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Проєкт ЕРАЗМУС+: Комплексна докторська програма з екологічної політики, менеджменту природокористування та техноекології – INTENSE

Teaching and learning materials

Course:
Philosophy of Science

Навчально-методичний комплекс

Навчальна дисципліна:
Філософія науки

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Навчальна дисципліна «**Philosophy of Science**» складена для третього / аспірантського рівня вищої освіти відповідно до:

освітньо-наукової програми 103 «Науки про Землю»,

галузі знань 10 «Природничі науки»

для спеціалізації Конструктивна географія та раціональне використання природних ресурсів в рамках виконання міжнародного проєкту ЕРАЗМУС+ «Комплексна докторська програма з екологічної політики, менеджменту природокористування та техноекології – INTENSE».

Робоча програма навчальної дисципліни була:

- рекомендована до затвердження вченою радою навчально-наукового інститутут екології Харківського нацонального університету імені В. Н. Каразіна;
- схвалена на засіданні кафедри екологічної безпеки та екололгічної освімоніторингу довкілля та природокористування;
- погоджена з гарантом освітньо-наукової програми 103 «Науки про Землю» (рівень PhD);
- погоджена науково-методичною комісією навчально-наукового інститутут екології Харківського нацонального університету імені В. Н. Каразіна;
- затверджена проректором з науково-педагогічної роботи Харківського нацонального університету імені В. Н. Каразіна.

До навчальної дисципліни також розроблено **силабус** англ.мовою.

На навчальну дисципліну отримано **дві рецензії** українських вчених та **одна рецензія** європейського партнера проєкту.

Мета і завдання курсу

Метою курсу є ознайомлення з основними поняттями та аргументами філософії науки і філософії природокористування. Курс відповідає на наступні питання з точки зору філософії науки і філософії природокористування:

- поняття науки, різні способи визначення науки, науки і псевдонауки, філософії та науки,
- методологічні теми, такі як поняття, факт, модель, гіпотеза, закон, теорія, пояснення, спостереження, експеримент, об'єктивність. Курс допомагає розвинути навички аналізу та аргументації.

Кількість кредитів: 3 кредити ECTS.
Кількість годин: 90 годин (з них аудиторних: 18 години).
Мова викладання – англійська, українська
Зміст та дистанційний курс за навчальною дицилпіною розроблено:
Надія Максименко, докт.геогр.наук, проф.,
Микола Назарук, докт.геогр.наук, проф.
Яків Тараоєв, докт.філософ.наук, проф.

Розроблені матеріали, дистанційний курс та усі супровідні матеріали **розміщено** на: https://dist.karazin.ua/, http://intense.network, http://ecology.karazin.ua/mizhnarodna-dijalnist/intense-integrated-doctora/ .
Доступ до дистанційного курсу може бути наданий після реєстрації.

Purpose and objectives of the course

The aim of the course is to introduce the main concepts and arguments of the philosophy of science and philosophy of nature use. The course addresses the following topics from the philosophy of science perspective:

· the concept of science, various ways of defining science, science and pseudo-science, philosophy and science,

· methodological topics like what is a concept, fact, model, hypothesis, law, theory, explanation, observation, experiment, objectivity. The course helps to develop analyzation and argumentation skills.

Credits : 3 ECTS,
Total hours : 90 hours (optional course) 18 in-class hoursж
Language : English, Ukrainian
The content and distance course of the discipline were developed by:
Nadiya Maksymenko, V. N. Karazin Kharkiv National University (KKNU, Ukraine
Mykola Nazaruk, Ivan Franko Lviv National University (LNU), Ukraine
Jakiv Tararoev, V. N. Karazin Kharkiv National University (KKNU), Ukraine

Lectures

The course "**Philosophy of science**" is studied in the 1 th semester in PhD program and consists of 2 sections and ends with the exam.

The theoretical material, practical tasks and recommendations for their implementation, questions for self-examination and knowledge control (in particular, examination task) are obtained from the pages of the course in accordance with the structure of the course.

The course consists of a complex of lectures on 9 topics and 4 practical tasks, 2 control works and an examination task.

Part 1. Philosophy of Science

Theme 1. Science: specificity, functions, and levels

Question:

1. Science as a form of social consciousness.
2. Social functions of science.
3. The theoretical level of scientific knowledge, its essence, and its structure.
4. Empirical level of scientific knowledge, its essence, and its structure.

1. Science as a form of social consciousness.

Science is a form of social consciousness (along with other forms, such as mythology, religion, art, philosophy, morality, law and others), which has a number of specific features and performs social functions. It is represented by a unique structure and functions through a number of methods.

The characteristic features of science include:

1) The specific language of science. It differs from the language of everyday communication by:

a) abstract nature;

b) uniqueness and rigor.

The abstract character of a scientific language is connected with the fact that objects of science, in contrast to objects of almost all other forms of social consciousness, are “outside” the limits of human sensory perception. In everyday language, there are no concepts that reflect the scientific type of reality, which means that the criteria of reliability are logical rigor and unambiguity.

2) System descriptions and statements. Every science, first of all, is a system. The property of systematic is not expressed so strongly, explicitly and strictly in any form of social consciousness, as in science.

3) Claiming for truth. Reliable or hypothetical knowledge possesses scientific value, intentionally false knowledge (fiction) cannot fundamentally have a scientific value. Only science claims to true knowledge to the maximum extent of all forms of social consciousness. Science proceeds from the concept of “objective truth”, and sets itself the task of finding it.

4) Specific research tools. They are fundamentally important and play a huge role in science and technology. In humanitarian, theoretical scientific research, they actually do not exist. However, with the development of scientific and technological progress and the widest use of technical means of processing and storing information in modern science, the universal instrument of research is the computer and its variations.

2. Social functions of science.

Science, as a form of social consciousness, performs a number of socially significant functions. Some of these functions are common and universal for all forms of social consciousness, others are unique and universal.

Common functions:

1) *Worldview.* Its essence is to give a person a holistic view of the world and the place of man in this world. In addition to science, this function is performed by all other forms of social consciousness.

2) *Methodological.* Its essence is that science in the process of its development has worked out new methods and principles of cognition, which are also used in the non-scientific field. This is, first of all, the sphere of everyday reality, where, with the development of scientific and technological progress, scientific methods become elements of everyday life

3) *Ideological.* The essence of the ideological function of science lies in the fact that in a society where the authority of science and the scientific community is high, supporters of various ideologies turn to science for arguments in their favor. This function is performed by all forms of social consciousness, and, in them there is always an ideological component and it is not removable.

