APPROVED
at the meeting of the Academic Council of NJSC Al-Farabi Kazakh National University
Protocol №14 dated 16.06.2026

The program of the entrance exam for applicants to the PhD for the group of educational programs
D070 – ECONOMICS

I. General provisions

1. The program was drawn up in accordance with the Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 600 «On Approval of the Model Rules for Admission to Education in Educational Organizations Implementing Educational Programs of Higher and Postgraduate Education» (hereinafter referred to as the Model Rules).

2. The entrance exam for doctoral studies consists of writing an essay, an exam in the profile of a group of educational programs and an interview.

Block	Marks
1. Interview	30
2. Essay	20
3. Exam according to the profile of the group of the educational program	50
Total admission score	100/75

3.The duration of the entrance exam is 3 hours 10 minutes, during which the applicant writes an essay and answers the electronic examination ticket. The interview is conducted at the university premises before the entrance exam.

II. Procedure for Conducting the Entrance Examination

1. Applicants to the doctoral program in the group of educational programs "**D070 Economics**" are required to write a problem-oriented/thematic essay. The essay must contain at least 250 words.

   The purpose of the essay is to assess the applicants' analytical and creative abilities, demonstrated through their capacity to develop their own arguments based on theoretical knowledge, as well as social and personal experience.

   Types of essays:

- Motivational essay – revealing the applicant's motivations and aspirations for engaging in research activities;
- Scientific and analytical essay – substantiating the relevance and methodology of the proposed research;

- Problem-oriented/thematic essay – reflecting various aspects of scientific knowledge within the relevant subject area.

2. The electronic examination ticket consists of three questions.

Topics for preparation for the examination according to the profile of the educational program group:

Discipline: Microeconomics (Advanced Level)

Topic 1. Consumer Behavior. Substitution Effect and Income Effect According to Hicks and Slutsky

Subtopics: The substitution effect and income effect according to Slutsky and Hicks. Cross substitution and income effects. The Slutsky equation for direct and cross effects.

Topic 2. Consumer Welfare. Compensating and Equivalent Variation of Income

Subtopics: Compensated demand: definition, economic meaning, and areas of application. Marshallian and Hicksian market demand and the economic significance of their differences. Equivalent and compensating variations in income.

Topic 3. Theory of Revealed Preferences. Market Demand

Subtopics: The concept of "revealed preferences." The Weak Axiom of Revealed Preference (WARP): economic meaning and cases of its violation. Price and quantity indices (Paasche index, Laspeyres index, and consumer expenditure index) and their relationship with the theory of revealed preferences. Application of revealed preference theory for evaluating living standards and government social programs.

Topic 4. Production Functions and Technological Progress

Subtopics: Axioms of the production function. The relationship between changes in total, average, and marginal product of one and two factors of production. Main types of production functions: Cobb–Douglas, Leontief, linear, and Constant Elasticity of Substitution (CES) functions. Firm equilibrium as a problem of profit maximization and cost minimization. Comparative statics of the firm. Firm supply function. Cost function. Short-run and long-run growth paths of the firm. Optimal expansion path of production. Types of technological progress: neutral, capital-intensive, and labor-intensive. Relationship between costs and factor productivity.

Topic 5. Market Interaction under Imperfect Competition

Subtopics: Perfect competition. Profit-maximization conditions for a firm and the entire market in the short run and the long run. The role of economies of scale in determining the number of firms operating in an industry. Monopoly. Taxation of a monopolist: different approaches. Social losses caused by monopoly. Problems of natural monopoly. Multi-product and multi-plant monopolies: determining the optimal number of plants and products in the production of substitute and complementary goods. Price discrimination. Monopolistic competition. Conditions for long-run equilibrium of firms and industries.

Topic 6. Strategic Behavior of Firms in the Market

Subtopics: Oligopoly: analytical models. Quantity competition and price competition. Cournot model. Bertrand model with a homogeneous product. Cartels and problems of their long-term stability. Oligopoly and game theory. Key concepts: game strategies, dominant strategies, Nash equilibrium, pure and mixed strategies. Application of game situations to the analysis and solution of practical problems. Pricing strategies. Threat of entry of a new firm into the market. Price war strategies. Games and external effects. Insurance games.

