

«Mukhametzhan Tynyshbayev ALT University» JSC



I APPROVE

Chairman of the «ALT University» JSC

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Decision of the Academic Council of  
«ALT University» JSC

from 30 05 2025 year (Protocol № 10)

PROGRAM  
THE ENTRANCE EXAM TO THE DOCTORAL PROGRAM

Group of educational programs  
«D147 Transportation services»

Almaty, 2025

The program of the entrance exam was discussed and received a positive decision at the meeting of the Department of Transport Services and Business, Protocol No. 9 on April 21, 2025.

**Head of the Department of «Department of  
Transport Services and Business»**



**R.D. Mussaliyeva**

The program of the entrance exam was reviewed and recommended at the meeting of the Council of the Institute of Logistics and Business, protocol No. No.5 dated April 29, 2025.

**Chairman of the SI "Logistics and  
Business"**



**G.S. Musaeva**

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## 1. The purpose of the entrance exam for a group of educational programs

The purpose of the entrance examination for the groups of educational programs is to determine the theoretical and practical readiness of the applicant for doctoral studies, as well as the level of knowledge, skills, and competencies in accordance with the requirements of doctoral training in the relevant field of study.

The doctoral entrance examination consists of writing an essay and passing an exam in the profile of the educational program group.

## 2. Regulations for conducting the entrance exam for doctoral studies in a group of educational programs

The duration of the entrance examination is 3 hours and 30 minutes, during which the applicant writes an essay and answers an electronic exam ticket consisting of 3 questions. The list of questions and the essay topic are generated randomly. The maximum score for the entrance examination is 100 points, distributed as follows: essay writing – 20 points, exam on the educational program profile – 50 points, and interview – 30 points.

## 3. Types and evaluation criteria

### 3.1 Types and criteria of essay evaluation

Types of essays	Description	The volume of the essay
Motivational	The applicant's argumentation about the motivations for research activities (research statement)	At least 250 words
Scientific and analytical	Substantiation by applicants of the relevance and methodology of the proposed research (research proposal)	
Problem-themed	Presentation of the author's position on relevant aspects of subject knowledge	

Criteria	Descriptors	Scores
Depth of topic disclosure	The problem is disclosed on a theoretical level, with the correct use of scientific terms and concepts, using information from various sources.	4
	his own point of view (position, attitude) is presented when solving the problem.	4
Argumentation, evidence base	the presence of arguments, the identification of cause-effect relationships, the ability to reason from the particular to the general, from the general to the particular.	4
Compositional integrity and logic of presentation	The presence of compositional integrity, the logical connection of the structural components of the essay, the presence of conclusions and generalizations	4
Speech culture	demonstration of an advanced level of academic writing (vocabulary, knowledge of scientific terminology, grammar, stylistics)	4

### 3.2 Criteria for evaluating the answers to the questions of the electronic examination card

The exam in the profile of the group of educational programs includes 3 blocks of questions, of which: the 1st question determines the level and consistency of theoretical knowledge; the 2nd question reveals the degree of formation of functional competencies; the 3rd question is aimed at determining systemic competencies. The maximum number of points is 50. The electronic exam ticket consists of 3 questions:

Blocks	The nature of the question	Number of points
1st question	theoretical -determines the level and consistency of theoretical knowledge	10
2nd question	practical - reveals the degree of formation of functional competencies (the ability to apply techniques, technologies and techniques in the subject area)	20
The 3rd question	it reveals a systematic understanding of the subject area under study, specialized knowledge in the field of research methodology (system competencies)	20
TOTAL		50

Criteria for evaluating the answers to the questions of the electronic examination card:

Question	Evaluation criteria	Number of points
1st question	demonstrates knowledge of the main processes of the subject area under study; the depth and completeness of the disclosure of the issue	5
	logically and consistently expresses his own opinion on the issue under discussion	3
	knows the conceptual and categorical apparatus, scientific terminology	2
TOTAL		10
2nd question	applies methods, techniques, and technologies to solve problems in the subject area	7
	argues, compares, classifies phenomena, events, processes; draws conclusions and generalizations based on practical skills	7
	analyzes information from various sources	6
TOTAL		20
The 3rd question	critically analyzes and evaluates theoretical and practical developments, scientific concepts and current trends in the development of science	7
	synthesizes methodological approaches in the interpretation of the main problems of subject knowledge	7
	identifies cause-and-effect relationships in the analysis of processes, phenomena, events	6
TOTAL		20
In total		50 points