In addition to these, science performs a number of other functions, such as educational, prognostic, enlightening, etc.

Unique functions:

4) Production. Before the beginning - the middle of the XIX century, scientific and technological progress developed almost simultaneously, without exerting influence on each other. Technologies, and, consequently, production, have been developed and improved outside of scientific knowledge, by trial and error, multiple repetitions and random discoveries. Around the middle of the 19th century, after the widespread use of steam engines, the influence of science on the production began to grow rapidly, the process of theorizing technology and the practice of science was intensively developing, and by the beginning of the 20th century, we could speak of the emergence of a new cultural phenomenon - a single scientific and technological progress, which fundamentally changed the everyday life of man.

5) Socio-transformational. Its essence lies in the fact that the development of scientific and technological progress causes the deepest and previously completely impossible socio-cultural transformations, in which there exist only social relations and the possibilities of the society. In the process of these transformations, certain issues and problems that previously seemed unsolvable are resolved. Science, as a form of social consciousness, performs a number of socially significant functions. Some of these functions are common and universal for all forms of social consciousness, others are unique and inherent to science.

3. The theoretical level of scientific knowledge, its essence, and its structure.

Traditionally, analyzing the structure of scientific knowledge, two levels are distinguished: theoretical and empirical.

The theoretical level of scientific knowledge functions on the basis of rational - logical (understandable) thinking, which in turn is an integral part of symbolic thinking. A person is able to think in two ways: with the help of images and with the help of symbols.

Symbolic thinking is a specific human trait. All written and spoken language consists of words and phrases (concepts). The concepts (words) are elements of symbolic thinking and are sound or visual symbols that capture the main system-forming properties of the objects that they denote.

By theory, we can understand the totality of words that are interconnected and give us a holistic understanding and description of any forms and types of reality that we perceive through our senses.

We can divide the conceptual abstract theoretical (it is also symbolic) thinking according to the degree of abstractness into two levels: every day and scientific-theoretical. However, the scientific and theoretical one can also be divided into two sublevels, and by the same criterion - the criterion of abstractness.

The theoretical level of scientific knowledge consists of 2 sublevels:

1) Private models and laws;

2) Developed theory.

The first appears as a result of a generalization of direct experimental data or observations. Its task is to describe and systemically represent the object of scientific research. It carries out this description in abstract concepts (symbols), which fix only some of the properties of the described and studied objects. This sublevel does not perform an explanatory function, i.e. it answers the question “how” and does not set out to answer the question “why”. This level historically appears first in the initial stages of the development of science.

The second sublevel appears as a result of generalization of the first level, and it performs this generalization by maintaining the most abstract and universal objects and models that establish the relationship between these objects. These objects and models, as in the first sublevel, are ideal, but they, as symbols, capture even more general and universal properties than the concepts (symbols) of the first sublevel. In this case, abstract theoretical models no longer directly rely on experience. The degree of

mediation of the relationship between empirical data and theory increases in their creation and functioning.

The theoretical level of scientific knowledge is a fundamental and basic level of science and can be regarded as a synonym for the very concept of science, since there are scientific disciplines that have a theoretical component but do not have an empirical component (for example, mathematics), but there are no scientific disciplines that have an empirical level and had no theoretical.

The empirical level in this sense plays an auxiliary role in the relationship of symbolic theoretical thinking and reality, which science is exploring. However, this role is very important.

4. Empirical level of scientific knowledge, its essence, and its structure.

The empirical level of scientific knowledge is based on obtaining information about the environment through the senses. The specificity of sensory cognition in science (as compared with everyday cognition) lies in the fact that the objects of scientific cognition are beyond the boundaries of everyday reality, both due to the limitation of our senses and because of the abstract nature of cognizable objects. This specificity is transformed into the fact that scientists investigate sensitive reality not directly, but through intermediaries - instruments. The presence of devices as intermediaries in the empirical level of scientific knowledge, the need to adapt them to the human senses, allows distinguishing two sublevels in the empirical level of scientific knowledge:

1) sublevel of observations;

2) a sublevel of empirical facts.

Observations is information about the object of study obtained either with the help of organs in their interaction with the device that interacts with the object under study, or with the help of the same senses that directly interact with the object of study. In modern science, the further the object of research is “separated” from the everyday experience of a person, the more complex the form we receive from it is, and the more complex it is presented to us. This leads to the fact that these observations do not have scientific value and meaning; they cannot be used as a scientific argument and evidence for two reasons. Firstly, they contain systematic and random errors that distort the information received. Secondly, the information received must “fit into” the theory, make inextricable unity with it, and this is achieved in the interpretation procedure.

Theme 2. Positivism and its varieties. Positivism of the "first" and "second wave".

Question:

1. The essence of positivism and its main sources.
2. Positivism of the "first wave".
3. Empiriocriticism as the second wave of positivism.
4. Scientific revolution at the beginning of the XX century and the failure of empiriocriticism.

1.**The essence of positivism and its main sources**.

Positivism is a direction in philosophy, which marks the emergence of the philosophy of science as a separate, independent discipline and, in a broader sense, the beginning of a comprehensive and systematic study of the phenomenon of science and scientific activity. It occurred in the 30s – 40s of the 19th century. It has passed several stages (waves) in its development. The essence of all positivistic concepts is the absolutization of the empirical level of scientific knowledge and the methods corresponding to it as ***the only basis of*** any scientific theory. This means that, according to positivists of all directions, any scientific theory should be based solely on specialized scientific empirical experience, and other grounds for the emergence, formation, and development of a scientific theory are completely redundant. They called the sciences based solely on empirical experience positive, which gives rise to the name of this direction of philosophical thought.

As the main prerequisites for the emergence of positivism, two reasons can be indicated:

1)The level of science development in the nineteenth century. In the nineteenth century, especially in its first half, the theoretical level was represented by particular models and laws, which are a generalization of empirical data. At that time did not exist any developed theories (possibly, with the exception of mechanics). However, despite this fact, already at the beginning of the 19th century, science began to exert a very strong influence on the development of technology, leading to the first industrial revolution. All this radically changed the society, the cultural environment and everyday life of a person,

which in the eyes of society raised the authority of science and canonized, and to some extent even made sacral in the public mind those forms in which it existed at that time.

2) The correspondence of positivism to the so-called "common sense" which expresses our everyday experience, and which we are guided by in everyday reality. If we consider everyday life as a method and a way to satisfy the most pressing needs necessary for our existence, then we satisfy these needs, guided, first of all, by our life experience, and not by abstract reasoning. The level of everyday life is a basic element of human existence and, therefore, it is quite natural that the principles of its organization and functioning are transferred to science.

