Educational Institution
"Belarus State Economic University"

APPROVED BY
Rector of Educational Institution
"Belarus State Economic University"
_____ A.Egorov
19.12 2024 year.
Registration number № 6462-24

INTELLIGENT DATA ANALYSIS IN MARKENTING

The curriculum of the Educational Institution
in the academic discipline for the major
7-06-0412-04 "Marketing"

2024

The curriculum is based on the educational standard for advanced higher education ESHE 7-06-0412-04-2023, and the curriculum for the major 7-06-0412-04 "Marketing"

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RECOMMENDED FOR APPROVAL:

Department of Marketing of the Educational Institution "Belarusian State Economic University"
(protocol No. 4 dated 11.11.2024);

Methodological commission for the specialties "Marketing", "Logistics", "Advertising activities" of the educational institution "Belarusian State Economic university"
(protocol No. 2 dated 29.11.2024);

Scientific and methodological council of the educational institution "Belarusian State Economic University"
(protocol No. ___ dated ___.____.2024).

EXPLANATORY NOTE

The academic discipline "Intelligent data analysis in marketing" is one of the main ones that forms in students the necessary professional knowledge in the field of marketing.

The purpose of teaching the academic discipline "Intelligent data analysis in marketing" is to develop in students a system of knowledge and skills in the field of data mining in marketing.

Achieving this goal involves solving **the following tasks:**

• formation of professional competence in the field of theory and practice of using data mining in marketing;

• implementation of the concept of data mining in marketing in professional activities;

• application of data mining methods to solve marketing problems;

• use of mathematical and data mining software in marketing.

On completion of this course, master's degree students should have the following competencies:

universal:

solve research and innovation tasks based on the use of information and communication technologies;

be able to predict the conditions for the implementation of professional activities and solve professional problems in conditions of uncertainty;

in-depth professional:

perform data analysis for solving economic, managerial, research tasks.

As a result of studying the discipline, master's degree students must:

know:

- the essence and basic concepts of intelligent data analysis in marketing;
- intelligent data analysis methods in marketing;
- tasks of intelligent data analysis in marketing;
- mathematical and intelligent data analysis software in marketing.

be able to:

- use the concept of intelligent data analysis in marketing for specific areas and areas of activity;
- use intelligent data analysis methods in marketing;
- solve problems of intelligent data analysis in marketing;
- apply mathematics and intelligent data analysis software to marketing.

have a skill in:

- creation of effective marketing activities;
- using of intelligent data analysis methods;
- applying of modern information technologies in marketing;
- solving marketing problems based on intelligent data analysis;
- using the tools of mathematical and intelligent data analysis software in marketing.

As part of the educational process in this academic discipline, the master's degree student must acquire not only theoretical and practical knowledge, skills and abilities in the specialty, but also develop his value-personal, spiritual potential, develop the qualities of a patriot and citizen, ready for active participation in economic, industrial, socio-cultural and public life of the country.

The academic discipline "Intelligent data analysis in marketing" belongs to the module "Innovations Marketing" of the national component.

The discipline "Intelligent data analysis in marketing" is studied on the basis of the disciplines "Marketing Research and Analytics", "Integrated Marketing Communications", "Internet Marketing", "Information Technologies".

Form of higher education: full-time.

In accordance with the curriculum of major 7-06-0412-04 "Marketing", the discipline is allocated to:

Full-time education:

total number of teaching hours – 100, in-class hours - 44, of which lectures - 22 hours, laboratory classes - 22 hours.

Distribution of classroom time by courses and semesters:

1st semester – lectures - 22 hours, laboratory classes - 22 hours;

Independent work of master students – 56 hours;

Credits – 3 units.

The form of intermediate certification is a credit in the 1st semester.

CONTENT OF TRAINING MATERIAL

Topic 1. Methodology of intelligent data analysis in marketing

The essence of intelligent data analysis in marketing. Intelligent data analysis concepts. Analysis of data related to the activities of the enterprise. Intelligent analysis of customer-related data. Using intelligent data analysis in marketing management.

Topic 2. Methods and technologies of intelligent data analysis in marketing

Intelligent data analysis methods. Association. Classification. Neural networks. Fuzzy logic. Clustering. Forecasting. Sequential models. Decision trees. Combinations. Processing with filling. The remaining stages of the intelligent data analysis process in marketing. Intelligent data analysis tools. Application support for intelligent data analysis in marketing.