Topic 7. General Economic Equilibrium and Social Welfare

Subtopics: Conditions for the existence, uniqueness, and stability of competitive equilibrium. Welfare theorems. Walras' law. General consumer equilibrium in an exchange economy. Derivation of the contract curve. Equilibrium under monopoly conditions. General producer equilibrium in an economy with two factors of production and two goods. Efficiency and equity. Application of welfare theory to income taxation. Evaluation of social equality. Income distribution curve. Lorenz curve. Gini coefficient. The role of government in addressing social equality issues. Social choice theory.

Topic 8. Microeconomics of International Trade

Subtopics: International division of labor. Ricardian model. Constant, decreasing, and increasing labor productivity. Heckscher–Ohlin model. The role of specialization under identical technologies. Construction of the trade curve. The impact of import tariffs on social welfare in small and large countries. Partial and general equilibrium analysis of the consequences of a country joining a customs union. Price formation in the foreign exchange market.

3. List of Reference

Main References

1. Yukish, V. F. (2018). *Microeconomics (Advanced Level): Study Guide*. Moscow: MADI. 216 p.
2. Varian, H. R. *Intermediate Microeconomics: A Modern Approach* (7th Edition). 773 p.
3. Dengov, V. V. (2017). *Microeconomics. In 2 Volumes: Textbook for Bachelor's and Master's Degree Programs*. Moscow: Yurait Publishing. 410 p.
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5. Cheremnykh, Yu. N. (2017). *Microeconomics (Advanced Level)*. Moscow: INFRA-M Research and Publishing Center. 844 p.
6. Jehle, G. A., & Reny, P. J. (2016). *Advanced Microeconomic Theory* (2nd Edition). Moscow: Publishing House of the Higher School of Economics. 720 p.
7. Mukhamediev, B. M. (2011). *Microeconomics*. Almaty: Kazakh University Publishing House.
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Additional References

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5. Baye, M., & Prince, J. (2016). *Managerial Economics and Business Strategy* (9th Edition). McGraw-Hill Education. 576 p.
6. *Microeconomics (QuickStudy: Business)* (2009). Lam Cards Edition. Publisher: QuickStudy. 6 p.
7. Krugman, P., & Wells, R. *Microeconomics* (5th Edition). 688 p.

Discipline: Macroeconomics (Advanced Level)

Topic 1. Theory of Intertemporal Choice

Subtopics: Keynesian theory of consumption. The simplest consumption function and its implications. Irving Fisher's theory of intertemporal choice. Intertemporal budget constraint. Intertemporal preferences. Optimal intertemporal choice. The impact of income and interest rates on consumption.

Topic 2. Aggregate Demand: Investment

Subtopics: Keynesian model of investment. Gross and net investment. Changes in the physical capital stock. Net Present Value (NPV) of a project. Internal Rate of Return (IRR) of a project. Investment function in the Keynesian model. Neoclassical model of investment. Production function and marginal product of capital. Firms' investment decisions. Optimal level of capital and the corresponding level of investment. Tobin's Q-theory.

