

**FEDERAL STATE BUDGET EDUCATIONAL
INSTITUTION OF HIGHER EDUCATION
“LOMONOSOV MOSCOW STATE UNIVERSITY”**

FACULTY OF ECONOMICS

«APPROVED»

Dean of the Faculty of Economics, MSU

professor _____ A.A.Auzan

«___» _____ 2021

COURSE SYLLABUS

Course title:

Natural capital economics

Level of higher education:

MASTER STUDIES

Field of study:

38.04.01. ECONOMICS

Mode of study:

FULL-TIME

Course syllabus is considered and approved by
the Educational and Methodological Council of the Faculty of Economics
(minutes № _____, date)

Moscow 2021

The course syllabus is developed in accordance with the self-established MSU educational standard (ES MSU) for implemented main professional educational programs of higher education for Master's degree in the field of study 38.04.01. Economics/

ES MSU is approved by the decision of MSU Academic Council dated December 28, 2020, minutes №7

Year (years) of enrollment: 2021 and forthcoming

1. Place and status of the course in the structure of the Master program

Course status: *obligatory / elective / optional course*

Trimester: 4

2. Course Prerequisites

This discipline is based on the knowledge and skills acquired as a result of studying following courses:

- Institutional Economics

3. Intended learning outcomes (ILO) of the course associated to the required competencies of the graduates

When determining the learning outcomes, the author of the syllabus should use the competencies and learning outcomes specified by the relevant master's program

Competencies of graduates (codes)	Indicators of achievement of competencies	Intended learning outcomes of the course (module) associated to the required competencies of the graduates
SPC-1. Capable of analyzing the socio-economic situation, identifying issues and suggesting ways to solve them with the use of economic policy instruments	SPC-1.I-1. Uses relevant data and methods to assess a situation, analyze alternative ways to solve issues considering the interests of stakeholders	SPC-1.I-1.A-1. Able to identify topical issues in various areas of economic policy
		SPC-1.I-1.A-2. Able to identify stakeholders and evaluate their interests when analyzing possible ways to solve current issues
SPC-2. Capable of formulating goals and objectives, assessing the consequences of implementing various types of economic policy, including competition policy, social policy, monetary policy, fiscal policy, etc.	SPC-2.I-1. Formulates goals, objectives, performance indicators of economic policy	SPC-2.I-1.A-1. Able to apply quality criteria when formulating goals and objectives of economic policy
		SPC-2.I-1.A-2. Able to formulate performance indicators for the goals and objectives of economic policy as well as to assess the distorting effect of indicators
		SPC-2.I-1.A-3. Able to consider ethical constraints when formulating the goals and objectives of economic policy
SPC-3. Capable of developing draft programs for socio-economic development at the national, regional, municipal and	SPC-3.I-1. Develops program documents for organizations, industries, territories	SPC-3.I-1.A-1. Able to coordinate goals, objectives, performance indicators of various program documents

industrial levels for long-term, medium-term and short-term periods		SPC-3.I-1.A-2. Able to design discrete institutional alternatives using elements of regulatory impact assessment
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4. Workload of the course by types of activity

The workload of the discipline is 4 ECTS: 144 academic hours, including 72 academic hours of contact work with a professor, 72 academic hours of self-directed studies.

5. **Learning format** full-time, with the use of educational platform On.Econ.

6. **Content of the course structured by topics (sections) indicating the number of academic hours allocated to them and types of training**

Title and brief content of sections and topics of the course (module), Form of assessment for the course (module)	Total (hours)	Including						
		Contact work (work in contact with a professor) <i>Types of contact work, hours</i>				Contact work (work in contact with a professor) <i>Types of contact work, hours</i>		
		Seminars	Group consultations	Individual consultations	Total	Literature analysis	Systematization of information from the Internet	Bcero
Topic 1. Interrelations between economy and environment	12	2	4		6	3	3	6
Topic 2. Decision-making on the use of a limited resource.	10	2	2		4	3	3	6
Topic 3. Economic evaluation of natural resources. Ecosystem services.	10	2	2		4	3	3	6

