

TURAN-ASTANA UNIVERSITY



Approved at the meeting  
The academic committee  
Chairman R.A. Amkulov  
2025.



**Educational program:  
University component**

**DISCIPLINE PROGRAM  
(SYLLABUS)**

**«Fundamentals of sustainable development»**

Astana – 2025



### **1. Information about the teacher**

- Karazhanova Meiramgul Khasenovna-senior lecturer, master

List of teacher requirements:

- training sessions are held according to the schedule 100% on a specific subject, including online classes (students are necessarily included in this event and actively participate in it) and with an indication in an electronic journal. At the same time, students who have received 30% or more permits from classroom classes are not allowed for intermediate Certification (Examination) in this discipline;

- classroom time includes lectures, discussion of the material studied, and performing various exercises. Students should prepare for each lesson in accordance with the topic and the proposed list of basic and additional literature;

- active participation in the educational process and research work;

- actively participate and promote collective/group work.

- working / meeting hours: 9.00-18.00 hours.

- Office b 804

-meeting place - [karazhanova@tau-edu.kz](mailto:karazhanova@tau-edu.kz)

The discipline "fundamentals of sustainable development" is an elective component, in general, the University component is a component of the professional training of The Bachelor'S degree program is studied in the 3rd semester. In total, 150 academic hours are allocated for the study of the discipline, which are divided by types of classes as follows:

- classroom classes-45 hours,

- independent work of the student (TVE) - 105 hours.

Classroom time in the amount of 45 hours: lectures - 30 hours, practical classes-15 hours.

Form of final (semester) control of students' knowledge: 2nd year, 3rd Semester-Exam.

### **2. Goals and objectives of the discipline**

The purpose of the discipline "fundamentals of sustainable development" is the formation of students' comprehensive understanding of the principles, values and methodology of sustainable development, as well as the development of skills in applying sustainable approaches in various areas of human activity in order to promote environmental preservation, ensure social justice and ensure economic sustainability in the long term

### **3. Task of the discipline**

- to study the historical prerequisites for the emergence of the concept of sustainable development and the stages of its formation;

- to examine the main theories of system stability and the principles of sustainable development;

- to explore the concept of sustainable environmental development;

- to study the economic-geographical, social, and political-geographical aspects of sustainable development;

- to learn the fundamentals of managing the stability of ecological and economic systems, including through examples from specific sectors (such as managing the sustainable development of tourist destinations);

- to analyze the process of Kazakhstan's transition toward sustainable development.

After completing the course, the student will be able to:

- key ecological principles;

- fundamental documents developed by the global community for the sake of sustainable development;

- principles of green technologies;

- social aspects of sustainable development;

- methods for efficient use of resources;

- global problems and potential solutions and ways to implement them;

- the role of the modern state in ensuring sustainable development;

**Required skills:**

- applying critical analysis;
- Assessing the natural, economic, and socio-cultural factors of sustainable development;
- Identifying risks and prerequisites for sustainable development;
- Efficiently managing time, resources, and tasks within sustainable projects and research;
- Using various methods to evaluate sustainable development.

**Required knowledge:**

- Contemporary global and regional environmental issues, advanced practices in sustainable development and natural resource management;
- Key methods for measuring sustainable development;
- Globalization processes occurring in the current stage of civilization development.

**Prerequisites:** Ecology

**Postrequisites:** Sustainable Development Economics

**4. Teaching Format:** Traditional

**5. Topics and Their Study Duration**

**5.1. Lectures**

<b>№/p</b>	<b>Lesson topic [literature №, §§, page(s)]</b>	<b>Volume, duration</b>	<b>Study week</b>
1	Introduction. Goals and objectives of the course. The concept of sustainable development and its key principles. History and evolution of the sustainability idea. Sustainable development strategies and principles [Book №1, pp. 79-89; Book №2, pp. 6-30]	4	1-2
2	Scientific research methods [Book №5, pp. 5-17]	1	2
3	Main components of sustainable development. State policy on the path to sustainable development. The Republic of Kazakhstan on the path to sustainable development. Sustainable development strategy [Book №1, pp. 79-89; Book №2, pp. 31-43]	2	3
4	Ecological sustainability: environmental pollution and prevention methods. Management of natural resources and biodiversity. Sustainable development and green investments. [Book №1, pp. 90-100]	4	4-5
5	Economic conditions as the basis for achieving sustainable development [Book №1, pp. 107-118; Book №2, pp. 50-54]	4	6-7
6	Social component of sustainable development. Social sphere. Concepts and main development trends in transition to sustainable development. Key problems in the social sphere. Main indicators characterizing the social sector [Book №1, pp. 142-154]	4	8-9
7	Legislative and regulatory framework supporting sustainable development. International agreements. Strategies, Concepts, Declarations. Laws of the Republic of Kazakhstan and foreign	2	10

