

Министерство науки и высшего образования РФ
федеральное государственное автономное образовательное
учреждение высшего образования
«СИБИРСКИЙ ФЕДЕРАЛЬНЫЙ УНИВЕРСИТЕТ»



УТВЕРЖДАЮ

Проректор по учебной работе

/Д.С. Гуц/

«20» января 2025 года

ПРОГРАММА

вступительного испытания для поступающих в аспирантуру

5.2. Экономика

шифр и наименование группы научных специальностей

5.2.3 Regional and Sectoral Economy (Environmental economics)

шифр и наименование научной специальности

Красноярск 2025

General provisions

This program is intended for applicants entering the postgraduate studies of the Siberian Federal University in 5.2 – Economics (the level of training of highly qualified personnel). The program includes the following sections:

1. Economic theory.
2. Finance, money circulation and credit.

To conduct the entrance exam, by the order of the rector of the Siberian Federal University, a commission is formed consisting of leading scientists of the university.

The entrance examination can be conducted both face-to-face and remotely using video conferencing services (VCS) in written and oral form in two stages:

1. Written test on the issues of Section 1 "Economic Theory" (pp. 3-7 of the Program). The test consists of 10 questions, the answer to each of them can be assessed at 5 points maximum (the maximum total score for this stage is 50 points). The duration of the stage is one astronomic hour. At the beginning of the procedure, the secretary of the examination committee distributes individual answer forms to the students. After completion of the test, applicants submit the completed files with answers to the secretary of the examination committee.

2. Oral interviews with members of the state commission on the section of the Program corresponding to the selected scientific specialty (direction), as well as on the research topic of the applicant in accordance with the selected scientific field (based on the materials of available scientific publications or a previously prepared essay justifying the selected theme). The applicant's answer at this stage is estimated by the commission with a maximum of 50 points.

The general criteria for evaluating oral and written answers in the exam are the content of the answer (compliance with the logical sequence of the presentation of the material, completeness, correctness, validity of conclusions) and its form, reflecting professional skills to systematize and present information in writing, state, discuss and defend the opinion orally.

Thus, the test result of each applicant is estimated at a maximum of 100 points, from which the competitive rating is formed.

Section 1 «Economic theory»

1.1. Microeconomic theory

1. Market economy. Structure, subjects, main categories, market economy modeling. The concept of demand, supply, equilibrium, efficiency.

2. Consumer behavior. Budget constraint, its properties and measures. Preferences, indifference curves and marginal rate of substitution. Utility, its function and varieties. Consumer choice and consumer optimum.

3. Supply and demand. Demand, varieties of goods, goods of the lowest category, demand curves, their varieties and Engel curves. Consumer and producer surplus, utility functions based on supply and demand functions. Market demand, elasticity and marginal revenue. Market equilibrium, inverse supply and demand curves, their shift.

4. Behavior of the producer. Factors and technology of production, production functions, limitations and properties of technology, marginal product, technological rate of substitution, returns to scale. Costs, cost function, and their minimization. Average, marginal and variable costs, cost curves and their types. Firm's supply, supply functions, supply curve and its types. The supply of the industry in the short and long term, the equilibrium of the industry.

5. Market structures. Monopoly, demand curve, pricing, efficiency problem, natural monopolies and Ramsey pricing. Monopoly behavior, market power and the Lerner index, price discrimination and its degree, optimal prices and output, monopolistic competition, product differentiation. Markets of factors of production and Monopsony. Oligopoly, choice of strategy, leadership in pricing and output, Cournot and Stackelberg equilibrium, Bertrand competition, cartel model.

6. General equilibrium and welfare theory. Market exchange and Edgeworth box, Pareto efficiency, Walras equilibrium and Walras' law, relative prices. Manufacturing, Robinson Crusoe economics and various technologies, welfare economics, the first and second theorems of welfare. The economic theory of welfare, aggregation of preferences, functions of social welfare and its maximization, fair distributions.