2. Positivism of the "first wave".

The first wave (classical positivism) dates back to the 19th century. The founder of positivism is the French thinker Auguste Comte; in England, positivism was founded and developed by Gerber Spencer and John Stuart Miles; in Russia,- by P.L. Lavrov, N.K. Mikhailovsky and others.

Auguste Comte (1798 - 1857) was a French positivist thinker and came up with the term of sociology to name the new science made by Saint-Simon. One universal law that Comte saw at work in all sciences he called the 'law of three phases'. It is by his statement of this law that he is best known in the English-speaking world; namely, that society has gone through three phases: Theological, Metaphysical, and Scientific. He also gave the name "Positive" to the last of these because of the polysemous connotations of the word.

The Theological phase was seen from the perspective of 19th century France as preceding the Enlightenment, in which man's place in society and society's restrictions upon man were referenced to God. By the "Metaphysical" phase, he was not referring to the Metaphysics of Aristotle or any other ancient Greek philosopher, for Comte was rooted in the problems of French society subsequent to the revolution of 1789. This Metaphysical phase involved the justification of universal rights as being on a vauntedly higher plane than the authority of any human ruler to countermand, although said rights were not referenced to the sacred beyond mere metaphor.

3. Empiriocriticism as the second wave of positivism.

Empirio-criticism is a direction in the philosophy of science that emerged at the turn of the 19th and 20th centuries as a reaction of natural science and philosophy to the crisis of science. Literally, the term “empirio-criticism” should be understood as “criticism of empirical experience”, where the term “criticism” is used, as was sometimes accepted earlier, in the meaning of “analysis”. Thus, the term "empirio-criticism" means "analysis of empirical experience." Empirio-criticism, as the “second wave” of positivism, preserves the basic position of positivism on the absolutization of the empirical level as the sole basis of theory. But in an attempt to solve the contradiction that has arisen between the positivism of the “first wave” and the development of science itself, empirio-criticism was forced to go deeply to modify its ontological consequences, fundamentally changing its position on this issue. Empirio-criticism said that the theory does not reflect objective reality, but our empirical experience, “the complex of our sensations”, which for us is the primary reality. According to this position, it is not the bodies that produce sensations, but complexes of sensations that are distinguished by relative constancy, receive special names and are designated as bodies. The theory cannot describe the objective world, because it is based and derived from our empirical experience, and in our experience we are not dealing with the objective world, but with our sensations. If sometimes it’s convenient for us to accept that objective reality is behind the sensations, then for the convenience of description this is quite acceptable, but it will be a convenient assumption and nothing more. This approach has led to a picture of the philosophy used in science. Empirio-criticists believed that general abstract philosophical concepts are meaningless, illegally introduced into experience. The task of empirio-criticists is the expulsion of these concepts from empirical experience and science.

4. Scientific revolution at the beginning of the XX century and the failure of empiriocriticism

Toward the end of the first quarter of the 20th century, the development of science itself showed the failure of the basic positivist attitude about the absolutization of the empirical level as **the sole basis** of a scientific theory. Science did not develop on positivism, but contrary to it. The development of science itself revealed the main contradiction of positivism, which was the contradiction between the general and the particular. Every scientific theory has a general, universal character, and empirical experience is private. This means that empirical experience is valid here and now, in the specific circumstances of the place and time, for specific phenomena that we perceive with our senses (directly

or indirectly), and the theory covers the entire class of these phenomena, it is valid always and everywhere for all phenomena of this class. Obviously, it is impossible to reliably substantiate the general by the particular. It can only be done conditionally and probabilistically. This did not suit positivism, which just believed that if the theory was based on empirical experience, this would be the key to the reliability of the theory. However, any scientific theory goes beyond empirical experience, and this is its heuristic power. In turn, the empirical experience is a partial basis of the theory, but the whole theory cannot be reduced to it and is not based only on it.

Neopositivism is often equated with logical positivism or logical empiricism.

Theme 3. Positivism and its varieties. Neo-positivism as the "third wave" positivism.

Question:

1. Specificity of neo-positivism, its main stages, and personalities.
2. Logical and linguistic neo-positivism.
3. Verification principle.
4. Inability of positivist concepts.

1. Specificity of neo-positivism, its main stages and personalities.

Neopositivism (new positivism) can be considered the third wave of positivism.

Neopositivism arises out of the analogy between physical and social phenomena. Auguste Comte made philosophical positivism the cornerstone of his sociological thought. But the school of neo-postivisim traces the origin to statistical tradition rather than Comte's philosophical positivism. Neo positive takes phenomena from the physical world as models for social events and uses the laws of the former to explain the latter. It asserts that sociology should be a science and its methods should follow these of the natural especially physical sciences.

Neopositivists consider sound scientific methodology to be the first principle of sociological analysis. For them sound scientific methodology involves mathematical and other formal models that incorporate formalization of variables. Computer techniques and language, experimental logics, laboratory experiments and computer simulation of human behavior. Among early thinkers, Pareto and Giddings stressed the scientific nature of sociology and recommended the use of methods commonly adopted in the natural sciences. Dodd, Ogburn, Zipf are considered to the leading exponents of neo-positivism.

2. Logical and linguistic neo-positivism.

Since logic is more universal than linguistics, due to the fact that each of the languages has its own specifics, and the laws of logic are the same for all languages, logical positivism, which deals with the analysis of logical structures, is most widely used. The analysis of linguistic structures was carried out by linguistic positivism (analytical philosophy), the ideological founder of which was Ludwig Wittgenstein.

Logical positivism grew from the discussions of a group called the "First Vienna Circle" which gathered at the Café Central before World War I. After the war Hans Hahn, a member of that early group, helped bring Moritz Schlick to Vienna. Schlick's Vienna Circle, along with Hans Reichenbach's Berlin Circle, propagated the new doctrines more widely in the 1920s and early 1930s. It was Otto Neurath's advocacy that made the movement self-conscious and more widely known. A 1929 pamphlet written by Neurath, Hahn, and Rudolf Carnap summarized the doctrines of the Vienna Circle at that time. These included: the opposition to all metaphysics, especially ontology and synthetic a priori propositions; the rejection of metaphysics not as wrong but as having no meaning; a criterion of meaning based on Ludwig Wittgenstein's early work; the idea that all knowledge should be codifiable in a single standard language of science; and above all the project of "rational reconstruction," in which ordinary-language concepts were gradually to be replaced by more precise equivalents in that standard language.