Topic 4. Accounting for the environmental factor, and project analysis taking into account the environmental factor.	14	4	4		8	3	3	6
Topic 5. Determination of the total consumption of natural resources at macro and micro levels.	14	4	4		8	3	3	6
Topic 6. Sustainable society development and its measurement. Sustainable city. Marketing of territories.	8	2	2		4	2	2	4
Topic 7. Ecological damage.	12	2	2		4	4	4	8
Topic 8. Bioeconomics and high-tech industries.	16	4	4		8	4	4	8
Topic 9. Optimal use of renewable resources.	16	4	4		8	4	4	8
Topic 10. Public Administration in Environmental Matters.	10	2	4		6	2	2	4
Topic 11. Economic mechanism for stimulating environmental protection.	12	4	4		8	2	2	4
Midterm assessment (form of written examination)	10	4			6			
Total	144	72			72			

Brief content of the course topics

Topic 1. Introduction. Interrelations between economy and environment.

Decoupling effect. Laws of thermodynamics, closed and open systems. Material balances and production functions. Game theory in nature management. Effects of simultaneous and sequential decision-making, conditions for the stability of coalitions.

Main literature:

1. Tietenberg, Thomas H. Environmental & natural resource economics / Tom Tietenberg, Lynne Lewis. — 9th ed, 2012 <http://s1.downloadmienphi.net/file/downloadfile7/200/1375238.pdf>
2. Hanley, N., Shogren J., and White, B. (2007): Environmental Economics in Theory and Practice, 2nd ed., London: MacMillan Press.

3. Bobylev S.N., Kiryushin P.A., Kudryavtseva O.V. (editors): Green Economy and Sustainable Development Goals for Russia/Moscow, Department of Economics of Lomonosov Moscow State University, 2019, 284 p.

Additional literature:

1. Kudryavtseva O.V., Yakovleva E.Yu. Decoupling as an indicator of ecological and economic sustainability of Russia's development. International Economic Symposium – 2017, Materials of international scientific conferences. 2017. P. 564.
2. Kudryavtseva O.V. Modern applications of game-theoretic approach to international cooperation on environmental protection // Collection of materials of scientific conferences Lomonosov-2011 and Lomonosov-2012 / Edited by O.V. Kudryavtseva. - TEIS Moscow, 2012. - P. 138-145.
3. Decoupling natural resource use and environmental impacts from economic growth, A Report of the Working Group on Decoupling to the International Resource Panel. (2011). UNEP, 154 p.
4. Kudryavtseva O., Bobylev S., Yakovleva E. Green economy regional priorities // Economy of the region. - 2015. - № 2. - Pp. 148-159.

Topic 2. Decision-making on the use of a limited resource.

Imperfect government regulation and the phenomenon of Crowding-out: causes and consequences.

Main literature:

Tietenberg, Thomas H. Environmental & natural resource economics / Tom Tietenberg, Lynne Lewis. — 9th ed, 2012
<http://s1.downloadmienphi.net/file/downloadfile7/200/1375238.pdf>

Topic 3. Economic evaluation of natural resources. Ecosystem services.

Methods of economic evaluation of natural resources and their application to Russian regions. Ecosystem services. Evaluation of the economic functions of urban forests and modern computer software in this area. Hedonistic method of assessing the quality of a resource and its practical application on the example of the analysis of the cost of urban real estate. Payments for ecosystem services.

Main literature:

Tietenberg, Thomas H. Environmental & natural resource economics / Tom Tietenberg, Lynne Lewis. — 9th ed, 2012
<http://s1.downloadmienphi.net/file/downloadfile7/200/1375238.pdf>

Additional literature:

1. Alekseeva Y., Menshikh D., Kudryavtseva O. Greening as an element of sustainable urban development: valuation of economic feasibility, policy assessment and practical examples. Bulletin of RUDN University. Series: Agronomy and animal husbandry. 2016. № 4. Pp. 51-62.
2. Analysis of the potential for innovative environmentally sustainable development of the region's economy (on the example of Kaliningrad region): Collective monograph / Edited by P.A. Kiryushin and Olga Kudryavtseva, 2013, TEIS Moscow, 256 p.

Topic 4. Accounting for the environmental factor. Project analysis taking into account the environmental factor.

Ecologically adjusted GDP. Assessment of movement of natural resources and the System of National Accounts. Use of input–output model and "Costs-Benefits" method in studying energy markets, assessing the use of resources, generating waste and pollution. Public welfare and discounting. Features of projects with environmental/ecological consequences. Contingent valuation method and its practical application. Method of transportation costs and its practical application. Evaluation of the effectiveness of projects on specific examples.