Topic 3: Database intelligent analysis

Information support for making marketing decisions. Databases. Formation of databases. The main stages of database intelligent analysis. Data selection. Cleaning. Enrichment (adding information). Coding. Knowledge discovery and extraction. Message. Marketing activities based on database intelligent analysis (Database marketing).

Topic 4. Mathematical and intelligent data analysis Software for Marketing

The essence of intelligent data analysis software in marketing. Basic software products. Intelligent data analysis. Intelligent data analysis Technologies. Application software. Application of intelligent data analysis to solve marketing problems. Using intelligent data analysis in customer relationship management together with CRM (Customer Relationship Management).

EDUCATIONAL AND METHODOLOGICAL MAP OF THE ACADEMIC DISCIPLINE
"Intelligent data analysis in marketing"
Major 7-06-0412-04 "Marketing"
(full-time receiving advanced higher education)

Section number, topics	Title of section, topic	Number of in-class hours						Literature	Form of knowledge control
		Lectures	Tutorials	Seminars	Laboratory classes	Number of hours of supervised independent work			
						L	T/S		
1	2	3	4	5	6	7	8	9	10
1 semester									
Topic 1	Methodology of intelligent data analysis in marketing	4						[1-13]	
	Methodology of intelligent data analysis in marketing				2			[1-13]	Survey, abstracts on the topic, laboratory work
Topic 2	Methods and technologies of intelligent data analysis in marketing	6						[1-13]	
	Methods and technologies of intelligent data analysis in marketing				6			[1-13]	Individual assignment, laboratory work
Topic 3	Database intelligent analysis	4						[1-4], [5-7], [9]	
	Database intelligent analysis				4			[1-4], [5-7], [9]	Knowledge control, survey, solving practical cases, laboratory work
Topic 4	Mathematical and intelligent data analysis Software for Marketing	8						[1-4], [8-13]	
	Mathematical and intelligent data analysis Software for Marketing				10			[1-4], [8-13]	Survey, solving practical cases, laboratory work
	Total 1 semester	**22**	**0**	**0**	**22**	**0**	**0**		**Credit**
	Total hours	**22**	**0**	**0**	**22**	**0**	**0**		

INFORMATIONAL AND METHODOLOGICAL PART

Literature

Basic:

1. Kotler, F., Keller, K. Marketing management / F. Kotler, K. Keller. - St. Petersburg: Peter, 2018.-848 p.

2. Akulich, I.L. Relationship Marketing / I.L. Akulich. - Minsk: Higher School, 2010. - 256 p.

3. Data Analysis and Information Processing / edited by: Jovan Pehcevski. – Burlington : Arcler Press, 2023. – 420 p. – URL: https://oceanofpdf.com/authors/jovan-pehcevski/pdf-data-analysis-and-information-processing-download/ (date of application: 09.12.2024).

4. King, K. Artificial intelligence in marketing. How to use AI and be one step ahead / K. King ; [translated from English by I.A. Shevkun]. – Moscow : AST, 2024. – 254, [1] p. – (in Russian).

Additional:

5. Akulich, I.L. Basics of marketing / I.L. Akulich. - Minsk: BSEU, 2015. - 538 p.

6. Golik, V.S. Web marketing: an educational complex for the specialty 1-26 81 05 “Marketing” / V.S. Golik. - Minsk: BSU, 2017. - 59 p.

7. Danchenok L. Marketing in social media. Internet marketing communications / L. Danchenok. - St. Petersburg: Peter, 2013 .-- 288 p.

8. Prokhorov, N., Sidorin, D. Reputation management on the Internet / N. Prokhorov, D. Sidorin. - M .: Synergy University Publishing House, 2017. - 160 p.