Topic 3. Analysis of Aggregate Supply in Classical Theory

Subtopics: Definition of aggregate supply. Marginal product of labor and real wages. Labor market. Firm's labor demand function. Household labor supply. Aggregate supply in classical theory. Wage flexibility. Derivation of the aggregate supply curve.
Topic 4. Aggregate Supply in Keynesian Theory
Subtopics: Derivation of the aggregate supply curve under conditions of relative wage rigidity. The extreme Keynesian case. Aggregate supply from a microeconomic perspective.
Topic 5. Economic Cycles and Propagation of Impulses
Subtopics: Macroeconomic fluctuations. Major economic cycles. Multiplier–accelerator interaction model. Types of cyclical fluctuations. Stochastic fluctuations. Real Business Cycle (RBC) theory. Flexible prices. Channels of impulse propagation: through changes in physical capital and labor supply. Intertemporal substitution of labor.
Topic 6. Macroeconomic Policy in an Open Economy
Subtopics: Equilibrium in the goods market in an open economy. IS and LM curves and their shifts. World interest rate. Small open economy with a fixed exchange rate. Perfect capital mobility. Equilibrium conditions. Effects of fiscal policy and monetary policy. Currency devaluation. Fiscal and monetary policies under conditions of capital movement regulation.
Topic 7. Theories of Macroeconomic Policy
Subtopics: Policy targets and instruments. Tinbergen model. Monetarism and Keynesianism. Selection of economic policy instruments under uncertainty. Adaptive expectations. Labor market. Expected and unexpected inflation and real wages. Rational expectations. Robert Lucas's critique of economic policy theory. Government budget deficit. Government budget constraint. Methods of financing budget deficits. Budget deficit and inflation. Seigniorage. Inflation tax.

2. List of References

Main References

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2. Romer, D. (2016). *Advanced Macroeconomics: Textbook*. Moscow: Higher School of Economics Publishing House. 855 p.
3. Mankiw, N., & Taylor, M. (2016). *Macroeconomics* (2nd edition). Saint Petersburg: Piter Press. 559 p.
4. *Macroeconomics: Practical Workbook: Basic Concepts, Formulas, Tests, Problems, and Literature* (2016). Financial University under the Government of the Russian Federation. Moscow: Norma; INFRA-M. 399 p.
5. Rozanova, N. M. (2016). *Macroeconomics. Advanced Level: Textbook for Master's Students. Volume 2*. Moscow: Yurait Publishing.
6. Mukhamediev, B. M., Dulambayeva, R. T., & Rakhmatullayeva, D. Zh. (2011). *Macroeconomics*. Almaty: Kazakh University Publishing House.
7. Seregina, S. F. et al. (2018). *Macroeconomics: Textbook for Bachelor's and Specialist Degree Programs* (3rd revised and updated edition). Edited by S. F. Seregina. Moscow: Yurait Publishing. 527 p.
8. Sachs, J. D., & Larrain B., F. (2018). *Macroeconomics: A Global Approach*. Moscow: Delo Publishing. 847 p.
9. Agapova, T. A., & Seregina, S. F. (2004). *Macroeconomics*. Moscow: Delo i Servis Publishing.
10. Tarasevich, L. S., Galperin, V. M., Grebennikov, P. I., & Leusskiy, A. I. (2006). *Macroeconomics*. Saint Petersburg: Piter Publishing.
11. Vymyatnina, Yu. V., Borisov, K. Yu., & Pakhnin, M. A. (2016). *Macroeconomics: Textbook and Practical Guide for Bachelor's and Master's Degree Programs. In Two Volumes*. Moscow: Yurait Publishing.
12. Carlin, W., & Soskice, D. (2014). *Macroeconomics: Institutions, Instability, and the Financial System*. Oxford: Oxford University Press.

13. Keynes, J. M. (2016). *The General Theory of Employment, Interest, and Money*. Stellar Classics.

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1. Antipina, O. N., Miklashevskaya, N. A., & Nikiforov, A. A. (2017). *Macroeconomics: Textbook*. Moscow: Delo i Servis Publishing. 489 p.
2. Dolan, E. J. (2018). *Macroeconomics*. Edited by B. S. Lisovik, V. V. Lukashevich, and M. B. Yartsev. Saint Petersburg: Literatura Plus. 405 p.
3. Abel, A., & Bernanke, B. (2018). *Macroeconomics: Textbook for Master of Business Administration Students* (5th edition). Saint Petersburg: Piter Publishing. 762 p.
4. Lucas, R. E. (2017). *Lectures on Economic Growth*. Moscow: Gaidar Institute Publishing House.
5. Kireev, A. P. (2018). *International Macroeconomics*. Moscow: International Relations Publishing. 591 p.
6. Krueger, D. (2007). *Quantitative Macroeconomics: An Introduction*. USA.
7. Krugman, P. R., & Obstfeld, M. (1997). *International Economics: Theory and Policy: Textbook for Higher Education Institutions*. Moscow: Faculty of Economics, Moscow State University; UNITY.
8. Kireev, A. (2006). *Applied Macroeconomics: Textbook*. Moscow: International Relations Publishing.
9. De Vroey, M. (2019). *A History of Macroeconomics: From Keynes to Lucas and Beyond*. Moscow: Delo Publishing House, RANEPA.