In the early 1930s, the Vienna Circle dispersed, mainly because of fascist persecution and the untimely deaths of Hans Hahn and Schlick. The most prominent proponents of logical positivism emigrated to the United Kingdom and to the United States, where they considerably influenced American philosophy. Until the 1950s, logical positivism was the leading school in the philosophy of science. After moving to the United States, Carnap proposed a replacement for the earlier doctrines in his Logical Syntax of Language. This change of direction and the somewhat differing views of

Reichenbach and others led to a consensus that the English name for the shared doctrinal platform, in its American exile from the late 1930s, should be "logical empiricism."

The basic position of logical positivism comes down to the fact that philosophy does not have a subject of study, it is only a method, a special way of theorizing. Its main task is a logical analysis of scientific statements, which are the logical structural unit of any scientific text. Each text consists of concepts (words), but the scientific meaning is not so much in concepts (words), as in their relationship, which is carried out in judgments or statements. The purpose of the logical analysis of scientific statements is to develop principles for verifying statements against the positivism (empirical) human experience.

One of the most famous logical positivists is Bertrand Russell. He put forward the proposition that all scientific statements were divided into three main types:

Logical and mathematical (analytical) - these statements do not report any new information about the subject of statements, they extract what is already contained in the subject of the study in a hidden form.

Empirical (synthetic) - these judgments carry new information that we obtain exclusively from empirical experience.

*Metaphysica*l (scientifically unreasonable) are the judgments not directly based on empirical experience, i.e. these are judgments consisting of general abstract concepts that are in no way related to empirical experience. First of all, these are philosophical concepts, such as “matter”, “being”, “substance”, “reason” and other general scientific concepts, such as “space”, “time”, “infinity”, and many others.

Based on the classification of concepts proposed by B. Russell, the task of philosophy is to analyze all judgments, identify analytical ones, establish their connection synthetic, and those judgments for which such a connection cannot be established must be called metaphysical and removed from scientific use. This should ensure that the content of all statements of the scientific text will be based solely on empirical experience. The basis of such an analysis should be the principle of verification.

3. Verification principle.

The principle of verification is the core of all neopositivist concepts. It has the following reasons. As already mentioned above, any scientific theory is a text, statements are the logical structural content unit of any text (they are judgments in logic, in grammar - sentences). Neopositivists divide all statements into molecular (complex) ones and atomic (simple) statements. All molecular statements are reduced to atomic statements. By atomic statements they mean the statements, the contents of which can be fixed in empirical experience.

The principle of verification states that any statement in science is subject to empirical verification of truth. If the statements cannot be verified for truth, it is not scientific, but metaphysical and must be disposed of. It is true if its content coincides with the empirical experience of a person. Thus, the principle of verification brings to a logical limit all positivism as a whole, creating a consistent concrete scheme for the implementation and approval of positivistic attitudes, creating a positivistic methodology that will lead to the creation and approval of a positive science. However, in the process of implementing this program, it turned out that the principle of verification does not work for some groups of statements. This primarily refers to statements about the past and future, which do not exist and, accordingly, which cannot be verified. Only the present is verified empirically, but the present is the instant and the preceding instant - this is the past, which does not exist, and therefore there is no empirical experience in it, and the next instant is the future of which is not yet, and also there is no empirical experience in it. And the instant itself is a zero time extension in which empirical experience cannot be fixed. True, science has learned to solve this problem, at least in a practical sense, by “expanding” the boundaries of the present. We can manipulate the concept of “present” arbitrarily, depending on the need, expanding it and considering it not as an instant, but as a time interval in which we gain empirical experience. In this sense, we can partly “work” with the principle of verification regarding the past and the future.

Another group of statements in relation to which the principle of verification does not work are general statements in which the subject is either very large or infinite. However, it is precisely such statements with an infinite or very large number that make up the vast majority of the laws of nature, and more broadly - the laws of science. All laws of nature (laws of science) affirm (sometimes deny) something for all objects of this class. Therefore, from the point of view of the verification principle,

these statements are metaphysical (scientifically unreasonable) and are subject to withdrawal from science. The verification principle works only for private statements, but they do not represent any scientific value.

4. Inability of positivist concepts.

The merit of the verification principle lies in the fact that it reveals the complete ideological inconsistency of the positivism of all three waves through internal contradictions and inconsistencies with their own criteria. This means that the difference in volume between theory and empirical experience has not only a formal expression, but also a meaningful one, which completely undermines the main position of positivism on the absolutization of the empirical level as the sole basis of the theory. The indicated distinction between theories and empirical experience is "filled" with extra-scientific factors, called sociocultural foundations of scientific knowledge.

This suggests that the failure of the verification principle revealed the failure of positivism as a whole, in all forms and forms.

However, despite the ideological inconsistency of positivism, it still occupies a significant place in the scientific community. This is not only about "ideological" positivists, a significant part of the scientific community "professes" "spontaneous positivism", probably without even suspecting it. In this regard, the attitude to philosophy can be considered a "marker" of positivistic views. In all forms of positivism, it is believed that philosophy, at least for science, is useless. We can safely say that if you conduct a survey on this issue in any scientific community (domestic or western), then more than seventy percent of respondents will answer that they do not need philosophy to engage in scientific activities, which confirms their elemental positivistic views. There are several reasons for this, but the main ones are that the factors that led to the emergence of positivism have not disappeared, they have only slightly changed.

However, in spite of this, neopositivism in itself also carried positive aspects, which consisted in the logical and linguistic language of science. Such an analysis, as an auxiliary form of analysis, not claiming to replace the philosophical substantive analysis of science, but supplementing it, is useful and productive for the development of science itself.

Theme 4. Post-positivist concepts of science.

Question:

1. Differences in the understanding of science in positivism and post-positivism.
2. K. Popper's conception of science and the principle of falsification.
3. "The Structure of Scientific Revolutions "by T. Kuhn.
4. "Science and education programs" by I. Lakatos.
5. The social conditionality concept of S. Toulmin's scientific knowledge.
6. Methodological anarchism of P. Feuerabend.

1. Differences in the understanding of science in positivism and postpositivism.

After realizing the ideological collapse of positivism in the philosophy of science, another approach began to emerge, significantly broadening the concept of science. Recognizing the presence of two components - the theoretical and empirical level in science, as well as the presidency of theory, positivism brings to consideration another level - the socio-cultural basis of science. The concept of science in postpositivism differs significantly from the positivist vision in two respects:

1. In positivism, science was identified first and foremost with the theory presented in the texts. According to post-positivism, science is not just a theory, but an entire dynamic social system, human activity associated with the acquisition of knowledge, expressed in the text in a specific scientific language. Thus, science is not a subject, but a process of activity of the human community. Accordingly, philosophical activity is part of scientific activity.