Main literature:

1. Kudryavtseva O.V. Methods of accounting for natural resource flows (economic, ecological, social features). - TEIS, Faculty of Economics, Moscow State University, 2008.
2. Perman R., Yu Ma, McGillvri J., Common M. Economics of natural resources and environmental protection (intermediate level). M.: TEIS, 2006. 1166 p.

Additional literature:

Kudryavtseva O.V., Yakovleva E.Yu. Accounting for water flows used in the Russian economy, and calculation of the water intensity of products exported. Water resources. 2016. Vol. 43. № 4. p. 451.

Topic 5. Determination of total consumption of natural resources at macro and micro levels.

Method for determining the full consumption of natural resources. Hidden flows and accumulated resources. Analysis of the life cycle of products. Sustainability of ecological systems, system dynamics.

Main literature:

1. Kudryavtseva O.V. Methods of accounting for natural resource flows (economic, ecological, social features). - TEIS, Faculty of Economics, Moscow State University, 2008.

Additional literature:

1. Economic analysis of the movement of natural resources in Russia: Collective monograph / Under the scientific editorship of Kudryavtseva O.V. / O.V. Kudryavtseva, N.V. Teterina, E. Yu. Yakovleva, K.S. Sitkina. - Prospekt, Moscow, 2015. - 144 p.
2. Papenov K.V., Kudryavtseva O.V. Economics of nature management and environmental protection. - TEIS Moscow, 2010. - p. 174.

Topic 6. Sustainable society development and its measurement. Sustainable city. Marketing of territories.

Indicators and various criteria for assessing development (HDI, ecological footprint and others). Regional and cross-country comparisons. Methods of indicators construction.

Main literature:

1. Indicators of environmentally sustainable development for Russian regions / S. Bobylev, O. Kudryavtseva, S. Solovyov, K. Sitkina. - Infra-M Moscow, 2015. - P. 194.
2. Sustainable development of areas/ u. ed. Olga Kudryavtseva. Faculty of Economics, Lomonosov Moscow State University. Moscow, 2021. — 492 p.

Additional literature:

1. Environmental indicators of the quality of growth of regional economy/ Edited by I.P. Glazyrin, I.M. Potravniy. -M.: NIA-Nature (Priroda), 2006. - 306 p.
2. S.N. Bobylev, O.V. Kudryavtseva, S.V. Solovyova, Indicators of sustainable development for cities. Economy of the region. 2014. No. 3 (39). Pp. 101-110.

Topic 7. Ecological damage.

Theory, practice and methods for assessing economic damage from environmental violations.

Main literature:

1. Ryumina E.V. Economic analysis of damage from environmental violations. Moscow: Nauka, 2009, 331 p.
2. Kudryavtseva O.V., Ledashcheva T.N., Pinaev V.E. Features of environmental audit (HSE) in the enterprise in modern conditions. Faculty of Economics, Lomonosov Moscow State University. Moscow, 2016.

Additional literature:

Kudryavtseva O.V., Ledashcheva T.N., Pinaev V.E. Method and practice of environmental impact assessment. Project documentation / Moscow, 2016.

Topic 8. Bioeconomics and high-tech industries.

Main literature:

Bioeconomics in Russia: development prospects. Edited by S.N. Bobylev, P.A. Kiryushin, O.V. Kudryavtseva, Moscow: Prospekt, 2017, 176 p.

Additional literature:

1. Kudryavtseva O.V., Yakovleva E.Yu., Golovin M.S. Features and prospects of the domestic market of wood biofuel against the background of world trends. Bulletin of Moscow University. Series 6: Economics. 2016. № 6. Pp. 22-38.
2. Kudryavtseva O.V., Yakovleva E.Yu. Modern problems, trends and prospects of pharmaceutical market in Russia. Management of the development of large-scale systems (MLSD'2016) Materials of the Ninth International Conference: in 2 volumes. Under the common editorship of S.N. Vasileva, A.D. Tsvirkuna. 2016. Pp. 379-382.

Topic 9. Optimal use of renewable resources.