Discipline: Econometrics (Advanced Level)

Topic 1. Classical Regression Model

Subtopics: Multiple linear regression. Matrix representation of the model. Estimation of regression coefficients using the Ordinary Least Squares (OLS) method. Geometric interpretation. Assumptions of the classical regression model. Testing the significance of regression coefficients using the t-statistic. Evaluation of the quality of the regression equation. Linear restrictions on coefficients. Chow test. Analysis of the consequences of incorrect variable specification. Partial correlation.

Topic 2. Various Aspects of Multiple Regression

Subtopics: Consequences of multicollinearity and methods of its elimination. Dummy variables. Nonlinear regression models. Logarithmic, semi-logarithmic, and power models. Reciprocal functions. Selection of the functional form of the econometric model. Variable transformations. Stochastic regressors. Instrumental variables method. Tests for detecting heteroskedasticity. Methods for correcting heteroskedasticity. White’s standard errors. Weighted Least Squares (WLS) method. Generalized Least Squares (GLS) method. Autocorrelation of the error term. Methods for eliminating autocorrelation.

Topic 3. Maximum Likelihood Method

Subtopics: Likelihood function. Estimation of coefficients and variance of the error term in the multiple linear regression model using the maximum likelihood principle. Comparison with the least squares method. Consistency of estimators. Binary choice models. Logit and Probit models. Estimation of model parameters.

Topic 4. Systems of Simultaneous Equations

Subtopics: Structural and reduced forms of models. The problem of model specification. Indirect least squares method. Instrumental variables. Two-Stage Least Squares (2SLS) method.

Topic 5. Dynamic Autoregressive Models

Subtopics: Distributed lag models. Autoregressive models. Reasons for the occurrence of lags. Money supply and price level. Median lag and mean lag. Lag operator. Operator representation of the model.

Topic 6. Stationary Processes

Subtopics: Stationarity. Examples of stationary and non-stationary processes. White noise. Random walk. Trends. Seasonality. Taking successive differences. Testing data for stationarity. Autocorrelation function (ACF). Partial autocorrelation function (PACF). Unit root tests. Augmented Dickey–Fuller (ADF) test. Autoregressive process. Moving Average (MA) model. Autoregressive Moving Average (ARMA) model. Integrated process.

Topic 7. Multivariate Time Series Models

Subtopics: Simultaneous analysis of multiple variables. Vector Autoregression (VAR) model. Identification problem. Estimation methods. Granger causality analysis. Impulse response functions. Engle–Granger test. Cointegration. Cointegrating vector. Common trends. Johansen test. Error Correction Model (ECM).

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2. Ayvazyan, S. A., & Fantazzini, D. (2017). *Econometrics-2: Advanced Course with Applications in Finance*. Moscow: Magistr; INFRA-M. 944 p.
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6. Kremer, N. Sh., & Putko, B. A. (2017). *Econometrics: Textbook for Higher Education Institutions*. Edited by N. Sh. Kremer. Moscow: UNITY-DANA Publishing.
7. Afanasyev, V. N., & Yuzbashev, M. I. (2019). *Time Series Analysis and Forecasting: Textbook*. Moscow: Finance and Statistics Publishing.
8. Tikhomirov, N. P., & Dorokhina, E. Yu. (2003). *Econometrics*. Moscow: Ekzamen Publishing.
9. Nosko, V. P. (2017). *Econometrics. In Two Volumes. Volume 1: Academic Textbook*. 696 p.
10. Ayvazyan, S. A., & Berndt, E. R. (2018). *The Practice of Econometrics: Classics and Modernity*. Foreign Textbook. Moscow: UNITY Publishing. 868 p.