2. In positivism, scientific knowledge had a finite, static character. It is a process aimed at gaining new knowledge. Thus, from the point of view of postpositivism, a necessary attribute of science is novelty. In the absence of novelty, any knowledge is not scientific. This idea of science is legally fixed.

Thus, changes in the conception of science define its diversity, and various philosophers of science have considered various aspects of this new vision.

2. K. Popper's concept of science and the principle of falsification.

Karl Popper was one of the earliest post-positivists to develop the post-positivist concept in the 1930s. His concept was transitional from neo-positivism to post-positivism. His concept was based on the principle of falsification. The logical basis of the principle of falsification is the fact that general statements (laws) cannot be empirically confirmed, but there is a potential possibility to empirically refute them. Therefore, the main task of science should be to develop a methodology for refuting them, where it follows that the main purpose of science is the search for new knowledge. The principle of falsification in a broad sense offers a methodological setting for the scientific community to critically analyze scientific knowledge, refute it, revise its content. This postulate is not a cumulative approach in explaining the development of science. According to this approach, the old and again emerging theories are not commensurate with each other. There is no relationship and heredity between them. Speaking of natural sciences, independently of K. Popper, at about the same time, Niels Bohr formulated a "principle of conformity", according to which a new theory in the boundary transition should give the old one. That is, a new theory is a complicated old one. Between the old and the new theory is interconnectedness and heredity. The principle of conformity is realized in the physical plane. A little later, Duham and Quine formulated the same statement as Bohr, but in philosophical language in the form of a "Duham-Quain thesis." According to this thesis, any theory can be saved from falsification by manipulating the "background knowledge" in which it works.

This means that the old theory is not refuted but limited, and the new theory is more complicated than the old one. The principle of falsification can also be seen as a demarcation principle between scientific and non-scientific knowledge. All scientific knowledge is potentially refuted, that is, capable of generating the new, except unscientific knowledge. Accordingly, if we can specify a methodology for refuting (getting novelty), then this is science, if not, then it is not a science.

3**. "The Structure of Scientific Revolutions" by T. Kuhn.**

Thomas Kuhn is the author of the concept of development and functioning of science. It is based on the idea of science as a social institution. Scientific knowledge is exercised by the scientific community, which operates according to its rules. The central concept of this concept is the concept of paradigm. Kuhn defined it as a "disciplinary matrix". “Disciplinary” because it defines the behavior and thinking style of the scientific community, and the matrix - because it consists of ordered elements of different kinds:

1. Symbolic generalizations and formalized constructions generally accepted for all. This element of the “disciplinary matrix” means the “language” of the given paradigm, its terminological apparatus and the corresponding mathematical, graphic and other signs and symbols.

2. Metaphysical and general methodological representations and conceptual models. This compound defines the object of study and the corresponding research methods. Metaphysical and general methodological representations and conceptual models can be distinguished in each paradigm, but in some of them they exist implicitly, implying that such representations are generally accepted.

3. The system of values - predictive power, simplicity, beauty, and the like.

4. Sample examples.

According to T. Kuhn, science develops by revolutionary jumps - from revolution to revolution. In the period between revolutions, the science functions within the boundaries of a certain paradigm. Kuhn called this period a “normal science”. Its main task is to solve the puzzles. Under them we understand the private problems and tasks within the given paradigm. A measure of science development within a particular paradigm is puzzles that are not solved within it. There may be more of them, and attempts are being made to modernize the paradigm without touching the foundations of the disciplinary matrix. When this fails, the old paradigm is abandoned and new disciplinary matrices are formulated competing with each other. There is a scientific revolution. It ends when one of the disciplinary matrices is established as a new paradigm. Sociocultural and scientific factors play a role in the competition between disciplinary matrices. At the end of the scientific revolution, the period of "normal science" comes, and so on- until the next revolution.

However as work under a given paradigm proceeds, anomalies accumulate. Some anomalies do not fit the basic framework and will be taken to suggest that there is something wrong with the framework and that a whole new one is required. The bringing in of the new paradigm is the scientific revolution transforming the way in which the discipline looks at things reorganizing the way scientists go about their business, introducing new research technologies and techniques. The notion of revolution is used by Kuhn to suggest that there are some close parallels with political overturnings than might be

imagined. The scientific revolution tends to involve a struggle between generations. Those who have been brought up on the old paradigm tend to adhere to it and whilst the young scientists who take up the new one only finally triumph throughout the discipline when the older generation retire or die off.

The pivotal importance of Kuhn's work is in his ideas about the relations between different paradigms. The conflict between generations shows something that the members of the older generation do not accept that their paradigm has been refuted. They do not accept that evidence has shown that their framework is wrong and that a new framework is better. There is no evidence that unequivocally shows that a framework is wrong. Adjustments can be made to the framework to accommodate things that on the first sight do not fit.

The importance of Kuhn lies in the fact that the things that we believe about the world are shaped also by social matters and not by evidence alone. His interpretation of ideas has had considerable influence on sociological thinking.

4. "Science and education programs" by I. Lakatos.

Imre Lakatos is the author of a concept that is similar in meaning to the Kuhn's but which has differences. he best-known of Lakatos's "Conference Proceedings" is *Criticism and the Growth of Knowledge*, which became an international best-seller. It contains Lakatos's important paper "Falsification and the Methodology of Scientific Research Programmes" (FMSRP)

The basic structural and dynamic unit of his model is the research program. It differs from the paradigm in that the paradigm is historically composed by itself, and the program has the author, goals and objectives, methods of achievement.

The research program consists of:

a) Hard core - a set of judgments, which is the theoretical basis of this style of thinking.

b) The restraining belt that links the program to empirics.

c) Negative heuristics, which indicates the impasse in the development of the research program.

d) Positive heuristics, which indicates positive ways of development.

The research program provides a progressive or regressive shift of the problem. Progressive - when a program is capable of anticipating new facts; regressive - the delay of the program, i.e. "retroactive explanation" of the facts that the competing program envisaged. History of science development is the history of struggle and changes in the research programs. The basic principle of struggle is the predictive power in explaining empirical facts. Lakatos divides the history of science itself into internal (history of ideas, methodology, etc.) and external (social forms and personal factors of research). According to Lakatos, external factors are less important than internal ones.