Main literature:

Tietenberg, Thomas H. Environmental & natural resource economics / Tom Tietenberg, Lynne Lewis. — 9th ed, 2012
<http://s1.downloadmienphi.net/file/downloadfile7/200/1375238.pdf>

Additional literature:

1. Papenov K.V., Kudryavtseva O.V. Economics of nature management and environmental protection. - TEIS Moscow, 2010. - p. 174.
2. I.A. Grechukhina, O.V. Kudryavtseva, E.Yu. Yakovleva. Efficiency of development of renewable energy sources in Russia. Economy of the region. 2016. Vol. 12. № 4. Pp. 1167-1177.
3. Kudryavtseva O.V., Yakovleva E.Yu., Golovin M.S. Features and prospects of the domestic market of wood biofuel against the background of world trends. Bulletin of Moscow University. Series 6: Economics. 2016. № 6. Pp. 22-38.

4. Kudryavtseva OV, Yakovleva E.Yu. Prospects for the development of bioenergy in Russia (intersectoral aspect). In the collection: Theory and practice of economic regulation of nature management and environmental protection XIII International Scientific and Practical Conference of the Russian Society of Ecological Economics RSEE-2015 / ROEE-2015. 2015. pp. 184-195.

Topic 10. Public Administration in Environmental Matters.

Main literature:

Hanley, N., Shogren J., and White, B. (2007): Environmental Economics in Theory and Practice, 2nd Ed., London: MacMillan Press.

Additional literature:

Papenov K.V., Kudryavtseva O.V. Economics of nature management and environmental protection. - TEIS Moscow, 2010. - p. 174.

Topic 11. Economic mechanism for stimulating environmental protection.

Payments for pollution, taxes, subsidies, loans. Best available technologies. Determination of the optimum level of contamination. Some ethical issues of nature management.

Main literature:

1. Hanley, N., Shogren J., and White, B. (2007): Environmental Economics in Theory and Practice, 2nd ed., London: MacMillan Press.
2. Tietenberg, Thomas H. Environmental & natural resource economics / Tom Tietenberg, Lynne Lewis. — 9th ed, 2012 <http://s1.downloadmienphi.net/file/downloadfile7/200/1375238.pdf>

Additional literature:

Papenov K.V., Kudryavtseva O.V. Economics of nature management and environmental protection. - TEIS Moscow, 2010. - p. 174.

7. Assessment tools to assess the course learning outcomes

7.1. Sample assessment tools:

Learning outcomes of the course	Types of assessment tools
SPC-1.I-1.A-1. Able to identify topical issues in various areas of economic policy	Case-studies Presentation or essay (homework) Written work
SPC-1.I-1.A-2. Able to identify stakeholders and evaluate their interests when analyzing possible ways to solve current issues	Case-studies Presentation or essay (homework) Written work
SPC-2.I-1.A-1. Able to apply quality criteria when formulating goals and objectives of economic policy	Case-studies

	Presentation or essay (homework) Written work
SPC-2.I-1.A-2. Able to formulate performance indicators for the goals and objectives of economic policy as well as to assess the distorting effect of indicators	Case-studies Presentation or essay (homework) Written work
SPC-2.I-1.A-3. Able to consider ethical constraints when formulating the goals and objectives of economic policy	Case-studies Presentation or essay (homework) Written work
SPC-3.I-1.A-1. Able to coordinate goals, objectives, performance indicators of various program documents	Case-studies Presentation or essay (homework) Written work
SPC-3.I-1.A-2. Able to design discrete institutional alternatives using elements of regulatory impact assessment	Case-studies Presentation or essay (homework) Written work

7.2. Course assessment criteria (scores):

Types of assessment tools	Score
Work at lectures and seminars	80
Written control work	40
Homework	40
Written work (exam)	40
Total	200

If there are blocking elements before the midterm assessment, it is required to indicate the retake procedure for each of these elements.

7.3. Grade for the course is determined based on the following criteria:

Grade	Minimum score	Maximum score
<i>Excellent</i>	170,0	200,0
<i>Good</i>	130,0	169,5
<i>Satisfactory</i>	80,0	129,5
<i>Failed</i>	0,0	79,5

Note: in case a student's score obtained during the trimester is less than 20% of the maximum score of the discipline, the following rule of passing the course should be applied at the midterm assessment (and further re-examination): 'a student can obtain only a satisfactory mark and only in case she/he receives for the midterm assessment, including all the course material, no less than 85% of the score allocated to this assessment'.

