



**Syllabus of the educational discipline
«Data visualization and visual analytics»**

Specialty	<i>all</i>
Educational program	<i>all</i>
Level of education	<i>Second (master's)</i>
Discipline status	<i>Selective</i>
Teaching language	<i>English</i>
Course / semester	<i>1 course, 1 or 2 semester</i>
Number of credits ECTS	<i>5</i>
Distribution by types of trainings and hours of study	<i>Lectures – 20 hours. Laboratory studies – 20 hours. Independent training – 110 hours.</i>
Form of final assessment	<i>Pass</i>
Department	<i>Statistics and economic forecasting, 61166, Kharkiv, 9a Nauki Ave., S. Kuznets KhNUE , phone +38(057)702-18-32, department website: https://statistics.hneu.edu.ua/</i>
Teacher (-s)	<i>Shlykova Viktoriia, PhD (Economics), Associate professor (lectures) Derykhovska Viktoriia, PhD (Economics), Associate professor (laboratory studies)</i>
Teacher's contacts	<i>v.shlykova@ukr.net derykhovskayav@gmail.com</i>
Days of the classes	<i>According to the class schedule for the 2nd semester of 2020-2021 academic year</i>
Consultations	<i>According to the consultation schedule for the 2nd semester of 2020-2021 academic year</i>

The purpose of the discipline is the expansion and deepening of theoretical knowledge and acquisition of professional competences in the field of visual analytics of business processes and making effective decisions using analytical methods and data visualization tools.

Prerequisites for learning

List of previously listened disciplines: mathematics for economists, microeconomics, macroeconomics, statistics, informatics, computer science. Knowledge, skills, abilities that the applicant must have to begin to study the discipline: basic knowledge of micro- and macroeconomics, statistics, be able to apply economic, statistical tools and methods, data search; data processing and have the skills to work in Microsoft Office applications (Word, Excel, PowerPoint).

Content of the educational discipline

Content module 1. The theoretical basis for data visualization

Theme 1. Visual information in the information society

Theme 2. Modern data visualization tools. Infodesign

Content module 2. Using modern methods of analytical data processing

Theme 3. Planning, collecting and preparing data for visualization. Methods of collecting analytical information

Theme 4. Basics of business analytics. Basic methods for processing digital information.

Theme 5. Economic interpretation of visual analysis of data. Preparation of reports.

Material and technical support (software) of the discipline

Microsoft Office (Word, Excel, PowerPoint, Access), online resources, graphic editors and information visualization applications

Course page on the Moodle platform (personal training system)

<https://pns.hneu.edu.ua/course/view.php?id=4744>

Recommended literature

Main: 1. Основы бизнес-анализа : учебное пособие / В. И. Бариленко, В. В. Бердников, Р. П. Бульга [и др.] ; под ред. В.И. Бариленко. — М. : КНОРУС, 2016. — 272 с. 2. Паклин Н.Б. Орешков В.И.



Бизнес-аналитика: от данных к знаниям / Н. Б. Паклин, В. И. Орешков. – Путер, 2013. – 706 с. 3. Few, Stephen. Information Dashboard Design: The Effective Visual Communication of Data. Sabastopol, California: O'Reilly Media. 2006. – 206 p. 4. Schwabish, Jonathan A. An Economist's Guide to Visualizing Data // Journal of Economic Perspectives – Volume 28, Number 1 – Winter 2014 – P. 209 – 234. Additional: 5. Tufte, Edward R. Visual Display of Quantitative Information, Second Edition. Cheshire, Connecticut: Graphics Press. 2001. – 191 p. Information resources on the Internet: 6. Газін А. Візуалізація даних як навичка // А. Газін [Електронний ресурс]. – Режим доступу: https://aiukraine.com/wp-content/uploads/2017/10/1_4-Gazin.pdf 7. Офіційний сайт державної служби статистики України [Електронний ресурс]. – Режим доступу: <http://www.ukrstat.gov.ua/> 8. How to design better data visualizations? [Electronic source]. – Access mode: <https://www.creativebloq.com/how-design-better-data-visualisations-8134175>

Assessment system of learning outcomes

Assessment of the formed competencies of students is carried out according to the accumulative 100-point system, control measures include: the current control, carried out during the semester during lectures, laboratory classes, and estimated by the sum of the points scored (the maximum amount is 100 points; the minimum amount that allows the student to get a pass is 60 points); the final / semester control, conducted in the form of a pass, according to the schedule of the educational process. Pass implies the protection of an individual research work (IRW). The IRW covers the program of discipline and involves determining the level of knowledge and the degree of mastery of competences by students.

More detailed information on assessment is given in the technological card of the discipline. <https://pns.hneu.edu.ua/course/view.php?id=4744>

Accumulation of rating points in the discipline

Types of training	Max points
Attending lectures	20
Protection of laboratory works	36
Test tasks	15
Homework	12
Pass (Individual research work)	17
Max points	100

Transference of Simon Kuznets KHNUE Characteristics of Students' Progress into the System of the ECTS Scale

Total score on a 100-point scale	ECTS assessment scale	Assessment on the national scale	
		for exam, differentiated test, course project (work), practice, training	for pass
90 – 100	A	excellent	pass
82 – 89	B	good	
74 – 81	C	satisfactory	
64 – 73	D		
60 – 63	E	unsatisfactory	not pass
35 – 59	FX		
1 – 34	F		

Discipline policies

The policy of the discipline is built taking into account the current legislation of Ukraine and regulations of the University. The teaching of the discipline is based on the principles of academic integrity, which is defined in the Code of Academic Integrity of the Simon Kuznets Kharkiv National University of Economics <https://www.hneu.edu.ua/akademichna-dobrochesnist/>

More detailed information about competencies, learning outcomes, teaching methods, assessment forms, independent training is given in the Syllabus (working plan) of the educational discipline - <https://pns.hneu.edu.ua/course/view.php?id=4744>