	countries related to sustainable development [Book №1, pp. 154-165; Supplement №5]		
8	Green technologies and innovations for sustainable development. Information technologies and their role in achieving sustainability. Ethical aspects of sustainable development [Book №1, pp. 113-116; Book №2, pp. 55-63]	2	11-12
9	Sustainable Development Strategy of the Republic of Kazakhstan, foreign experience. Concept of sustainable development. Main directions of development in foreign countries [Book №1, pp. 81-89; Book №2, pp. 65-72]	4	13-14
10	Development prospects of the Republic of Kazakhstan. Justification for choosing a sustainable development strategy. Economic, ecological, and social development prospects as an integrated interrelated system [Book №1, pp. 81-89]	3	14-15
<b>TOTAL:</b>		<b>30</b>	<b>15</b>

### 5.2 Practical lessons

№ №	Lesson topic [literature №, §§, page(s)]	Mode of instruction	Volume, duration	Study week
1	Introduction. Course goals and objectives. The concept of sustainable development and its key principles. History and evolution of the sustainability idea. Sustainable development strategies and principles [Book №1, pp. 79-89; Book №2, pp. 6-30]	Oral questionnaire	2	1-2
2	Main components of sustainable development. State policy on the path to sustainable development. The Republic of Kazakhstan on the path to sustainable development. Sustainable development strategy [Book №1, pp. 79-89; Book №2, pp. 31-43]	Business game	2	3
3	Ecological sustainability: environmental pollution and prevention methods. Management of natural resources and biodiversity. Sustainable development and green investments. [Book №1, pp. 90-100]	Solving situational cases, questionnaire	4	4-5
4	Economic conditions as the basis for achieving sustainable development [Book №1, pp. 107-118; Book №2, pp. 50-54]	Business game, oral questionnaire	4	6-7
5	Social component of sustainable development. Social sector. Concepts and main development trends in the transition to sustainable development. Key problems in the social sector. Main indicators characterizing the social sphere [Book №1, pp. 142-154]	Debate	4	8-9

6	Legislative and regulatory framework supporting sustainable development. International agreements. Strategies, Concepts, Declarations. Laws of the Republic of Kazakhstan and foreign countries related to sustainable development [Book №1, pp. 154-165; Supplement №5]	Written work	2	10
7	Green technologies and innovations for sustainable development. Information technologies and their role in achieving sustainability. Ethical aspects of sustainable development [Book №1, pp. 113-116; Book №2, pp. 55-63]	Learning training	4	11-12
8	Sustainable Development Strategy of the Republic of Kazakhstan, foreign experience. Concept of sustainable development. Main development directions in foreign countries [Book №1, pp. 81-89; Book №2, pp. 65-72]	Problem-solving cases	4	13-14
9	Development prospects of the Republic of Kazakhstan. Justification for selecting a sustainable development strategy. Economic, ecological, and social development prospects as an integrated, interconnected system [Book №1, pp. 81-89]	Problem-solving cases	3	14-15
<b>TOTAL:</b>			<b>15</b>	<b>15</b>

### 5. Independent work assignments

task №	Lesson topic	Type of work (form)	Task content	Deadline (week)
1	Introduction. Course goals and objectives. The concept of sustainable development and its key principles. History and evolution of the sustainability idea. Sustainable development strategies and principles.	Written Assignment (Glossary)	Create a glossary of key terms related to the topic, covering entries from A to R.	1-2 week
2	Main components of sustainable development. State policy on the path to sustainable development. The Republic of Kazakhstan on the path to sustainable development. Sustainable development strategy.	ROS Written Work Research Paper	Develop a project aimed at improving sustainability in your city or region, considering ecological, economic, and social aspects. Prepare an implementation plan, assess potential risks, and propose mitigation strategies.	3-5 week