7.4. Typical tasks and other materials necessary to assess the learning outcomes:

— *Case studies*

The president of your country just is going to take part in the world leaders' summit on circular economy. He's going to present a transition to circularity roadmap at the conference. All the key stakeholders – administration, business and people – should agree on the roadmap before its presentation

Your country

GDP structure:

15% - agriculture

10% - mining and extraction

25% - industry (labor intensity and energy intensity is high)

50% - services (IT and finance outsourcing)

Facts:

- Industry consumes 50% of mining and extraction production. The rest is exported.
- Automatization might make lots of people unemployed
- People have low standards of living, whereas Internet penetration rate is high (up to 80%)
- Huge areas of land are turned to dumpsites which causes health problems and protest among population
- Water is a scarce resource
- Education level is low (50%)

— *Essays (topics)*

1. Perspectives of RES in Russia and in the world
2. Why in China RES are so developed?
3. Perspectives of governmental support of RES in Russia.

Examples of questions of written work:

1. Share of RES of the energy balance in Russia
2. What kind of RES is major in energy balance of the country?
3. Describe how do you understand:
 - 1) Sustainable development;
 - 2) Green growth;
 - 3) Low-carbon economy;
 - 4) Circular economy.

7.5. Methodological guidelines and assignment requirements:

— *Participation in discussions*

Student's activity is assessed by the professor during lectures and seminars.

— *Homework (Essays or oral presentations)*

Homework includes an oral presentation and report on a topic chosen by the student in advance.

— *Control work and written examination*

- The midterm testing and final testing of student's knowledge takes place in the form of two written works. As an alternative to a second written work a student may write a scientific article with its further publication.

8. Resources

8.1. List of main and additional literature

Main literature:

1. Sustainable development of areas/ u. ed. Olga Kudryavtseva. Faculty of Economics, Lomonosov Moscow State University. Moscow, 2021. — 492 p.
2. Perman R., Yu Ma, McGuilvri J., Common M. Economics of natural resources and environmental protection (intermediate level). M.: TEIS, 2006. 1166 p.

3. Hanley, N., Shogren J., and White, B. (2007): Environmental Economics in Theory and Practice, 2nd ed., London: MacMillan Press.
4. Tietenberg, Thomas H. Environmental & natural resource economics / Tom Tietenberg, Lynne Lewis. — 9th ed, 2012 <http://s1.downloadmienphi.net/file/downloadfile7/200/1375238.pdf>
5. Papenov K.V., Kudryavtseva O.V. Economics of nature management and environmental protection. - TEIS Moscow, 2010. - p. 174.
6. Kudryavtseva O.V. Methods of accounting for natural resource flows (economic, ecological, social features). - TEIS, Faculty of Economics, Moscow State University, 2008.
7. Kudryavtseva O.V., Ledashcheva T.N., Pinaev V.E. Features of environmental audit (HSE) in the enterprise in modern conditions. Faculty of Economics, Lomonosov Moscow State University. Moscow, 2019.
8. Bobylev S.N., Kiryushin P.A., Kudryavtseva O.V. (editors): Green Economy and Sustainable Development Goals for Russia/Moscow, Department of Economics of Lomonosov Moscow State University, 2019, 284 p.

Additional literature:

1. Analysis of the potential for innovative environmentally sustainable development of the region's economy (on the example of Kaliningrad region): Collective monograph / Edited by P.A. Kiryushin and Olga Kudryavtseva, 2013, TEIS Moscow, 256 p.
2. Bioeconomics in Russia: development prospects. Edited by S.N. Bobylev, P.A. Kiryushin, O.V. Kudryavtseva, Moscow: Prospekt, 2017, 176 p.
3. S.N. Bobylev, O.V. Kudryavtseva, S.V. Solovyova, Indicators of sustainable development for cities. Economy of the region. 2014. No. 3 (39). Pp. 101-110.
4. I.A. Grechukhina, O.V. Kudryavtseva, E.Yu. Yakovleva. Efficiency of development of renewable energy sources in Russia. Economy of the region. 2016. Vol. 12. № 4. Pp. 1167-1177.
5. Indicators of environmentally sustainable development for Russian regions / S. Bobylev, O. Kudryavtseva, S. Solovyov, K. Sitkina. - Infra-M Moscow, 2015. - P. 194.
6. Kudryavtseva O.V., Yakovleva E.Yu., Golovin M.S. Features and prospects of the domestic market of wood biofuel against the background of world trends. Bulletin of Moscow University. Series 6: Economics. 2016. № 6. Pp. 22-38.
7. Kudryavtseva O.V., Yakovleva E.Yu. Accounting for water flows used in the Russian economy, and calculation of the water intensity of products exported. Water resources. 2016. Vol. 43. № 4. p. 451.
8. Kudryavtseva O.V., Yakovleva E.Yu. Prospects for the development of bioenergy in Russia (intersectoral aspect). In the collection: Theory and practice of economic regulation of nature management and environmental protection XIII International Scientific and Practical Conference of the Russian Society of Ecological Economics RSEE-2015 / ROEE-2015. 2015. pp. 184-195.
9. Kudryavtseva O.V., Yakovleva E.Yu. Modern problems, trends and prospects of pharmaceutical market in Russia. Management of the development of large-scale systems (MLSD'2016) Materials of the Ninth International Conference: in 2 volumes. Under the common editorship of S.N. Vasileva, A.D. Tsvirkuna. 2016. Pp. 379-382.

