Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
NAMED AFTER PATRICE LUMUMBA
RUDN University

Higher School of Management

educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

Business Intelligence and Data Analysis

(course title)

Recommended by the Didactic Council for the Education Field of:

43.04.02 Tourism

field of study / speciality code and title

The course instruction is implemented within the professional education programme of higher education:

Business Processes in Tourism and Hospitality

higher education programme profile/specialisation title

2024

1. COURSE GOAL

The purpose of mastering the Business Intelligence and Data Analysis course is to form a set of knowledge and practical foundations of business data analysis and the use of business intelligence software, skills in interpreting the analysis results obtained, business components for making management decisions based on them.

2. REQUIREMENTS FOR COURSE OUTCOMES

Mastering the Business Intelligence and Data Analysis course is designed for students to acquire the following competencies (parts of competencies):

Table 2.1. List of competences that students acquire when mastering the course

Competence Code	Competence Descriptor	Competence Formation Indicators (within this course)
GC-1.	Able to search, critically analyze problem situations based on a systematic approach, and develop an action strategy.	GC-1.1. Able to analyze the task highlighting its basic components. GC-1.2. Able to determine and prioritize the information required to solve the task. GC-1.3. Able to search for information to solve a given problem using various types of requests. GC-1.4. Able to offer options for solving a problem, analyze the possible consequences of their use. GC-1.5. Able to analyze the ways to solve worldview, moral and personal problems based on the use of basic philosophical ideas and categories in their historical development and socio-cultural context.
GC-7.	Able to: search for the necessary sources of information and data, perceive, analyze, remember and transmit information using digital means, as well as using algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data	GC-7.1. Able to search for necessary sources of information and data, perceive, analyze, remember and transmit information using digital means, as well as using algorithms when working with data obtained from various data sources in order to effectively use the obtained information for solving problems. GC-7.2. Able to evaluate information, its reliability, build logical conclusions based on incoming information and data.
GPC-2.	Able to carry out strategic management of tourism activities at various management levels.	GPC-2.2. Able to use basic methods and techniques of analysis, modelling and strategic planning of tourism activities at various management levels.

Competence Code	Competence Descriptor	Competence Formation Indicators (within this course)
GPC-6.	Able to plan and apply approaches, methods and technologies of applied scientific research in the chosen field of professional activity.	GPC-6.1. Able to plan applied scientific research in the field of professional activity. GPC-6.2. Able to apply approaches, methods and technologies of applied scientific research in the field of professional activity. GPC-6.3. Able to present the results of applied scientific research in the field of professional activity in the form of scientific articles and reports at scientific conferences.
PC-1.	Able to carry out strategic planning of activities in tourism at various levels, organizing and supervising them.	PC-1.1. Able to conduct strategic analysis, identify success factors, economically substantiate corporate and functional strategies for the development of tourism enterprises.

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The Business Intelligence and Data Analysis course refers to the variable component of the B1 block of the higher educational programme curriculum.

Within the higher education programme students also master other disciplines (modules) and / or internships that contribute to the achievement of the expected learning outcomes for the Business Intelligence and Data Analysis course.

Table 3.1. The list of the higher education programme components that contribute to the achievement of the expected learning outcomes for the course.

Competence Code	Competence Descriptor	Preceding Disciplines/Modules, practices*	Subsequent Disciplines/Modules, Practices*
GC-1.	Able to search, critically analyze problem situations based on a systematic approach, and develop an action strategy.	• Strategic Management and Management by Objectives in Professional Sphere	• Research and Development • Preparing for defence and defending a graduation thesis
GC-7.	Able to: search for the necessary sources of information and data, perceive, analyze, remember and transmit information using digital means, as well as using algorithms when working with data received from various sources in order to effectively use the	• Information Databases	• Pre-Graduation Internship • Research and Development • Preparing for defence and defending a graduation thesis