Lakatos's methodology has been seen, rightly, as an attempt to reconcile Popper's falsificationism with the views of Thomas Kuhn. Popper saw science as consisting of bold explanatory conjectures, and dramatic refutations that led to new conjectures. Kuhn (and Polanyi before him) objected that

No process yet disclosed by the historical study of scientific development at all resembles the methodological stereotype of falsification by direct comparison with nature. (Kuhn 1962: 77)

Instead, science consists of long periods of "normal science", paradigm-based research, where the task is to force nature to fit the paradigm. When nature refuses to comply, this is not seen as a refutation, but rather as an anomaly. It casts doubt, not on the ruling paradigm, but on the ingenuity of the scientists—"only the practitioner is blamed, not his tools". It is only in extraordinary periods of "revolutionary science" that anything like Popperian refutations occur.

Lakatos proposed a middle-way, in which Kuhn's socio-psychological tools were replaced by logico-methodological ones. The basic unit of appraisal is not the isolated testable theory, but rather the "research programme" within which a series of testable theories is generated. Each theory produced within a research programme contains the same common or "hard core" assumptions, surrounded by a "protective belt" of auxiliary hypotheses. When a particular theory is refuted, adherents of a programme do not pin the blame on their hard-core assumptions, which they render "irrefutable by fiat". Instead, criticism is directed at the hypotheses in the "protective belt" and they are modified to deal with the problem. Importantly, these modifications are not random—they are in the best cases guided by the heuristic principles implicit in the "hard core" of the programme. A programme progresses theoretically if the new theory solves the anomaly faced by the old and is independently testable, making new predictions. A programme progresses empirically if at least one of these new predictions is confirmed.

Notice that a programme can make progress, both theoretically and empirically, even though every theory produced within it is refuted. A programme degenerates if its successive theories are

not *theoretically* progressive (because it predicts no novel facts), or not *empirically* progressive (because novel predictions get refuted). Furthermore, and contrary to Kuhn's idea that normally science is dominated by a single paradigm, Lakatos claimed that the history of science typically consists of *competing* research programmes. A scientific revolution occurs when a degenerating programme is superseded by a progressive one. It acquires hegemonic status though its rivals may persist as minority reports.

Kuhn saw all this as vindicating his own view, albeit with different terminology (Kuhn 1970: 256, 1977: 1). But this missed the significance of replacing Kuhn's socio-psychological descriptions with logico-methodological ones. It also missed Lakatos's claim that there are always competing programmes or paradigms. Hegemony is seldom as total as Kuhn seems to suggest.

5. The social conditionality concept of S. Toulmin's scientific knowledge.

The American philosopher Stephen Toulmin, author of the evolutionary concept of the science development, assumes that theory is the basic fundamental element of science, and that theory itself is a set (population) of concepts. The basic idea of his concept is that the development and functioning of science is the formation and functioning of certain standards of rationality and understanding of the population of concepts underlying scientific theories. Understanding is the correspondence of the theory statements to the accepted standards in the scientific community (matrices) of understanding. Anything beyond the "matrix of understanding" must be discarded. This process is called improving understanding. Standards of understanding change over the course of the scientific theories evolution. The evolution of a theory is a selection of conceptual innovations. Scientific theories seek conservative conservation (survival) and are subject to "mutations" that are constrained by the facts of criticism and self-criticism (natural and artificial selection). Noticeable changes occur when the external intellectual environment becomes favorable for mutations. Fundamental changes in theory are related to the replacement of understanding matrices or theoretical standards. According to Toulmin, science has a dual nature - science as a set of intellectual disciplines and as a social institution. The dual nature of science influences the evolution of concepts population that depend on internal (intellectual) and external (socio-political, etc.) factors.

This means that new, changed concepts can survive not only because of scientific efficiency but also with the help of outside scientific factors (ideological support, economic priorities, etc.). The bearers of scientific rationality are the representatives of the "scientific elite", who the success of "artificial selection" and the emergence of new, productive populations of concepts depends on. Material resources are required for the development of these new populations, and when the scientific community as a whole lacks these resources, the emergence of new populations of concepts is slowed or stopped altogether.

6. Methodological anarchism of P. Feyerabend.

Paul Feuerabend is the founder of the theory of epistemological anarchism.

In Feyerabend's autobiography, we are told a little about Popper's lectures and his famous LSE seminar. The lectures began with the claim that there is no method in science, but that there *are* some simple and helpful rules of thumb. Popper tried to show "how simple ideas that were derived from equally simple requirements brought order into the complex world of research" (pp. 88–9). Having being convinced by Popper's and Pierre Duhem's critiques of inductivism (the view that science proceeds through generalisation from facts recorded in experience), Feyerabend considered falsificationism a real option, and, he says, "fell for it" (p. 89), applying falsificationism in his papers and lectures. This is not his first admission that he was a falsificationist, but it is notable that he did not see it as entailing his having been a Popperian. Feyerabend was (usually) a fairly *liberal* falsificationist, always emphasising the tenacity with which scientists should defend their theories, and allowing that scientific theories can start by being untestable. Faithful Popperians like John Watkins and Joseph Agassi, he emphasises, continually ticked him off for being unorthodox (he was later accused, by Agassi, of plagiarising from Popper). Instead he later saw this interlude as an example of the dangers of abstract reasoning. Rationalism is already dangerous, since it "paralyses our judgment" (p. 89) and is invested with "an almost superhuman authority" (p. 90). But Popper added a further dangerous element: *simplicity*. Such a philosophy, complains Feyerabend, "may be out of touch with reality… [that is], with scientific practice" (p. 90).

Feyerabend is here referring to Popper's approach to the epistemology of science, which he himself followed and furthered for quite a while. In chapter II of *The Logic of Scientific Discovery* (1934),

Popper had distinguished between scientific practice and scientific standards, principles, or methodology. Arguing against a "naturalistic" theory of method which makes standards depend on practice, Popper opted instead for a strongly normative epistemology, a discipline which lays down optimum rules of method for scientists to follow. This is one of the most important aspects of the Popperian perspective which Feyerabend originally took on board.

Such an epistemology, Feyerabend now complains, makes the false assumption that "rational" standards can lead to a practice that is as mobile, rich and effective as the science we already have. Falsificationism would destroy science as we know it. Science did not develop in accordance with Popper's model. It is not "irrational", but it contains no overarching pattern. Popper's rules could produce a science, but not the science we now have. (Feyerabend remarks that the Logical Positivist Otto Neurath had already put this criticism of Popper some time before (p. 91)).