9. Danchenok, L. Social Media Marketing. Internet marketing communications / L. Danchenok. - SPb: Peter, 2013.-288 p.

10. Golubkov, E.P. Technology management decision making / E.P. Golubkov. - M .: Business and Service, 2005. - 544 p.

11. Larichev, O.I. Theory and methods of decision making. / OI Larichev. - M.: University, book, Logos, 2006. - 392 p.

12. Mkhitaryan, S.V. Industry marketing / S.V. Mkhitaryan. - M.: Eksmo, 2006. - 368 p.

13. Miller, Thomas W. Modeling Techniques in Predictive Analytics with Python and R 6 A Guide to Data Science / THomas W. Miller. – New Jersey : Pearson Education, Inc., 2014. –888 p. – URL: https://oceanofpdf.com/authors/thomas-w-miller-jr/pdf-epub-marketing-data-science-modeling-techniques-in-predictive-analytics-with-r-and-python-ft-press-analytics-download/ (date of application: 09.12.2024).

Questions for the credit

1. The essence of intelligent data analysis (IDA). Data Mining.
2. The essence of the terms "Data", "Information", "Knowledge" and their properties.
3. The concept of "Intelligent data analysis". Business intelligence. Crowdsourcing.
4. Differences between OLAP (On-line analytical processing) and intelligent data analysis.
5. Areas of application of IDA in the field of marketing (examples).
6. Intelligent data analysis tasks (classification, clustering, association, sequence, prediction, etc.)
7. Methods for solving intelligent data analysis problems.
8. The essence of the marketing information system (MIS) and its components.
9. IDA in the concept of customer relationship management (CRM).
10. Customer segmentation.
11. Using IDA for: target audience analysis; definitions the most profitable types of clients; priority marketing channels; interaction with dealers; formation of an effective system of discounts and special offers.
12. Conferences, Internet resources and periodicals in the field of IDA.
13. Stages of the IDA process (free search (including validation); predictive modeling; exception analysis).
14. Process of data excavation.
15. Five stages of data preparation.
16. Using databases in marketing. Examples of intelligent database analysis.
17. Marketing automation.
18. Using IDA to analyze social network profiles.
19. Solving marketing problems using software in the field of IDA.
20. Artificial intelligence and IDA.

Organization of independent work of master's degree students

To obtain competencies in an academic discipline, an important stage is the independent work of master's degree students.

A full-time master's degree student is given 56 hours for independent work.

The content of master's degree students' independent work includes all topics of the academic discipline from the "Content of educational material" section.

When studying an academic discipline, the following forms of independent work are used:

- independent work in the form of solving individual problems in the classroom during practical classes under the supervision of a teacher in accordance with the training schedule;
- in-depth study of sections, topics, individual issues, concepts;
- performing standard calculations, individual projects;
- preparation for practical classes, including preparation of messages, thematic reports, information and demonstration materials, presentations, etc.;
- work with educational, reference, analytical and other literature and materials;
- compiling a review of scientific (scientific and technical) literature on a given topic;
- performing information searches and compiling a thematic selection of literary sources and Internet sources;
- analytical text processing (annotating, summarizing, reviewing, summarizing);
- preparation for passing the credit.

Quality control of knowledge acquisition

Diagnosis of the quality of knowledge acquisition is carried out within the framework of ongoing monitoring and intermediate certification. Current control activities are carried out throughout the semester and include the following forms of control:

survey in classroom sessions;
abstracts on the topic;
individual assignment;
laboratory work;
knowledge control;
solving practical cases.

Current certification in the academic discipline is carried out at least three times a semester. The result of ongoing monitoring for the semester is assessed by a mark on a ten-point scale and is derived based on the marks given during the ongoing monitoring activities during the semester.

Requirements for master's degree students when passing intermediate certification.

Master's degree students are admitted to intermediate certification in an academic discipline, subject to successful completion of the current certification (implementation of ongoing control measures) in the academic discipline provided for in the current semester by this curriculum.

Interim certification is carried out in the form of a credit.

Methodology for forming a grade in an academic discipline

In accordance with the Regulations on the rating system for assessing the knowledge, skills and abilities of BSEU Master's degree students.

THE PROTOCOL OF COORDINATION OF THE CURRICULUM FOR THE STUDIED ACADEMIC DISCIPLINE WITH OTHER DISCIPLINES OF THE MAJOR

The name of the school disciplines with which approval required	Title of the department	suggestions about changes in curriculum content institutions of higher academic education	The decision taken by the department that developed the curriculum (with the date and protocol number)
E-commerce	Department of Marketing	No suggestions	Protocol № ____ from _____, 2024