7. Market failures: externalities, public goods, information asymmetry. Externalities, quasilinear preferences (income effect) and Coase's theorem, externalities in production and their internalization, social and private costs, achieving the efficiency of their ratio, Pigou tax, tragedy of the commons. Public goods, definition, types, free-rider problem. Asymmetric information, hidden information and adverse selection, hidden actions and subjective (moral) risk, principal-agent problem, signaling and incentives.

1.2. Macroeconomic theory

1. Main macroeconomic indicators. Gross Domestic Product (GDP), nominal and real GDP, its structure by income and expenditure. Employment and unemployment, unemployment rate, correlation of unemployment rate and GDP, Okun's law. Inflation, GDP deflator, CPI and GDP deflator. The correlation of inflation and unemployment, Phillips curve.

2. Aggregate demand and aggregate supply. The concept of aggregate demand, factors and characteristics that determine it in the short and long term. Aggregate demand model (AD) in classical and Keynesian models. The concept of aggregate supply, factors and characteristics that determine it in the short and long term. Aggregate supply (AS) in classical and Keynesian models. Modern understanding of the model of short-term aggregate supply. Lucas equation.

3. Commodity markets. Aggregate demand for goods, consumption, investment, government spending. Equilibrium in the commodity market, determination of equilibrium GDP. Keynes' general theory: determination of the equilibrium volume, expenditure multiplier, fiscal policy of the state. Equilibrium in the commodity market in a closed economy. An alternative way of equilibrium in commodity markets through equality of investment and savings.

4. Money market: demand for money, its types, interest rate. Baumol-Tobin model. Fundamentals of the money supply model (multiple expansion of deposits), bank and money multipliers. IS and LM curves: definition, derivation (geometric and algebraic), slope, shifts. Equilibrium in the money market in a closed economy. Alternative ways of looking at equilibrium. Monetary policy of the state.

5. Joint equilibrium of markets for goods and money. Commodity markets, IS curve and its shifts: investments, sales, interest rate, GDP. Money markets, the LM curve and its shifts: real money supply, real income, interest rate. Model IS-LM. Macroeconomic instability. Fiscal, monetary and mixed policies. Inflation, its causes and costs.

6. Labor market. Unemployment rates. Wage fixing: negotiation, efficiency, prices, unemployment. Pricing. Natural unemployment rate: wage fixing, pricing, equilibrium real wages, employment, GDP.

7. General macroeconomic equilibrium. AD-AS model, macroeconomic equilibrium, transition from short-term to long-term equilibrium. AD-AS model under alternative assumptions about the shape of the AS curves: fiscal and monetary policy. Monetary policy with rational expectations. Phillips model in the short and long term. Demand and cost inflation, expected unemployment. Loss ratio. Adaptive and rational expectations.

8. Economic growth. Factors and sources of economic growth, aggregate production function, returns to scale and factors of production, GDP, accumulation of physical and human capital, savings, consumption. Modern theories of economic growth (neoclassical and Keynesian approaches). Endogenous growth. Long-term economic growth and the problem of sustainable development. Technological progress and economic growth.

List of recommended sources

Main literature

Textbooks and tutorials

1. Samuelson, Paul E., Nordhaus, William D. Microeconomics; 18th ed. : Per. from English - M. : LLC "I.D. Williams ", 2019.

2. Samuelson, Paul E., Nordhaus, William D. *Macroeconomics*; 18th ed. : Per. from English - M. : LLC "I.D. Williams ", 2019. - 586 p.
3. Blanchard O. *Macroeconomics*, 7th Edition, Pearson: University Prentice Hall. 2017.
4. Krugman PR, Obstfeld M., Melitz MJ *International Economics. Theory and Policy*, 10th Edition, Pearson: University Prentice Hall. 2015.
5. Varian HR *Microeconomic Analysis*. Third Edition - University of California at Berkeley: WW Norton & Company - New York - London, 1992 . — 558 p.
6. Varian HR *Intermediate Microeconomics. A Modern Approach*. Eighth Edition. - University of California at Berkeley: WW Norton & Company - New York - London, 2010 . — 819 p.