In 1952, Feyerabend presented his ideas on scientific change to Popper's LSE seminar and to a gathering of illustrious Wittgensteinians (Elizabeth Anscombe, Peter Geach, H.L.A.Hart and Georg Henrik von Wright) in Anscombe's Oxford flat. This meeting seems to have been the first airing of the important concept of *incommensurability* (although not the term itself, which crept into publications only a decade later)/

This theory consistently develops the concept of non-cumulative scientific knowledge and brings it to a logical limit. Feuerabend's theory is based on the principle of proliferation (multiplication) of the theory. According to this principle, the task of science is to produce as many new theories as possible so that they can mutually criticize each other in the process of competition and thus accelerate the development of science. Each theory is based on its norms, rules and principles, from which it follows that the activities of scientists do not obey common norms, rules and principles, including rational ones. It follows that science is fundamentally different from mythology and religion. It is a form of ideology. Thus, science must be separated from the state and given equal rights with mythology and religion.

Feyerabend saw himself as having undermined the arguments for science's privileged position within culture, and much of his later work was a critique of the position of science within Western societies. Because there is no scientific method, we can't justify science as the best way of acquiring knowledge. And the *results* of science don't prove its excellence, since these results have often depended on the presence of non-scientific elements, science prevails only because "the show has been rigged in its favour" (*SFS*, p. 102), and other traditions, despite their achievements, have never been given a chance. The truth, he suggests, is that

science is much closer to myth than a scientific philosophy is prepared to admit. It is one of the many forms of thought that have been developed by man, and not necessarily the best. It is conspicuous, noisy, and impudent, but it is inherently superior only for those who have already decided in favour of a certain ideology, or who have accepted it without ever having examined its advantages and its limits (*AM*, p. 295).

The separation of church and state should therefore be supplemented by the separation of science and state, in order for us to achieve the humanity we are capable of. Setting up the ideal of a free society as "a society in which all traditions have equal rights and equal access to the centres of power" (*SFS*, p. 9), Feyerabend argues that science is a threat to democracy. To defend society against science we should place science under democratic control and be intensely sceptical about scientific "experts", consulting them only if they are controlled democratically by juries of laypeople.

The absurdity of such a statement is obvious, because in this case, science certainly loses competition to mythology and religion, ceases its development and existence. Consequently, the concept of non-cumulative knowledge is ineffective and inefficient.

Part 2. Philosophy of Nature Management

Theme 5. The philosophical essence of nature management

Question:

1. Nature and its place in the system of relations society - nature.
2. Rational use of nature and its philosophical essence
3. Ecological postulates - the scientific basis of environmental studies.
4. Socioecologization of nature management as a condition for environmental protection.

1. Nature management and its place in the system of relations society – nature

Nature management as a process starts from ancient times (as well as an economy) - in connection with the vital needs of people. In fact, human society has been able to develop only within the framework of nature management, that is, systems of human-nature relationships composed according to the nature of historical, social, and geographical conditions. Realization of the subjective - transformative potentials of man, (as well as the norm) is a reaction to a certain environment, is embodied in the process of nature management. Environmental management is a form of implementation in specific natural, cultural, political, temporal and other dimensions of ways and means of reaching the potential of the environment.

Nature management is a phenomenon inherent in any human community on any stage of their development, that is, it is an attribute - universal sign of the species Homosapiens. The concept of "nature management" is difficult to determine because of the multifaceted process of human-nature interaction.

The term "environmental management" was proposed in the 1960s by Yu. M. Kurazhkovsky. V.S. Preobrazhenskii, G.A. Pryvalovska, T.G. Runova under the nature management understood the sphere of activity, aimed at providing the growing needs of society in natural resources and forming a healthy environment of people's life, combining the fields of resource use, study, reproduction and the enrichment of natural resources, preservation, and improvement of the natural environment, protection of natural resources and the diversity of their development. Obviously, this definition reflects the prevailing attitude towards the end of the last century.

M. Reimers defines nature management as a set of all forms of exploitation of natural resource potential and measures for its conservation (extraction, processing of natural mineral and biological resources, their restoration, protection of natural living conditions, natural systems, etc.).

O.M. Marynych considered nature management as the most important component of the problem of interaction between nature and society, which takes into account the peculiarities of the study, development, use, transformation, and protection of the natural environment and its resources (construct - geogr.1990).

Environmental management *is the use of environmental properties to meet economic, environmental, wellness, therapeutic, cultural, aesthetic and other human needs.*

M.M. Palamarchuk and O.M. Palamarchuk have concluded that environmental management is a society's attitude to nature, manifested in actions aimed at the use of natural resources and providing conditions for material production, life, nature conservation and other purposes [6] . M.M. Palamarchuk and O.M. Palamarchuk formulated the following laws:

1) limited self-reproduction and self-regulation of nature;
2) dependence of changes in nature components on anthropogenic influence;
3) the integration of social and natural elements;
4) formation of natural - anthropogenic territorial and social - territorial complexes, which are of significant theoretical importance for further development of nature management as an interdisciplinary object of research.

Nature management is determined by the following factors [3]:

- natural features of the region;
- social knowledge and experience;
- social situation and environment;
- the specificity of the society;
- individual capabilities and needs;
- the axiological diversity of processes and objects of reality.

It can be argued that at the present stage of interaction between society and nature, the process of environmental management can be considered as a process of interaction of the society and the natural environment, conditioned by the needs of mankind, depending on the direction of their mind. The type of nature management is a reflection of society's attitude to the natural environment. Changing types of nature management mean fundamental modifications of social consciousness in relation to nature, conditioned by the evolution of all aspects of society. Nature as a socially managed process is characterized by the presence of the object and object.

The object of nature management is a complex of relations between natural resources, natural conditions of a society's life with its socio-economic development. The subject is the optimization of relations between natural resources, natural conditions of life of the society and its socio-economic development, the desire to preserve and reproduce the environment. It is clear that the production potential which is the ability of the natural environment to provide energy and raw materials for production needs always comes to the fore in nature management.

2. Rational use of nature and its philosophical essence

Rational environmental management is highly efficient, ecologically sound management that does not lead to dramatic changes in the natural resource potential but supports and enhances the productivity of natural complexes or individual objects, enriching them. It is aimed at ensuring the conditions of humanity existence and the stable receipt of material goods.