10. Kudryavtseva O.V., Ledashcheva T.N., Pinaev V.E. Method and practice of environmental impact assessment. Project documentation / Moscow, 2019.
11. Economic analysis of the movement of natural resources in Russia: Collective monograph / Under the scientific editorship of Kudryavtseva O.V. / O.V. Kudryavtseva, N.V. Teterina, E. Yu. Yakovleva, K.S. Sitkina. - Prospekt, Moscow, 2015. - 144 p.
12. Environmental indicators of the quality of growth of regional economy/ Edited by I.P. Glazyrin, I.M. Potravniy. -M.: NIA-Nature (Priroda), 2006. - 306 p.

Some articles in English:

1. Alekseeva Y., Menshikh D., Kudryavtseva O. Greening as an element of sustainable urban development: valuation of economic feasibility, policy assessment and practical examples. Bulletin of RUDN University. Series: Agronomy and animal husbandry. 2016. № 4. Pp. 51-62.
2. Chen G.Q., Chen Z.M. Greenhouse gas emissions and natural resources use by the world economy: Ecological input–output modeling. Ecological Modelling, No. 222, 2011, pp. 2362– 2376.
3. Hubacek K, S Giljum. 2003. Applying physical input-output analysis to estimate land appropriation (ecological footprints) of international trade activities. Ecol. Econ., 44: 137–151.
4. Liang S., Zhang T., Wang Y., Jia X. Sustainable urban materials management for air pollutants mitigation based on urban physical input-output model, Energy No. 42, 2012, pp. 387-392.
5. Llop M. Water reallocation in the input-output model, Ecological Economics. Vol. 86, 2013, pp. 21–27.
6. Nakamura S, Kondo Y. A waste input-output life cycle cost analysis of the recycling of end-of-life electrical home appliances. Ecological Economics, No. 57, 2006, pp. 494–506.
7. Reimer J. J. On the economics of virtual water trade. Ecological Economics, No. 75, 2012, pp. 135–139.
8. Roca J., Serrano M. Income growth and atmospheric pollution in Spain: An input–output approach, Ecological Economics No. 63, 2007, pp. 230–242.
9. Suh S. Are services better for climate change? Environmental Science and Technology, No. 40, 2006, pp. 6555–6560.
10. Tarancon M.A., Río P.D. Assessing energy-related CO2 emissions with sensitivity analysis and input-output techniques, Energy, No. 37, 2012, pp. 161-170.
11. Velazquez E. An input–output model of water consumption: intersectoral water relationships in Andalusia, Ecological Economics, No. 56, 2006, pp. 226-240.
12. Wang Y., Xiao H.L., Lu M.F. Analysis of water consumption using a regional input–output model: Model development and application to Zhangye City, Northwestern China. Journal of Arid Environments, No. 73, 2009, pp. 894–900.
13. Kudryavtseva O., Bolle F., Ruban R. Competition and security of supply after vertical integration: should Russia be kept off the downstream market for gas? // Scientific researches of the Faculty of Economics. Electronic journal. - 2012. - Vol. 4, № 2. - C. 178-203.