Additional literature

1. Blanchard, Olivier *Macroeconomics*. Textbook [Text] / O. Blanchard; per. from English; under scientific. ed. L.L. Lyubimov, translated by L. Lyubimov, T. Matveeva, S. Pekarsky, I. Kavitskaya, D. Veselov, N. Elshanskaya; State university - Higher School of Economics. - M. : Ed. House of the Higher School of Economics (State University), 2015 . — 672 p.
2. Varian, H.R. *Microeconomics*. Intermediate level. Modern approach [Text]: Textbook for universities / Kh.R. Varian; per. from English ed. N.L. Frolova. - M. : UNITI, 1997 . — 767 p.
3. Jaley, JA, Reni, Philip J. *Microeconomics: an advanced level: textbook* / Jeffrey A. Jaley, Philip J. Reni; per. from English; under scientific. ed. V.P. Busygina, M.I. Levina, E.V. Pokatovich; State university - Higher School of Economics. - M. : Ed. House of the State University - Higher school of Economics, 2011.
4. Mas-Colell, A., Winston M.D., Green J.R. *Microeconomic theory* [Text]: textbook / A. Mas-Colell, M.D. Winston, J.R. Green / per. from English: Yu. Avtonomov et al., under scientific. ed. M. I. Levina and E. V. Pokatovich. - Moscow: Business, Book. 1. - 2016 . — 708 p.
5. Mas-Colell, A., Winston M.D., Green J.R. *Microeconomic theory* [Text]: textbook / A. Mas-Colell, M.D. Winston, J.R. Green / per. from English: Yu. Avtonomov et al., under scientific. ed. M. I. Levina and E. V. Pokatovich. - Moscow: Business, Book. 2. - 2016 . — 713 p.
6. Romer, David *Higher Macroeconomics*. Textbook [Text] / D. Romer; per. from English; under scientific. ed. V.M. Polterovich, translated by N. Arefiev, S. Pekarsky, A. Dementyev; State un-t - Higher School of Economics. - M. : Ed. House of the Higher School of Economics (State University), 2015 . — 856 p.
7. Busygin, V.P., Zhelobodko, E.V., Tsyplakov, A.A. *Microeconomics - the third level*: [Text]: Textbook / V.P. Busygin, E.V. Zhelobodko, A.A. Tsyplakov. - Novosibirsk: Publishing house CO RAN, 2005 . — 702 p.

8. Galperin, VM, Ignatiev, SM, Morgunov, V.I. Microeconomics: in 2 volumes [Text] / V.M. Galperin, S.M. Ignatiev and V.I. Morgunov; General edition of V.M. Halperin. - SPb .: Economic School, 2007 (1999), T. 1.- 349 p.
9. Galperin, V.M., Ignatiev, S.M., Morgunov, V.I. Microeconomics: in 2 volumes [Text] / V.M. Galperin, S.M. Ignatiev and V.I. Morgunov; General edition of V.M. Halperin. - SPb .: Economic School, 2007 (1999), T. 2. - 503 p.
10. Galperin, VM, Ignatiev, SM, Morgunov, VI, Vatnik, P.A., Zaostrovstsev, A.P. Microeconomics: in 3 volumes. V. 3 Collection of problems [Text] / V.M. Galperin, S.M. Ignatiev and V.I. Morgunov, P.A. Vatnik, A.P. Zaostrovstsev; General edition of V.M. Halperin. - SPb .: School of Economics, State University - Higher School of Economics, 2007. - 160 p.
11. Grebennikov, P.I., Tarasevich, L.S., Leussky, A.I. Macroeconomics in 2 volumes. Volume 1 [Text]: textbook and
12. workshop for universities / P.I. Grebennikov, L.S. Tarasevich, A.I. Leussky. - 11th ed., Rev. and add. - M .: Yurayt Publishing House, 2020 .-- 300 p.
13. Grebennikov, P.I., Tarasevich, L.S., Leussky, A.I. Macroeconomics in 2 volumes. Volume 2 [Text]: textbook and workshop for universities / P.I. Grebennikov, L.S. Tarasevich, A.I. Leussky. - 11th ed., Rev. and add. - M .: Yurayt Publishing House, 2020 . — 255 p.
14. Rozanova, N.M. Macroeconomics. Workshop: textbook. manual for magistracy [Text] / NM Rozanova. - M .: Yurayt Publishing House, 2015 . — 496 p.
15. Rozanova, N.M. Macroeconomics. Advanced course in 2 hours. Part 1: textbook for universities [Text] / NM Rozanova. - M .: Yurayt Publishing House, 2020 . — 283 p.
16. Rozanova, N.M. Macroeconomics. Advanced course in 2 hours. Part 2: textbook for universities [Text] / NM Rozanova. - M .: Yurayt Publishing House, 2020 . — 382 p.
17. Levina, E. A. Pokatovich, E. V. Microeconomics: textbook and workshop for universities [Text] / E. A. Levina, E. V. Pokatovich. - Moscow: Yurayt Publishing House, 2019 . — 673 p.
18. Tarasevich, L.S., Grebennikov, P.I., Leussky, A.I. Microeconomics [Text]: textbook and workshop for academic baccalaureate / L.S. Tarasevich, P.I. Grebennikov, A.I. Leussky. - 8th ed., Rev. and add. - M .: Yurayt Publishing House, 2014 . — 547 p.
19. Fridman, A.A. Lectures on the course of advanced microeconomics [Text] / A.A. Friedman; State university - Higher School of Economics. - M .: Ed. House of the State University Higher School of Economics, 2007 . — 375 p.