### 3.3 Interview evaluation criteria

<b>№</b>	<b>Criteria</b>	<b>Descriptors</b>	<b>Points</b>
<b>1.</b>	<b>Motivation</b>	Argumentation of motives for studying for a doctoral degree in a selected OP and admission to a certain university. Vision of prospects for professional and personal growth upon completion of training.	5
<b>2</b>	<b>Research competence</b>	Possession of research skills and experience necessary for research activities in a specific subject area.	10
<b>3.</b>	<b>Creativity</b>	Non-standard thinking, creative and alternative approaches to solving problems, situational tasks.	10
<b>4.</b>	<b>Communicativeness</b>	The ability to briefly, representatively, logically, argumentatively state your point of view, make generalizations and conclusions. Language proficiency.	5
<b>Maximum number of points</b>			<b>30</b>

## 4. Content of examination materials

### 4.1 Content of the Essay topic

<b>№</b>	<b>The topic of the essay</b>
1	Ensuring the safety of transport infrastructure facilities, organizational and technical approaches
2	Environmental problems of transport services development
3	Methods of forecasting and strategic planning of freight and passenger transportation
4	Technologies of simulation modeling of railway stations and junctions
5	Intelligent transport systems in the road complex
6	The concept of sustainable development of the transport sector
7	Intelligent automated traffic planning systems
8	Socio-economic prerequisites and results of the construction of high-speed railways
9	Application of simulation modeling to increase the capacity of railway sections
10	Simulation of passenger traffic on railway transport
11	The impact of digitalization on the organization and management of modern transport systems
12	Developing Sustainable Logistics Chains: New Approaches to Organizing Transportation in the Context of Globalization.
13	Transport infrastructure of Kazakhstan: current situation and development prospects
14	Application of Artificial Intelligence and Big Data in Freight Route Management
15	Environmental aspects and organization of "green" transportation: trends and implementation prospects.
16	Container transportation in the transport and logistics market of Kazakhstan

17	Interaction of different modes of transport in multimodal transportation: challenges and opportunities.
18	Risk management methodologies in transport systems: from theory to practice
19	The role of government regulation in ensuring the safety and efficiency of transport.
20	Transformation of organizational structures of transport companies in the era of the digital economy

#### **4.2 The content of the sections on the blocks submitted for the entrance exam**

Examination materials for the entrance exams to the doctoral program for groups of educational programs, including the subject of essays, examination questions on the profile are made in three languages: Kazakh, Russian and English.

The topics of the examination questions correspond to selected sections from the study programs of the cycles provided for in the group of the Educational program "D148-Logistics (by industry)":

No	Name of disciplines
1	Methods of scientific research
2	Scientific research of the transportation process
3	Improvement of cargo and commercial work

#### **4.3 The content of the sections on the blocks submitted for the entrance exam**

##### **Block 1**

##### **1.1 Systematic Nature of Theoretical Knowledge in Logistics**

Introduction, history of development, the concept of logistics as a system. Approaches to problem-solving based on comprehensive analysis of the entire supply chain. Key components of a logistics system. Goals and objectives of logistics systems. Application of mathematical models, control theory, and optimization theory for the analysis and improvement of logistics processes.

##### **1.2 Approaches to the Formation of Logistics Management Structures**

Transport logistics management, including planning, organizing, and controlling freight transportation to ensure timely and cost-effective delivery. International logistics operations and the adaptation of standard methods considering the specifics of different countries, legal regulations, currency risks, and cultural differences. Formation of logistics management structures through the selection of an organizational model that best fits the company's goals and market characteristics.

##### **Block 2**

##### **2.1 Methods and Models of Practical Implementation of Logistics (by Industry)**

Introduction to mathematical modeling of transport flows. Efficiency of transport support within logistics chains. Integrated technologies for planning, forecasting, and inventory replenishment in supply chains. The "bullwhip effect" in supply chains and the issue of system stability. A model for servicing material flows involving distribution centers.

##### **2.2 Integrated Planning of Supply Chains**

A logistics-based approach to the organizational and economic design of supply chain links. Project management. Forwarding operations of road transport companies. Risk management systems in transport enterprises.

##### **Block 3**

##### **3.1 Research Methodology and Comprehensive Work Planning in Logistics**

Comprehensive study of the nature and factors determining the unity of the transport system. Principles of modeling the operation of transport and logistics complexes. Interaction processes within transport hubs. Key performance indicators of transport hub functionality. Comprehensive assessment of the national transport services market.

### **3.2 Development of the Transit Potential of the Republic of Kazakhstan in the Field of Transcontinental Transportation**

Globalization of international economic relations on the Eurasian continent. Causes and justification for the emergence of new global transit corridors. Development of the transit and transport potential of the Republic of Kazakhstan. Modeling interactions within logistics processes. International requirements for freight forwarding services in international transportation.