			Format: A4, 10–15 pages.	
3	Ecological sustainability: environmental pollution and prevention methods. Management of natural resources and biodiversity. Sustainable development and green investments.	Write an analytical paper (7–10 pages) identifying best practices and recommendations for improving policy	Use an online ecological footprint calculator to measure your personal impact. Analyze the results and propose practical steps to reduce your footprint. Write a brief report: 3–5 pages.	6-8 week
4	Economic conditions as the foundation for achieving sustainable development.	Develop and design a research project, describing its key implementation stages	Study various types of alternative energy sources such as solar, wind, hydro, and bioenergy. Compare them with traditional energy sources in terms of ecological and economic efficiency. Prepare a presentation with research findings and recommendations for using alternative energy sources in different regions (10–15 slides). Research how large international corporations integrate sustainable development principles into their operations. Select one company and evaluate its sustainable development strategy as well as its social and environmental responsibility. Prepare an analytical report (5–7 pages) with suggestions for improving the company's strategy. Choose a business or organization and analyze its activities from a sustainability perspective. Evaluate how the organization implements sustainability principles, what measures are taken to reduce negative environmental impact, and what social	6-8 week

			<p>programs are being implemented.</p> <p>Submit as a written report in A4 format (10–15 pages)</p> <p>Prepare materials for submission to Kazakhstan’s relevant authorities as part of Assignment 1.</p>	
5	<p>Social component of sustainable development. Social sector. Concepts and main development trends during the transition to sustainable development. Key problems in the social sphere. Main indicators describing the social sector.</p>	Research Paper	<p>Conduct a research study on the topic “Social Justice and Sustainable Development.” Consider how social inequalities impact the achievement of the Sustainable Development Goals (SDGs), and propose solutions based on analysis and recommendations.</p> <p>Examine the role of women in achieving the Sustainable Development Goals. Explore how gender equality contributes to social and economic development, and analyze successful programs aimed at strengthening the role of women in society.</p> <p>Write an essay (5–7 pages) that includes examples of effective initiatives and recommendations for promoting gender equality.</p>	8-10 week
6	<p>Legislative and regulatory framework supporting sustainable development. International agreements. Strategies, Concepts, Declarations. Laws of the Republic of Kazakhstan and foreign countries related to sustainable development.</p>		<p>Prepare educational materials on the main laws and regulations in the field of sustainable development, such as presentations or brochures. Ensure that the materials are informative and accessible to the target audience. Study the laws governing sustainable development issues. Conduct a comparative analysis of strategies in Kazakhstan and foreign countries. Explore the relationship between human rights and sustainable development. Assess how violations of human rights affect the achievement of</p>	10-12 week

			sustainable development goals, and propose measures to ensure the protection of human rights within the context of sustainable development. Provide specific examples and recommendations for improving the situation of human rights.	
7	Green technologies and innovations for sustainable development. Information technologies and their role in achieving sustainability. Ethical aspects of sustainable development.	Write an analytical paper (7–10 pages) with examples of effective social policy and recommendations for improvement	Study the impact of climate change on the economy of a specific sector, such as agriculture, tourism, or construction. Evaluate the risks and propose adaptation strategies using green technologies and innovations to promote sustainable development.	12-13 week
8	Sustainable Development Strategy of the Republic of Kazakhstan and foreign experience. Concept of sustainable development. Main directions of development in foreign countries.	Defense of the research project (presentation)	Analyze the Sustainable Development Strategy of the Republic of Kazakhstan. Assess the measures taken to achieve the United Nations Sustainable Development Goals (SDGs). Focus on the achievements and challenges facing the country. Write an essay (5–7 pages) based on well-founded conclusions. Study the impact of social policy—such as healthcare, education, and social protection—on achieving the Sustainable Development Goals. Analyze how social policy influences or hinders social progress in different countries and in Kazakhstan.	13-14 week

9	<ul style="list-style-type: none"> <li>Development prospects of the Republic of Kazakhstan. Justification for choosing a sustainable development strategy. Economic, ecological, and social development prospects as an integrated, interconnected system.</li> <li></li> </ul>	Press release, material for a scientific article	Conduct a literature review on a selected topic related to sustainability, such as biodiversity, water resources, or sustainable urban development. Analyze various scientific articles, synthesize the information, and present the main trends and conclusions. Write the literature review (5–7 pages), highlighting key findings and their impact on future research. Analyze how globalization affects social development in Kazakhstan and other countries. Consider both the positive and negative aspects of globalization, such as increased access to education and healthcare, as well as the exacerbation of inequality. Prepare an analytical report (5–7 pages) with conclusions and recommendations on how to mitigate the negative impacts of globalization.	15 week
---	---	--	--	---------

### 6. Consultation time

Consultations are held every Wednesday at 14:00 in room B811.