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1. Chernikova, A. E. (2018). *Econometrics (Advanced Level)*. Omsk: SibADI. 41 p.
2. Wooldridge, J. (2017). *Introductory Econometrics: A Modern Approach* (5th Edition). Michigan State University: South-Western Cengage Learning. 909 p.
3. Wooldridge, J. (2016). *Econometric Analysis of Cross Section and Panel Data*. Cambridge, MA: MIT Press. 741 p.
4. Krass, M. S., & Chuprynov, B. P. (2016). *Mathematics for Economists*. Saint Petersburg: Piter Publishing.
5. Salin, V. N., & Churilova, E. Yu. (2017). *Course in Statistical Theory for Training Specialists in Finance and Economics: Textbook*. Moscow: Finance and Statistics Publishing.
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8. Kozlov, A. Yu., & Shishov, V. F. (2003). *MS Excel Analysis Package in Economic and Statistical Calculations*. Moscow: UNITY Publishing.

Discipline: Research Methodology

Topic 1. Overview of Science and the Scientific Method

Subtopics: Methodological and systematic approaches to acquiring new knowledge. Scientific knowledge based on objective data. Planned scientific research. Accumulation of empirical data. The scientific method as the foundation of all scientific research. A set of research principles and methods. Reliable research results. Empirical approach. Observations. Hypotheses. Experiments. Analysis. Replication.

Topic 2. Objectives of Scientific Research

Subtopics: Objectives of scientific research in a broad sense. Drawing evidence-based conclusions about relationships between two or more variables. Three main objectives of scientific research: description, prediction, and understanding/explanation. Description as a process of identifying, classifying, or categorizing phenomena of interest. Qualitative and quantitative research.

Topic 3. Selection of Research Design

Subtopics: Classification of research methods. Desk research and field research. Exploratory and conclusive research. Conclusive research: descriptive and experimental (causal) research. Cross-sectional and longitudinal studies. Multiple and single-case studies. Research problems and research questions.

Topic 4. Sampling Planning

Subtopics: Development of a preliminary research plan. Sampling planning. Selection of a sample from the target population. The sampling process. Types of sampling methods. Sample size. Sample as a subset of the population. Sample versus population. Non-probability sampling. Probability sampling.

Topic 5. Use of Secondary Data

Subtopics: Secondary data. Differences between secondary and primary data. Advantages and disadvantages of secondary data. Various sources of secondary data. Application of secondary data. Published secondary data. Computerized databases. The impact of technology on research implementation: big data. Ethical issues related to the use of secondary data.

Topic 6. Qualitative Research Methods

Subtopics: Collection of qualitative data. Key issues in qualitative data analysis. Characteristics of qualitative research methods. Areas of application of qualitative research. Preparing qualitative data for analysis. Use of computer-assisted qualitative data analysis methods. The main purpose of focus groups. Obtaining information on research questions of interest. Designing the focus group environment. Procedures for conducting focus groups. In-depth interviews.

Topic 7. Causal Research Design: Experimentation

Subtopics: Scientific meaning of causality. Conditions for causality. Cause-and-effect relationship between two variables. Covariation. Temporal sequence of variables. Absence of alternative causal factors.

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1. Marczyk, G., DeMatteo, D., & Festinger, D. (2020). *Essentials of Research Design and Methodology*. Hoboken, New Jersey: John Wiley & Sons, Inc. 305 p.
2. Flick, U. (2020). *Introducing Research Methodology* (3rd ed.). Berlin, Germany: SAGE Publications. 416 p.
3. Tan, W. (2018). *Research Methods: A Practical Guide for Students and Researchers*. London: World Scientific.
4. Salkind, N. (2018). *Exploring Research* (9th ed.). Kansas: Pearson Education Limited.
5. Sileyew, K. J. (2020). *Research Design and Methodology*. Cyberspace.
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