition. – CRC Press. – 2016. – 598 p.
6. The Study of Plant Disease Epidemics. Laurence V. Madden, Gareth Hughes, and Frank van den Bosch, 2017 <https://doi.org/10.1094/9780890545058>
7. Venbrux M, Crauwels S and Rediers H. Current and emerging trends in techniques for plant pathogen detection. *Front. Plant Sci.* 2023. 14:1120968. doi: 10.3389/fpls.2023.1120968
8. Maryutin F.M. Phytopathology: textbook / Maryutin F.M., Pantelev V.K., Bilyk M.O. - Kharkiv: Espada, 2008 - 552 p.
9. Phytopathology: Textbook [I.L. Markov, O.V. Bashta, D.T. Gentosh, V. A. Glymyazny, O.P. Dermenko, E. P. Chernenko]; under the editorship I.L. Markov. K., 2016. 548 p. 2.
10. Phytopathogenic bacteria. Bacterial diseases of plants. Volume 1. Monograph/ R.T. Hvozdyak, L.A. Pasichnik, L.M. Yakovleva, S.M. Moroz, O.O. Lytvynchuk, N.V. Zhitkevich, S.F. Khodos, L.M. Butsenko, L.A. Dankevich, I.V. Hrynyk, V.P. Jack; Under the editorship V.P. Patyki — K.: Interservice, 2011. — 444 p.
11. General phytopathology: Education. manual / Under the editorship N.V. Pinchuk: -. Vinnytsia, 2018. – 272 p.
12. Markov I.L. Handbook on the protection of field crops from diseases and pests / I. L. Markov, M. B. Ruban. - K.: Univest Media Company LLC, 2014. - 384 p.
13. Phytopathology / I.L. Markov [and others]; under the editorship I. L. Markova; National University of Bioresources and Nature Management of Ukraine. K.: Phoenix, 2015. 492 p.

Addition literature:

1. Kovbasenko R.V., Kolomiets Yu.V., Bilyavska L.O., Teslyuk V.V., Kovbasenko V.M., Serhiychuk N.M., Afanasyeva O.G., Melnyk V.I. Peculiarities of the pathogenesis of root rot pathogens and increasing plant resistance: monograph. Kyiv: FOP Yamchynskiy O.V. 2023. 367 p.
2. Pikovsky M.Y., Kyryk M.M., Konup L.O. Pathology of seeds of agricultural crops: a textbook. Kyiv: Editorial and publishing department of NUBiP of Ukraine. 2023. 343 p.
3. Kyryk M.M., Shevchuk V.K., Vilchynska L.A., Pikovsky M.Y. Diseases of rare and endangered plant species listed in the Red Book of Ukraine: study guide. Kamianets-Podilskiy: Ruta Printing House LLC. 2023. 104 p.
4. Pikovsky M.Y., Kyryk M.M. Bioecological features of phytopathogenic fungi *Sclerotinia sclerotiorum* (Lib.) de Bary and *Botryotinia fuckeliana* (de Bary) Whetzl: monograph. Kyiv: FOP Yamchynskiy O.V.. 2021. 278 p.
5. Markov I.L., Ruban M.B. Handbook on the protection of field crops from diseases and pests. Kyiv: Univest Media Company LLC. 2014. 384 p
6. Puzrina N. V. Pests and pathogens of woody ornamental plants: study guide. Part I Kyiv: Editorial and Publishing Department of NUBiP of Ukraine, 2020. 527 p.
7. Maryutin F.M. Pantelev V.K., Bilyk M.O. Phytopathology: textbook Kharkiv: Espada. 2008. 552 p. Agrious G. Plant Pathology. 5th ed. Elsevier Academic Press, 2005. – 922 p.
8. Illustrated Plant Pathology: Basic Concepts. Ed. by H.L. Devasahayam. – NIPA. – 2009. – 494 p.

Internet resources:

1. European Journal of Plant Pathology <https://www.springer.com/journal/10658/>
2. Atlas of ornamental plant diseases. Access: <https://naurok.com.ua/atlas-hvorob-dekorativnih-roslin-320421.html>
3. Identifier of plant pests and diseases. KWS. Access:

www.kws.com/ua/uk/agroservis/vyroshchuvannya-roslyn/zahyst-roslyn/vyznachnyk-shkidnykiv-ta-hvorob/

4. TOP-5 applications for diagnosing plant diseases. Access: <https://superagronom.com/news/5925-top-5-dodatkov-dlya-dyagnostyky-hvorob-roslyn>

5. Diseases and pests of indoor plants. Access:

<https://asterias.od.ua/860-khvorobi-ta-shkidniki-kimnatnykh-roslyn-zakhyst-i-likuvannya.html>