### 7. Schedule for assessing students' knowledge

Students' knowledge is assessed during practical sessions and consultations.

### 8. Criteria for evaluating students' knowledge

Type of task	The weight of each assignment	Grading scale	Features	Distribution of assessment
Presentation	20%	50-100	«excellent» «good» «satisfactory» «unsatisfactory, not counted»	90-100 70-89 50-69 0-49
Booklet	25 %	50-100	«excellent» «good» «satisfactory» «unsatisfactory, not counted»	90-100 70-89 50-69 0-49
ROS written	45 %	50-100	1. Content of the written	90-100

work			work - 1-25 points 2. Degree of independence of the author, presence of the student's own opinion, creative approach, and personal examples - 1-25 points 3. Structure of the work, logical flow of the material - 1-20 points 4. Use of recent literature - 1-10 points 5. Compliance with formatting requirements - 1-10 points 6. Submission within the deadline (as stated in the syllabus) - 1-10 points	70-89 50-69 0-49 90-100 70-89 50-69 0-49
Written work (glossary)	10 %	50-100	Relevance of the content to the stated topic - 1- 30 points Literacy (grammar, clarity, accuracy) - 1- 20 points Originality and independence - 1- 30 points Argumentation - 1- 20 points	90-100 70-89 50-69 0-49

### 9. Course policy (rules)

Monitoring of academic performance includes ongoing progress assessment, knowledge checkpoints, and a final examination.

Ongoing assessment is carried out during class sessions. It includes participation in seminars, activity during lectures, and the completion of independent work assignments. All grades for current performance are given on a 100-point scale: 0-49 - unsatisfactory, 50-69 - satisfactory, 70-89 - good, 90-100 - excellent.

Midterm control is based on the results of ongoing assessment and knowledge checkpoints.

Knowledge checkpoints are conducted without prior notice, in written form, without preparation, and during regular classes. They are held after completing a specific topic or block of topics, according to the academic calendar during the colloquium week.

The final exam is conducted at the end of the semester according to the schedule, provided the student has a passing admission rating. To be allowed to take the final exam, a student must have achieved at least 50% of the total points during the semester. If a student misses the exam, they must provide a valid reason for their absence. A "Permission to Take Exams" card issued by the Dean's Office is required for all exams. Textbooks and other materials are not allowed during exams. Midterm assessment accounts for 60% of the final grade, and the final exam accounts for 40%. The final grade is calculated on a 100-point scale. Grades will not be given for missed classes or incomplete independent assignments (SRW).

Equal access is ensured for all students, regardless of individual abilities or special educational needs. All students are subject to the same course requirements.

**Feedback methods:** Feedback is provided through the Platonus LMS and Moodle by timely submission of assignments. Deadlines are specified in the syllabus.

**Academic integrity:** All assignments submitted via the Platonus LMS will be automatically checked for plagiarism through the integrated “Strike Plagiarism” system. During online learning, proctoring software will be used.

**Technical requirements:** Access to a computer or laptop, webcam, and microphone is mandatory.

## 10. List of References

### 10.1 Main References

1. Abubakirova K.D. Ecology and Sustainable Development. Almaty, 2016.
2. A.K. Baeshova, A.B. Baeshov. Ecology and Sustainable Development: Textbook. Almaty, 2018.
3. Laws of the Republic of Kazakhstan on Emergency Situations. Agency for Emergency Situations of the Republic of Kazakhstan. Almaty, 2014.
4. Baytasheva G.O. Ecology and Sustainable Development Practicum. Almaty, 2013.
5. Yagodin, G. A., Purtova, E. E. Sustainable Development: Man and Biosphere: Textbook / 4th ed. (electronic). Moscow: Knowledge Laboratory, 2023. 112 p.
6. Astafyeva O.E., Avramenko A.A., Pitryuk A.V. Fundamentals of Environmental Management: Textbook for Universities. Moscow: Yurayt Publishing, 2021. 354 p.
7. Bekmurzaeva R.Kh., Jandarova L.Kh. Sustainable Development: Textbook. Grozny, 2018. 130 p.
8. Methodology of Teaching Special Disciplines: Textbook / E.N. Larina. Voronezh: VGPU, 2014. 111 p.
9. Costa, E., Pesci, C., Andreaus, M. and Taufer, E. (2022) When a sector-specific standard for non-financial reporting is not enough: evidence from microfinance institutions in Italy. Sustainability Accounting, Management and Policy Journal, Vol. 13. No. 6. Pp. 1334–1360. DOI: 10.1108/SAMPJ-06-2021-0253.
10. Ebolor, A., Agarwal, N., (2022) Sustainable development in the construction industry: The role of frugal innovation, Journal of Cleaner Production. 2022. Vol. 380. Part 2. DOI: 10.1016/j.jclepro.134922.