Monographs, collections of articles and selected articles

1. Alla, M. Economics as a science; per. with French. I.A. Egorova. - M .: Science for Society, RSTU, 1995 .-- 168 p.
2. Milestones of economic thought. Factor Markets. T. 3 / Under total. ed. V.M. Halperin. - SPb .: School of Economics, 2000.
3. Milestones of economic thought. The theory of industrial markets. T. 5 [Text] / under the general. ed. A.G. Slutsky. - SPb .: School of Economics, 2003.

4. Milestones of economic thought. The theory of consumer behavior and demand. T. 1 [Text] / Under the General. ed. V.M. Halperin. - SPb .: School of Economics, 2000.

5. Milestones of economic thought. The theory of the firm. T. 2 [Text] / Under the General. ed. V.M. Halperin. - SPb .: School of Economics, 2000.

6. Origins. Issue 3 / Editorial board: Ya.I. Kuzminov (chief editor), V.S. Avtonomov, O. I. Ananyin and others; entry article by Ya.I. Kuzminov. - M .: Higher School of Economics, 1998.

7. Origins: from the experience of studying the economy as a structure and process / Editorial board: Ya.I. Kuzminov (chief editor), V.S. Avtonomov (deputy chief editor), O.I. Ananyin and others; State un-t - Higher School of Economics. - 2nd ed. - M .: Ed. House of the State University Higher School of Economics, 2007.

8. Origins: socio-cultural environment of economic activity and economic knowledge / Editorial board: Ya.I. Kuzminov (chief editor), V.S. Avtonomov (deputy chief editor), O.I. Ananyin and others; Nat. issled. University Higher School of Economics. - M .: Ed. House of the Higher School of Economics, 2011.

9. Origins: economics in the context of history and culture / Editorial board: Ya.I. Kuzminov (chief editor), V.S. Avtonomov (deputy chief editor), O.I. Ananyin et al. - M .: GU HSE, 2004.

10. A. G. Khudokormov Nobel laureates in economics in the XXI century: collection of articles / ed. A.G. Khudokormova. - M .: INFRA-M, 2018. -- 393 p.