#### **4.4 Interview questions**

1. Main directions of the selected research activity
2. Justify the choice of the chosen topic and object of your future research. How relevant is it to conduct research in this area
3. Modern trends in the development of railway transport
4. Innovative technologies in transport services
5. Transport safety
6. International transport corridors and their importance
7. Evaluation of the efficiency of transport processes
8. Requirements for the organization of passenger transportation
9. Logistics and transport corridors in the railway system
10. Organization of freight rail transportation
11. International standards and integration of railways
12. Planning and dispatching of train traffic
13. Impact of environmental aspects on the organization of transportation
14. Artificial intelligence in the organization of transportation operations
15. Quality management of transport services
16. Fundamentals of transport infrastructure and its development
17. Risk management in the railway industry
18. Digitalization of booking and ticket sales processes
19. Transportation using intermodal and combined technologies
20. Prospects for the development of high-speed and mainline freight traffic

#### **5. Recommended literature**

##### **5.1 Basic literature**

1. Методология исследований и развития технологий эксплуатации автомобильного транспорта: учеб. пособие /С.М. Мороз, А.Н. Ременцов. – М.: МАДИ, 2013. - 216 с.
2. Комкин А.С., Лопарев А.А. История и методология транспортной науки: Учебно-методическое пособие для обучающихся на инженерном факультете по направлениям подготовки 23.04.03 – Эксплуатация транспортно-технологических машин и комплексов и 35.04.06 – Агроинженерия. – Киров: Вятская ГСХА, 2018. – 73 с
3. Транспортная логистика (II часть): // ЕНУ им. Л.Н. Гумилева / Т.Б. Сулейменов, М.И. Арпабеков - Астана, 2012 - 211 с
4. Организация транспортных услуг и безопасность транспортного процесса: учебное пособие для студентов вузов, обучающихся по направлению подготовки бакалавров «Технология транспортных процессов» / Н. В. Пеньшин. – Тамбов : Изд-во ФГБОУ ВПО «ТГТУ», 2014. – 476 с.

5. Управление грузовой и коммерческой работой на железнодорожном транспорте : учебно-метод. пособие / О. В. Молчанова, И. С. Плахотич. – Екатеринбург: УрГУПС, 2019. – 183 с.
6. Транспортная логистика (I часть): Учебник.// ЕНУ им. Л.Н. Гумилева / Т.Б. Сулейменов, М.И. Арпабеков - Астана, 2012, - 211 с.
7. Теория транспортных процессов и систем: учебник для академического бакалавриата / А. Э. Горев. — 2-е изд., испр. и доп. — М.: Издательство Юрайт, 2017. — 217 с
8. Витвицкий Е.Е. Теория транспортных процессов и систем (Грузовые автомобильные перевозки): учеб. пособие: Омск: СибАДИ, 2010. - 207 с.
9. Общий технико-экономический курс железных дорог: Учебник/ Под ред. Д. А. Мачерета – М.: РУТ (МИИТ), 2017. – 364 с
10. Экономика на автомобильном транспорте: учеб. пособие / Н.В. Напхоненко; Южно-Российский государственный политехнический университет (НПИ) имени М.И. Платова. – Новочеркасск: ЮРГПУ (НПИ), 2015. – 169 с.
11. Терёшина Н.П., Подсорин В.А., Данилина М.Г. Экономика железнодорожного транспорта: Учебное пособие – М.: МГУПС (МИИТ), 2017. – 262 с.
12. Транспортное планирование: формирование эффективных транспортных систем крупных городов: монография / Ю.В. Трофименко, М.Р. Якимов. – М.: Логос, 2013. – 464 с.

## 5.2 Additional literature

1. Неруш Ю.М. Логистика: теория и практика проектирования: Учебник и практикум. / Ю.М. Неруш, С.А. Панов, А.Ю. Неруш. - М.: Юрайт, 2019. - 422 с.
2. Степанов В.И. Логистика: учебник / В.И. Степанов. - М.: Проспект, 2016. - 488 с.
3. А.М. Гаджинский Логистика. М.: Издательско-торговая корпорация «Дашков и К» - 2016. -308 с.
4. Милославская С.В. Транспортные системы и технологии перевозок: учебное пособие / С.В. Милославская, Ю.А. Почаев. - М.: ИНФРА-М, 2017. - 116 с.
5. Троицкая Н.А. Транспортно-технологические схемы перевозок отдельных видов грузов: учебное пособие / Н.А. Троицкая, М.В. Шилимов. - М.: КНОРУС, 2016. - 232 с.