### 11.2. Additional References:

1. Vashalova, T. V. Sustainable Development: A Textbook for Universities. 3rd ed. Moscow: Yurayt, 2020. 186 p.
2. Yakutseni, S. P., & Burovsky, A. M. Political Ecology. Moscow; Berlin: Direct-Media, 2015. 426 p.
3. Novoselov, A. L., Medvedeva, O. E., & Novoselova, I. Yu. Economics, Organization and Management in the Field of Subsoil Use: Textbook and Workshop. Moscow: Yurayt Publishing House, 2019. 625 p.
4. Sustainable Development of Territories: Monograph, ed. by O. V. Kudryavtseva. Moscow: Faculty of Economics, Lomonosov Moscow State University, 2021. 492 p.
5. Decree of the President of the Republic of Kazakhstan “On the Concept for the Transition of the Republic of Kazakhstan to Sustainable Development for 2006–2024.” Resolution of the Government of the Republic of Kazakhstan No. 981 of October 12, 2006.

6. Sadyrova, G. A., Sadyrov, G. A., Sadyr, G. Ä., & Sadyrova, G. A. “The Impact of the ‘Green’ Economy on the Urban Ecosystem of Almaty City.” Bulletin of the Karaganda University. Biology. Medicine. Series ‘Geography’, No. 1(109)/2023, pp. 184–194.

7. Smagulov, N. K., Konkabaeva, A. E., Tykezhanova, G. M., Sadykova, A. Zh., Mukasheva, G. Zh., & Serik, A. T. “Analysis of the Relationship Between Weather Conditions and Air Quality in the Cities of Kazakhstan Over an 11-Year Period (2010–2020) as the Basis for Epidemiological Risks.” Bulletin of the Karaganda University. Biology. Medicine. Series ‘Geography’, No. 4(112)/2023, pp. 168–174.

8. International Monetary Fund (2019). World Economic Outlook, Growth Slow Down, Precarious Recovery. Available at: <https://www.imf.org/en/Publications/WEO/Issues/2019/03/28/world-economic-outlookapril-2019>.

9. Landford M. (2016) Lost in Transformation? The Politics of the Sustainable Development Goals. Available at:

<https://www.jus.uio.no/ior/english/people/aca/malcolml/sdgs-politics-langford.pdf> .

### **Internet resources:**

1. <http://www.un.org/ru/development/sustainable/> (United Nations and Sustainable Development)

2. <http://www.un.org/esa/sustdev/> (United Nations Commission and Sustainable Development).

3. <http://wdc.org.ua/> (World data center for geoinformatics and sustainable development).

4. <http://www.un.org/ru/development/progareas/dsd.shtml> (Information on UN bodies in the field of sustainable development, global and regional programs). <http://www.fund-sd.ru/> (Fund «Sustainable development»).

5. <http://www.wwf.ru/sustainability/> (WWF and Sustainable Development).

6. <http://www.ustoichivo.ru/> (Information Website on Sustainable Development.).

7. <http://sdo.uni-dubna.ru/journal/> and <http://www.yrazvitie.ru/> (Official websites of the journal Sustainable Development: Science and Practice).

8. <http://www.clubofrome.org/eng/home/> (The Club of Rome official website).

9. <http://www.worldbank.org/> (The world bank - sustainable development).

10. <http://www.wri.org/> (the website of a non-profit organization World Resources Institute ).

11. <http://www.worldwatch.org/> (the website of a non-profit organization World Watch Institute).

12. World Wildlife Fund (WWF): <https://www.worldwildlife.org/> WWF provides information about various environmental projects and places to visit

13. Green Key: <https://www.greenkey.global/> - Green Key - a certification program for environmentally sustainable hotels.