14. Kudryvtseva O., Bobylev S., Yakovleva E. Green economy regional priorities // *Economy of the region.* - 2015. - № 2. - Pp. 148-159.
15. Adams C., da Motta R. S., Ortiz R. A., Reid J., Aznar C. E., de Almeida Sinisgalli P. A. The use of contingent valuation for evaluating protected areas in the developing world: Economic valuation of Morro do Diabo State Park, Atlantic Rainforest, Sao Paulo State (Brazil)// *Ecological Economics* 66 (2008) 359 – 370
16. Bedate A., Herrero L. C., Sanz J. A. Economic valuation of the cultural heritage: application to four case studies in Spain // *Journal of Cultural Heritage* 5 (2004) 101–111
17. Bobylev S., Kudryvtseva O., Yakovleva E. Regional priorities of Green Economy// *Economy of Region.* — 2015. — no. 2. — P. 148–159. <http://www.uiec.ru/content/files/12iBobylev.pdf>
18. Boyd J., Banzhaf S. What are ecosystem services: The need for standardized environmental accounting units // *Ecological economics* 65 (2007)
19. Chapman D. Management of national parks in developing countries: a proposal for an international park service. // *Ecological Economics* 46 (2003) 1-7
20. Choi A. S., Ritchie B. W., Papandrea F., Bennett J. Economic valuation of cultural heritage sites: A choice modeling approach// *Tourism Management* 31 (2010) 213-220
21. Constanza R., d’Arge R, de Groot R., Farber S., Grasso M., Hannon B., Limburg K., Naeem S., O’Neill R. V., Paruelo J., Raskin R. G., Suttonkk P., van den Belt M. The value of the world’s ecosystem services and natural capital. // *Nature*, vol. 387, May 1997, pp. 253-260 (http://www.ecosystem-services.org/iaicrn2015/ourwiki/images/Costanza_etal_1997_nature.pdf).
22. de Groot R. S., Wilson M. A., Boumans R. M. J. «A typology for the classification, description and valuation of ecosystem functions, goods and services», *Ecological Economics*, №41 (2002)
23. Farber S. C., Constanza R., Wilson M. A. Economic and ecological concepts for valuing ecosystem services // *Ecological Economics* 41 (2002) 375–392
24. Kim S. S., Wong K. K.F., Min Cho. Assessing the economic value of a world heritage site and willingness-to-pay determinants: A case of Changdeok Palace. // *Tourism Management* 28 (2007) 317–322
25. Posthumus H., Rouquette J.R., Morris J., Gowing D.J.G., Hess T.M. A framework for the assessment of ecosystem goods and services; a case study on lowland floodplains in England. // *Ecological Economics* 69 (2010) 1510–1523
26. Poudyal N. C., Hodges D. G., Merrett C. D. A hedonic analysis of the demand for and benefits of urban recreation parks. // *Land Use Policy* 26 (2009) 975–983.
27. Togridou A., Hovardas T., Pantis J. D. Determinants of visitors' willingness to pay for the National Marine Park of Zakynthos, Greece // *Ecological Economics* 60 (2006) 308-319
28. Wallace K. J. Classification of ecosystem services: Problems and solutions, *Biological Conservation* 139 (2007)
29. Zhongmin Xu, Guodong C., Zhiqiang Z., Zhiyong Su, Loomis J. Applying contingent valuation in China to measure the total economic value of restoring ecosystem services in Ejina region // *Ecological Economics* 44 (2003) 345-358.

8.2. List of licensed software

— MS Office

8.3. List of professional databases and information referral systems

— student's access to the institutional subscription of the faculty

8.4. List of Internet resources (if necessary)

— Rosstat and regional divisions

- The World Input-Output Database (WIOD)

- State report "On the state and protection of the environment of the Russian Federation" in 2005-2020. M.

- Statistics of the United Nations <http://data.un.org/>

- Statistics of France: <http://www.cnis.fr/cms> (not available in English), <http://www.insee.fr/fr/> (available in English).

- FAO statistics: <http://www.fao.org/faostat/en/>

8.5. Description of material and technical support

To organize lectures and seminars on this discipline, the following technical facilities for studying are needed:

- computer classes with high-speed Internet access;
- portal of the Faculty of Economics of Moscow State University (www.on.econ.msu.ru);
- multimedia classroom;
- student's access to the institutional subscription of the faculty.

9. Language of instruction:

English

10. Professor (professors):

Olga Kudryavtseva, professor, professor

11. Syllabus authors:

Olga Kudryavtseva, professor, professor