Compe tence Code	Competence Descriptor	Preceding Disciplines/Modules, practices*	Subsequent Disciplines/Modules, Practices*
	information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data		
GPC-2.	Able to carry out strategic management of tourism activities at various management levels.	• Organizing Project Activities in Tourism • Strategic Management and Management by Objectives in Professional Sphere	• Pre-Graduation Internship • Research and Development • Preparing for defence and defending a graduation thesis
GPC-6.	Able to plan and apply approaches, methods and technologies of applied scientific research in the chosen field of professional activity.	-	• Pre-Graduation Internship • Research and Development • Preparing for defence and defending a graduation thesis
PC-1.	Able to carry out strategic planning of activities in tourism at various levels, organizing and supervising them.	• Tourist Market Economics • Strategic Management and Management by Objectives in Professional Sphere • Hospitality Industry Economy • Investment Design and Business Assessment	• Research and Development • Preparing for defence and defending a graduation thesis

* -To be filled in according with the competence matrix of the higher education programme

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the Business Intelligence and Data Analysis course is 2 credits.

Table 4.1. Types of academic activities during the period of mastering the HE programme

Type of Academic Activities		TOTAL, academic hours	Semester 3
Контактная работа, ак.ч.		**34**	**34**
including:			
Lectures		17	17
Lab work		-	-
Seminars		17	17
Self-study, academic hours		29	29
Evaluation and assessment (graded pass/fail), academic hours		9	9
Course workload	ac. hrs.	72	72

Type of Academic Activities		TOTAL, academic hours	Semester
			3
	credits	2	2

5. COURSE MODULE CONTENTS

Table 5.1. Course Module Contents

Module Title	Course Module Contents	Learning Activities*
1. Business Intelligence Basics	Topic 1.1. The importance and role of business intelligence in modern business. The possibilities of modern business intelligence. Data visualization. Automated data analysis. Forecasting and predictive analytics. Working with big data. Data integration. End-to-end analytics. Dashboards. Topic 1.2. Components and procedure of business intelligence. Data collection and processing. Data analysis. Visualization of the results. Decision-making and optimization of business processes. Topic 1.3. The algorithm of working with business intelligence. Goals and objectives of the analysis. Data sources used for analysis. Tools and software for data collection, storage and analysis. Interpretation of data (trends, patterns). Indicators tracked using business intelligence. Topic 1.4. Business intelligence systems. Decision-Support Systems (DSS). Microsoft Power BI; Qlik Sense; Seeneco; PlanFact; Luxms BI; Almaz BI; Oracle Analytics; PolyAnalyst; Analytical Workspace; Foresight. Analytical platform; Biplan 24; Visiology; SAS Visual Analytics, etc.	Lecture, Seminar
2. Data Analysis	Topic 2.1. Introduction to data analysis. An overview of data analysis methods. Overview of statistical packages. Data sources. Input, editing, modification, export/import of data and results. Topic 2.2. Descriptive data analysis. Frequency analysis. Graphical analysis. Descriptive statistics. Estimation of the distribution of variable values. The main types of scales and their	Lecture, Seminar

Module Title	Course Module Contents	Learning Activities*
	corresponding measures of average tendency and measures of dispersion. Normal distribution, Z-standardization, Kolmogorov-Smirnov test. The study of the relationships between variables. The conjugacy table. Formulation of hypotheses. The stages of hypothesis testing. The level of significance and error of the first kind. Chi-squared test. Construction of a scattering diagram. Paired correlation coefficients (Pearson, Kendall, Spearman). Partial correlations. Comparison of averages (t-test for independent and dependent samples, one-factor analysis of variance). Topic 2.3. Linear regression. Regression analysis tasks. Multiple linear regression. Assessment of the quality of the model. Analysis of residues. Multicollinearity. Heteroscedasticity. Dummy variables. Diagnostics of the regression model. Topic 2.4. Factor analysis. The procedure for performing factor analysis. Assessment of the suitability of the source data for factor analysis. The method of the main components. Factor loads. Saving factors as new variables in a data file. Interpretation of the values of the factors. Topic 2.5. Cluster analysis. Hierarchical cluster analysis. K-means cluster analysis. Meaningful characteristics of clusters	

* - To be filled in only for **FULL-TIME** mode of study: *Lecture, Lab Work, Seminar.*