14. National Geographic - Travel: <https://www.nationalgeographic.com/travel/> - National Geographic offers a travel section with a focus on environmental and natural aspects.

15. EcoTourLinQ: <https://www.ecotourlinq.com/> - This resource provides information about various environmentally sustainable tourist destinations around the world.

16. [ecoportal.ru](http://ecoportal.ru) —all ecology in one place — articles and publications

17. United Nations <https://www.un.org/ru>

18. Sustainable Development: Science and Practice (Electronic resource) <http://www.yrazvitie.ru>

### **11.3.1 Dometic journals**

1. Bulletin of KazNU. Economic Series // <https://be.kaznu.kz/index.php/math/about>

2. Guide Journal “Discovery Kazakhstan” <http://www.guide.kz/ru/dkz.shtml>

3. Scientific Journal “Bulletin of Turan University”  
[https://vestnik.turan-edu.kz/jour?locale=ru\\_RU](https://vestnik.turan-edu.kz/jour?locale=ru_RU)
4. Scientific Journal “Bulletin of the Innovative Eurasian University”  
<http://vestnik.ineu.edu.kz/>
5. Scientific Journal “Bulletin of the National Academy of Sciences of the Republic of Kazakhstan” <https://journals.nauka-nanrk.kz/bulletin-science>

### 11.3.2 International publications

1. International electronic journal “sustainable development: science and practice”  
istina.msu.ru
2. Central asian journal of climate and sustainable development research crs.dku.kz
3. British Ecological Society, (BES) - a british scientific journal dedicated to ecological issues  
besjournals.onlinelibrary.wiley.com
4. Ecosphere- a peer-reviewed scientific journal publishing articles across all subfields of ecology, as well as interdisciplinary research related to ecology  
esajournals.onlinelibrary.wiley.com
5. Scientific journal Tourism Analysis (indexed in scopus)-  
<https://ores.su/ru/journals/tourism-analysis/>
  1. Web of Science (WoS) <http://webofscience.com/>
  2. Scopus <http://www.scopus.com/>
  3. ScienceDirect [www.sciencedirect.com](http://www.sciencedirect.com)
  4. Wiley online library journals <https://onlinelibrary.wiley.com/>
  5. Scientific electronic library (HЭБ) <http://www.elibrary.ru/>
6. Full-text archives of leading western scientific journals on the russian scientific journals platform neicon <http://archive.neicon.ru>
7. National electronic library (providing access to the electronic dissertation library of the russian state library) <https://rusneb.ru/>
8. Springer Journals <https://link.springer.com/>
9. Nature Journals <https://www.nature.com/siteindex/index.html>
10. Springer Nature Protocols and Methods  
<https://experiments.springernature.com/sources/springer-protocols>
11. Springer Materials <http://materials.springer.com/>
12. zbMath <https://zbmath.org/>
13. Nano Database <https://nano.nature.com/>
14. Springer eBooks: <https://link.springer.com/>
15. «Лекториум ТВ» <http://www.lektorium.tv/>

### Open access resources

1. American patent database  
<http://www.uspto.gov/patft/>
2. Full texts of canadian dissertations  
<http://www.nlc-bnc.ca/thesescanada/>
3. Cyberleninka (<http://cyberleninka.ru/>);
4. Educational portal “ucheba”  
<http://www.ucheba.com/>;