Russian scientific journals

1. Bulletin of Moscow University ". Series: "Economy"
(www.econ.msu.ru/science/economics/);

2. Bulletin of the Financial University
(www.fa.ru/dep/vestnik/about/Pages/default.aspx/);

3. Economic issues (www.vopreco.ru/);

4. Journal of Institutional Research (<http://cyberleninka.ru/journal/n/zhurnal-institutsionalnyh-issledovaniy>);

5. Journal of the New Economic Association (<http://journal.econorus.org/>);

9. World economy and international relations
(www.imemo.ru/index.php?page_id=682);

10. Social sciences and modernity (<http://ons2000.chat.ru/>);

11. Problems of forecasting (www.ecfor.ru/fp/);

12. Problems of the modern economy (<http://m-economy.ru/>);

13. Region: economics and sociology (<http://region.socionet.ru/>);

14. Russian Management Journal (www.rjm.ru/);

15. Securities market (www.rcb.ru/);

16. Finance (www.finance-journal.ru/);

19. Economics and mathematical methods (www.cemi.rssi.ru/emm/);

22. Economic science of modern Russia (<http://www.cemi.rssi.ru/ecr/>);

23. Economic sociology (<http://ecsoc.hse.ru/>);

24. Economic Journal of the Higher School of Economics (<http://ej.hse.ru/>);

26. TERRA ECONOMICUS (<https://te.sfedu.ru/>).

Section 2 « Environmental economics »

1. The genesis and fundamental issues of environmental economics.
2. The concept of sustainable development of socio-ecological and economic systems. Strong and weak resilience, critical natural capital. An economic approach to solving the problem of poverty and inequality.
3. Indicators of sustainable development.
4. Economics of welfare and the environment. Efficiency and optimal resource allocation. Public welfare functions and optimality.
5. The relationship between the economy and the environment. Environmental functions. The principle of the material balance of economic and environmental interactions.
6. The impact of economic activity on the environment: IPAT-identity. The ecological curve of the Blacksmith.
7. Environmental service markets. Public goods and externalities in the context of solving environmental economics problems.
8. The problem of the second best. Imperfection of information. The failures of the state in solving the problems of the economy of the environment.
9. The impact of the regime of ownership of natural resources on their use. The economic optimum of pollution: the balance of marginal damage from pollution and marginal environmental costs.
10. Economic instruments for pollution control. The problem is setting pollution targets. Methods for estimating environmental costs.
11. Categories of value of natural resources and environmental objects. The main methods of monetary assessment of natural resources and environmental objects.
12. Criteria for selecting pollution control tools. Administrative methods of environmental management. Economic instruments of environmental policy.
13. Macroeconomic policy and the environment: classification of programs and instruments. Programs of macroeconomic stabilization and structural reforms in relation to natural resources and environmental facilities.
14. Transaction costs and environmental regulation. Pollution control tools in conditions of uncertainty.
15. Economic mechanisms for the implementation of global environmentally significant initiatives: carbon quota markets. The results of the Kyoto Protocol implementation project.
16. Climate change and the low-carbon economy. International climate policy. The Paris Climate Agreement.
17. Investment analysis of projects taking into account the environmental component. The application of cost—benefit analysis.
18. A model of optimal resource depletion. The function of public welfare and optimal allocation of natural resources.
19. A model of depletion of a natural resource, taking into account the costs of extraction. Generalization of the model for the case of renewable resources.

20. Economics of renewable resources. The dependence of resource growth on the level of its reserve, the criterion of sustainability of the level of resource use, rent.
21. The model of a non-renewable resource: cases of two or more periods, competitive and monopolistic extraction programs, the introduction of taxation or subsidies.
22. Economics of forest resources. The most important problems of the development of the Russian forest complex. Issues of formation of the state forest policy.

List of recommended sources

Basic literature

1. Economics of environmental management: textbook. Moscow: Moscow University Press, TEIS, TC Velbi, 2012. 900 p.
2. Perman R., Ma Yu, Mcgilvry J., Common M. Economics of natural resources and environmental protection (intermediate level). Moscow: TEIS, 2006.
3. Bobylev S. N., Zubarevich N.V., Solovyova S. V., Vlasov Yu.S. Sustainable development: Methodology and measurement techniques: textbook. stipend. Edited by S. N. Bobylev. Moscow: Ekonomika, 2011. 358 p.
4. Melnikov A.P., Golub A., Safonov G. Economics of the environment and natural resources. Introductory course. Moscow: Publishing House of the Higher School of Economics, 2003.
5. Markov Yu.G. Social ecology: interaction of society and nature. The training manual. Novosibirsk: Nauka Publ. Siberian Publishing Company of the Russian Academy of Sciences, 2001.
6. Mirkin B.M., Naumova L.G. Sustainable development: an introductory course. Moscow: University Book, 2006.