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom Equipment and Technology Support Requirements

Classroom for Academic Activity Type	Classroom Equipment	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
Lecture	Classroom equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection	Microsoft Garant Consultant Plus

Classroom for Academic Activity Type	Classroom Equipment	Specialized educational / laboratory equipment, software and materials for mastering the discipline (if necessary)
	screen, stable wireless Internet connection.	Windows 7 KMS Corp (OS, Windows), MSOffice Professional Plus (office applications, MSOffice)
Seminar	Classroom equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, stable wireless Internet connection.	Microsoft Garant Consultant Plus Windows 7 KMS Corp (OS, Windows), MSOffice Professional Plus (office applications, MSOffice)
Self-Studies	Classroom equipped with a set of specialized furniture; PCs with access to electronic information and educational environment.	Microsoft Garant Consultant Plus Windows 7 KMS Corp (OS, Windows), MSOffice Professional Plus (office applications, MSOffice)

7. RESOURCES RECOMMENDED FOR THE COURSE STUDY

Main Readings:

1. Fischer, M., Foord, D., Frecè, J., et al. Sustainable Business. Managing the Challenges of the 21st Century. NYC: Springer Nature, 2023. URL https://library.oapen.org/bitstream/20.500.12657/63559/1/978-3-031-25397-3.pdf

2. Marinova, S., Marinov, M. Reconfiguration of Business Models and Ecosystems. Oxfordshire: Taylor & Francis, 2023. URL https://directory.doabooks.org/handle/20.500.12854/99497

3. Amorim, M. (ed.), Cohen, Y. (ed.), Reis, J. (ed.). Smart Services: Artificial Intelligence in Service Systems. Basel: MDPI, 2023. URL https://mdpi.com/books/pdfview/book/7535/

Additional Readings:

4.   Fet, A. (ed.). Business Transitions: A Path to Sustainability. NYC: Springer Nature, 2023. URL https://library.oapen.org/bitstream/20.500.12657/61866/1/978-3-031-22245-0.pdf

5.   Noviaristanti, S. Contemporary Research on Management and Business. Oxfordshire: Taylor   &   Francis,   2023.   URL https://library.oapen.org/bitstream/20.500.12657/57755/1/9781000777840.pdf

Internet sources:

1.   Electronic libraries (EL) of RUDN University and other institutions, to which university students have access based on concluded agreements:
- RUDN University Electronic Library System (RUDN University ELS)
http://lib.rudn.ru/MegaPro/Web
- ELS "University Library Online" http://www.biblioclub.ru
- ELS "Urait" http://www.biblio-online.ru
- ELS "Student Consultant" www.studentlibrary.ru
- ELS "Lan" http://e.lanbook.com/
- ELS "Troitsky Bridge"

Databases and search engines:
- electronic fund of legal and normative-technical documentation http://docs.cntd.ru/
- Yandex search engine https:// www.yandex.ru/
- Google search engine https://www.google.ru/
- SCOPUS abstract database http:// www.elsevierscience.ru/products/scopus/

Educational and methodological materials for student self-studies when mastering the course/module*:

1.   Lecture course on Business Intelligence and Data Analysis.
2.   Methodological guidelines for students' self-studies when mastering the course.
3.   Methodological recommendations for ensuring accessibility of the programme for students with limited health capacities.

* - The methodological materials and guidelines for the self-studies are placed on the course page in the university telecommunication training and information system under the set procedure.

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL UPON COURSE COMPLETION

The assessment toolkit and the grading system for assessing the level of competence (part of competences) formation based on the results of mastering the Business Intelligence and Data Analysis course are presented in the Appendix to this Course Syllabus.

* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

DEVELOPERS:

Professor, Doctor habil. in Economics		**E.S. Bogomolova**
Position, Educational Department	Signature	Name

Position, Educational Department	Signature	Name

Position, Educational Department	Signature	Name

HEAD OF EDUCATIONAL DEPARTMENT:

Deputy Director for Education		**S.Yu. Murtuzalieva**
Educational Department	Signature	Name

HEAD OF HIGHER EDUCATION PROGRAMME:

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