## 11. Questions for the knowledge assessment section within the framework of the midterm control

## 11.1 Questions for the 1st midterm control

1. The concept of sustainable development.
2. Basic definitions and interpretations.
3. Authors of the sustainable development concept.
4. Historical context and prerequisites for the emergence of the ideology of sustainable development.
5. Key concepts of the sustainable development framework.
6. General scientific foundations of sustainable development.
7. The Kazakhstani concept of rational use of natural resources.
8. Geographical aspects of the sustainable development concept.
9. The ecological imperative of sustainable development.
10. Ecological limits of development.
11. Management of natural resource use in the interest of sustainable development.
12. The social imperative of sustainable development.
13. Cultural diversity and development.
14. The economic imperative of sustainable development.
15. Globalization and the development of sustainable development (SD).
16. Agenda for the 21st century: global, national, and local levels.
17. Geoinformation support for sustainable development.
18. Indicators of sustainable development progress.
19. Strategies and scenarios of sustainable development.
20. Key principles of sustainable development.
21. Education for sustainable development: ideology and content.
22. The mission of subject disciplines in sustainable development (geography, ecology, economics, etc.).
23. The role of UN conferences on “environment and development” in solving global environmental problems.
24. The Convention on Biological Diversity.
25. International environmental conventions.
26. Ecoethics and environmental education.
27. Emergence and formation of scientific ideas about sustainable human development.
28. Reasons necessitating a radical change in the paradigm of civilization development: social, resource, demographic, and environmental.
29. Implementation of the “Action Program” after Rio-2.
30. Ecological classification of natural resources based on their renewability degree.
31. Diotropics and issues of solving environmental problems.
32. The ecological component of sustainable human development.
33. The economic component of sustainable human development.
34. The demographic component of sustainable human development.
35. Ecological consequences of reclamation and economic construction in the Aral Sea basin.
36. The concept of “biodiversity” and its connection with sustainable development of civilization.
37. Uniting conservation efforts and the emergence of a new paradigm of sustainable human development.
38. The sustainable development concept.
39. Sustainable development: key paradigms for Kazakhstan.
40. Uniting the efforts of the global community in solving environmental problems.
41. Economic growth, poverty, wealth, and the state of the environment.
42. Future civilizations.
43. Globalization of the economy and sustainable human development.
44. Rate of change in the total urban population.

45. Rate of change in the total planetary population.
46. Non-renewable natural resources.
47. Human-influenced renewable and relatively renewable natural resources.
48. Most dangerous and intensive sources of atmospheric air pollution.
49. Causes of ozone layer depletion and desertification.
50. Development of standards for atmospheric air quality regulation.

### **Questions for the 2nd midterm control**

1. Monitoring of the natural environment in the Republic of Kazakhstan.
2. Wastewater (industrial effluents).
3. Anthropogenic sources of environmental pollution.
4. The impact of industry on the environment.
5. Global issues of humankind: the problem of poverty.
6. Global issues of humankind: the problem of food security.
7. Global issues of humankind: the energy problem.
8. Global issues of humankind: ecology and sustainable development.
9. Global issues of humankind: the demographic problem.
10. Global issues of humankind: the problem of human potential development.
11. Global issues of humankind: the development of the World Ocean.
12. Technologies aimed at preserving the planet's ecological resources.
13. Algorithm for assessing the socio-ecological and economic stability of a region.
14. Methods for assessing regional development.
15. Assessment of freshwater consumption through intersectoral balance.
16. The role of state planning in developing and forecasting long-term strategic plans.
17. The problem of assessing the stability of social development.
18. Ecosystem services provided by the biosphere.
19. The economic value of ecosystem services.
20. Analysis and integrated accounting of ecosystem services.
21. Long-term sustainable development challenges considering socio-economic and ecological-economic factors.
22. Specially protected natural areas (SPNAs).
23. Functions of specially protected natural areas.
24. Main socio-ecological and economic aspects of interregional interaction.
25. The level of ecological culture among the population of Kazakhstan.
26. Models of interaction between society and natural systems (the limits to growth model).
27. Modern understanding of the concept of sustainable development. United Nations environmental conferences.
28. Basic theories of system stability.
29. Modern issues of nature management and environmental protection.
30. Preservation of the biosphere as the foundation of sustainable development.
31. Preservation of the planet's species diversity.
32. Mechanism and strategy of sustainable ecological development.
33. Impact of modern industrial complexes on the ecological and economic stability of territories.
34. Assessment of the ecological and economic stability of regional development.
35. Sustainable industry.
36. Sustainable energy.
37. Sustainable transport.

38. Territorial planning for sustainable development.
39. Sustainable forest management.
40. Concept of sustainable development of agriculture and rural areas.
41. Concept of sustainable tourism development.
42. Sustainable development of settlements and urbanized territories.
43. The meaning of sustainable development indicators.
44. System of ecological efficiency indicators.
45. Scientific support for sustainable development.
46. Management of sustainable development: domestic and international experience.
47. Strategy for transitioning to sustainable development: the political dimension.
48. Directions for greening the regional economy.
49. Concept for Kazakhstan's transition to sustainable development.
50. Sustainable development goals. Transforming our world: the 2030 agenda for sustainable development.

**Course Instructor:**

Karazhanova Meiramgul Khasenovna, Senior  
Lecturer, Master's degree  
Office: B 804,  
e-mail: karazhanova@tau-edu.kz