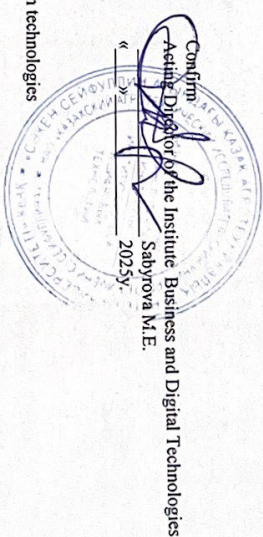


CATALOG OF ELECTIVE DISCIPLINES

For students in the direction of preparation 8D061 Information and communication technologies

Brief description of the elective disciplines of the educational program

EPG	EP	Form of education	The name of discipline	Code of subject	Discipline cycle	Component	Number of credits	Level of training	EPG	Course	Academic period	Pre-requisitions	Post-requisitions	Brief content of the discipline	Key learning outcomes	Name of the alternative discipline
D094 - «Information technology»	8D06101 - «Big Data Analytics»	Full-time (PhD 3 years) semester	Corporate knowledge management technologies	TUKZ 7303	AS	Elective subjects	5.0	Doctoral studies by specialization on (scientific & pedagogical direction)	Informati	1	1	Methods of scientific researches	Computer and mathematical modeling in scientific research	A knowledge-based economy. Intellectual capital of the company. Knowledge as an object of management in organizations. Knowledge management as a management function. Information technologies of knowledge management. Communication and marketing technologies in knowledge management. Methods of knowledge extraction and structuring. Knowledge representation models. Expert systems and knowledge bases. Information systems that ensure the transfer of knowledge into a manageable form in the enterprise. Modern concepts of knowledge management. technologies development at enterprises.	A knowledge-based economy. Intellectual capital of the company. Knowledge as an object of management in organizations. Knowledge management as a management function. Information technologies of knowledge management. Communication and marketing technologies in knowledge management. Methods of knowledge extraction and structuring. Knowledge representation models. Expert systems and knowledge bases. Information systems that ensure the transfer of knowledge into a manageable form in the enterprise. Modern concepts of knowledge management technologies development at enterprises.	Applied statistical knowledge analysis
D094 - «Information technology»	8D06101 - «Big Data Analytics»	Full-time (PhD 3 years) semester	Applied statistical analysis	PSA 7307	AS	Elective subjects	3.0	Doctoral studies by specialization on (scientific & pedagogical direction)	Informati	1	1	Methods of scientific researches	Intelligent data analysis in information systems	To provide doctoral students with knowledge about the diversity of modern statistical research approaches, to explore modern statistical methods, to install a critical approach in the selection of analysis tools and awareness of the need for thorough testing of the statistical adequacy of the models obtained, as well as to develop skills in meaningful interpretation of the results.	Apply methods of descriptive, spatial, and statistical analysis, implement ETL processes, OLAP analysis, and solve applied problems based on the use of artificial neural networks.	Corporate knowledge management technologies



D094 - «Information technology»	8D06101 - «Big Data Analytics»	Full-time (PhD 3 years) semester	Intelligent data analysis in information systems	IADIS 7206	BS	Elective subjects	5 0	Doctoral studies (scientific & pedagogical direction)	Information systems	1	2	Corporate knowledge management technologies	Intelligent data analysis in information systems Research practice	Formation of the skills of doctoral students working with modern tools for analyzing and visualizing data, methods and algorithms of data mining, as well as their use in scientific research and professional activities	To apply Big data-based analytics toolkits and enterprise decision support. To use in practice the various distributions of the Hadoop platform, «openresources» and commercial tools, etc., used for storing, processing and analyzing big data. To apply tools for constructing information and analytical systems	Predictive analytics in scientific research
D094 - «Information technology»	8D06101 - «Big Data Analytics»	Full-time (PhD 3 years) semester	Predictive analytics in scientific research	PANI 7215	BS	Elective subjects	5 0	Doctoral studies (scientific & pedagogical direction)	Information systems	1	2	Applied statistical analysis	Computer and mathematical modeling in scientific research practice	The issues of approaches to the development of predictive models, analysis of initial data to identify deterministic patterns of interrelation of variables of the modeling object, in particular, involving information on the fractal dimension of series, correlation analysis and calculation of dynamic process models in the form of difference equations, are considered. Doctoral students will learn how to identify the most effective research methods and predict the results of experiments even before they begin.	Analyze large information flows of internet space data based on various technologies, solve applied problems based on the analysis of information with a large amount of data to structure this information into a single, understandable and formalized mathematical model.	Intelligent data analysis in information systems

The catalog of elective disciplines was reviewed and approved by the Institute council, protocol № 1 - 02 - 09 2025y.

Head of EPG of Information Systems _____ A.G. Shaushenova