Additional literature

1. Antonova N. E., Lomakina N. V. Natural resource industries of the Far East: new development factors // Economic and social changes: facts, trends, forecast. 2018. Vol. 11, No. 1. pp. 43-56. DOI: 10.15838/esc/2018.1.55.3
2. Bobylev S.N., Minakov V.S., Solovyova S.V., Tretyakov V.V. Ecological and economic index of the regions of the Russian Federation. Methodology and calculation indicators. Moscow: WWF of Russia, RIA Novosti. 2012. 150 p.
3. Glazyrina I.P., Zabelina I.A., Klevakina E.A. The level of economic development and the distribution of environmental burden between the regions of the Russian Federation // Journal of the New Economic Association. 2010. No. 7. pp. 70-88.
4. Gordeev R. V. Competitiveness of forest sector products: new lessons from the analysis of foreign trade // ECO. 2018. No. 9. pp. 63-84. DOI: 10.30680/ECO0131-7652-2018-9-63-84.
5. Gordeev R. V., Pyzhev A. I., Zander E. V. (2017). Timber industry complex of the Krasnoyarsk Territory: trends and development prospects // Regional

Economics: Theory and Practice. Vol. 15, No. 1 (436). pp. 4-18. DOI: <https://doi.org/10.24891/re.15.1.4>

6. Zabelina I.A., Klevakina E.A. Assessment of environmental costs in the gross regional product produced // Region: economics and sociology. 2011. No. 2. pp. 223-232.

7. Zander E.V., Pyzhev A.I., Startseva Yu.I. Assessment of the sustainability of the ecological and economic system of the region using the indicator of "true savings" (on the example of the Krasnoyarsk Territory) // Economics of environmental management. 2010. No. 2. pp. 6-17.

8. Pyzhev A.I., Pyzheva Yu.I., Zander E.V. Forest rent in the Russian economy: assessment and effective use. Krasnoyarsk: Sib. feder. University, 2015.

9. Pyzhev A.I., Syrtsova E.A., Pyzheva Yu.I., Zander E.V. Sustainable development of the Krasnoyarsk Territory: new assessments // Journal of the Siberian Federal University. Series: Humanities. 2015. No. 11. pp. 2590-2595.

10. Ryumina E.V. Ecologically adjusted GDP: areas of use and problems of assessment // The economy of the region. 2013. No. 4 (36). pp. 107-115.

11. Ryumina E.V. Economic analysis of damage from environmental violations. Moscow: Nauka, 2009.

12. Syrtsova E.A., Pyzhev A.I., Zander E.V. True savings of Siberian regions: new estimates, old problems // ECO. 2016. No. 6 (504). pp. 109-129.

13. Pyzheva Yu. I., Zander E. V., Pyzhev A. I. On the way to sustainable development of Russian regions: a comprehensive review of empirical research// Journal of the Siberian Federal University. Series: Humanities. 2021. No. 14 (7). pp. 1063-1079. DOI: 10.17516/1997-1370-0785.

Russian Scientific Journals:

Economic Issues (<http://www.vopreco.ru>);

Economic regulation issues (<http://hjournal.ru>);

Journal of Institutional Research (<http://hjournal.ru/journals/journal-of-institutional-studies.html>);

Journal of the New Economic Association (<http://journal.econorus.org> /);

World economy and international relations (<https://www.imemo.ru/jour/meimo>);

Forecasting problems (www.ecfor.ru/fp /);

Spatial economics (<http://spatial-economics.com/en> /);

Region: Economics and sociology (<http://region.socionet.ru> /);

Russian Journal of Management (www.rjm.ru /);

IVF (www.ecotrends.ru /);

Economics and Mathematical Methods (www.cemi.rssi.ru/emm /);

The economy of the region (www.uiec.ru/zhurnal_yekonomika_regiona /);

The Economic Journal of the Higher School of Economics (<http://ej.hse.ru> /)

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38.06.01 Economics:

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Zander E.V.	School of Economics, Public Administration and Finances, the head of department	Doctor of Economics, Professor
Pyzhev A.I.	Siberian Federal University, the head of Laboratory of Economics of Climate Change and Environmental Development	PhD in Economics, assistant professor

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E.V. Zander