Rational use of nature is considered a process of the society's interaction with the environment, which achieves the optimal balance between the economic activity of the society, provision of material and spiritual needs of the population, maintaining the natural environment quality. The following principles of rational nature management are distinguished: complexity, sustainability, stability, harmony, balance, lack of anthropocentrism, unity of an ecological - economic approach.

Nature management in which nature loses its ability to the reproduction, self-purify, and self-regulation, breaks the balance of biosystems, depletes material resources, recreational, health and resort conditions, aesthetic characteristics of landscapes, living conditions deteriorate, is considered ***irrational.***

3. Environmental postulates as a scientific basis for nature management study

For a long time, people have tried to generalize their observations of nature in the form of postulates that are similar to the laws of physics, chemistry, mechanics and other exact sciences. There are many such generalizations; they often do not correspond to clear mathematical dependencies, sometimes they evolve with nature. More than 60 environmental laws, dozens of environmental rules, principles explain the interconnection and interaction of living organisms (including humans) with the environment - they are natural history laws. Many of them directly explain human activities and are interesting in terms of greening these activities in order to maintain the quality of organisms' life.

The most important law of physical and chemical unity of a living substance is formulated by V. Vernadsky: all living substance on Earth is physically and chemically unique. What is harmful to one part of a living substance cannot be indifferent to another. Any physical and chemical agents deadly dangerous to some organisms are harming others.

The American ecologist B.Commoner (1974) very successfully formulated his four laws, which, in essence, combine several major laws and environmental features of nature. These are, in essence, environmental axioms:

- everything is connected to everything;
- everything has to go somewhere;
- nothing is given for nothing;
- nature knows better.
- All environmental postulates are aimed at increasing stability, elasticity (adaptive ability), self-regulation of ecosystems, preserving the potential for negative impacts without significantly reducing their initial functions and destroying them.

4. Socio- greening of nature management as a condition for environmental protection

The term "socio-greening " has come into scientific use as a synonym for bridging the gap between society and nature, which has been accumulating for many years, which was especially evident in the second half of the twentieth century. In order to preserve the planet's biosphere, it is necessary to radically change the nature of the activity, in particular, to redirect all types of environmental management to environmentally safe ones. This change in organization is linked to a restructuring of the

outlook and, above all, a scale of values. It can be stated that socio-greening is a process of consistent saturation, filling in any possible objects with ecological content. Socio-greening of human activity covers a wide variety of spheres: subject, spiritually - practical and theoretical, i.e. directly subject sphere, world outlook and science. Its purpose is defined as the achievement of correspondence between the main directions of social activity and the laws of the biosphere functioning as a coherent self-regulatory system. The criterion of compliance is the degree of equilibrium and reproduction of viable environmental conditions.

Greening of knowledge is the starting point from which greening of all other spheres of human activity begins. An important consequence of the greening of knowledge is shifting the emphasis of many sciences to their own environmental issues. It is greening that becomes a universal phenomenon transforming the ecological approach into a paradigmatic epistemological system that has the great synthetic capacity and is heuristic. After all, one of the main functions of consciousness is to ensure the performance of a human subjective - transformative activity. An important way to harmonize society with nature is to create a deep understanding of nature's importance in each person for his personal life, the health of physical and spiritual enrichment. The moral feature of the interaction of society with nature is clearly traced to the development of man himself, the formation of a new, comprehensively developed personality.

The **environmental movement** (sometimes referred to as the **ecology movement**), also including conservation and green politics, is a diverse scientific, social, and political movement for addressing environmental issues. Environmentalists advocate the sustainable management of resources and stewardship of the environment through changes in public policy and individual behavior. In its recognition of humanity as a participant in (not enemy of) ecosystems, the movement is centered on ecology, health, and human rights.

The environmental movement is an international movement, represented by a range of organizations, from the large to grassroots and varies from country to country. Due to its large membership, varying and strong beliefs, and occasionally speculative nature, the environmental movement is not always united in its goals. The movement also encompasses some other movements with a more specific focus, such as the climate movement. At its broadest, the movement includes private citizens, professionals, religious devotees, politicians, scientists, nonprofit organizations and individual advocates.

Early interest in the environment was a feature of the Romantic movement in the early 19th century. The poet William Wordsworth had traveled extensively in the Lake District and wrote that it is a "sort of national property in which every man has a right and interest who has an eye to perceive and a heart to enjoy".

The origins of the environmental movement lay in response to increasing levels of smoke pollution in the atmosphere during the Industrial Revolution. The emergence of great factories and the concomitant immense growth in coal consumption gave rise to an unprecedented level of air pollution in industrial centers; after 1900 the large volume of industrial chemical discharges added to the growing load of untreated human waste. Under increasing political pressure from the urban middle-class, the first large-scale, modern environmental laws came in the form of Britain's Alkali Acts, passed in 1863, to regulate the deleterious air pollution (gaseous hydrochloric acid) given off by the Leblanc process, used to produce soda ash.

Conservation movement

The modern conservation movement was first manifested in the forests of India, with the practical application of scientific conservation principles. The conservation ethic that began to evolve included three core principles: that the human activity damaged the environment, that there was a civic duty to maintain the environment for future generations, and that scientific, empirically based methods should be applied to ensure this duty was carried out. James Ranald Martin was prominent in promoting this ideology, publishing many medico-topographical reports that demonstrated the scale of damage wrought through large-scale deforestation and desiccation, and lobbying extensively for the institutionalization of forest conservation activities in British India through the establishment of Forest Departments. The Madras Board of Revenue started local conservation efforts in 1842, headed by Alexander Gibson, a professional botanist who systematically adopted a forest conservation programme based on scientific principles. This was the first case of state management of forests in the world. Eventually, the government under Governor-General Lord Dalhousie introduced the first

permanent and large-scale forest conservation programme in the world in 1855, a model that soon spread to other colonies, as well the United States. In 1860, the Department banned the use of shifting cultivation. Hugh Cleghorn's 1861 manual, *The forests and gardens of South India*, became the definitive work on the subject and was widely used by forest assistants in the subcontinent.

Dietrich Brandis joined the British service in 1856 as superintendent of the teak forests of Pegu division in eastern Burma. During that time Burma's teak forests were controlled by militant Karen tribals. He introduced the "taungya" system, in which Karen villagers provided labour for clearing, planting and weeding teak plantations. He formulated new forest legislation and helped establish research and training institutions. The Imperial Forestry School at Dehradun was founded by him.

The environmental movement is broad in scope and can include any topic related to the environment, conservation, and biology, as well as the preservation of landscapes, flora, and fauna for a variety of purposes and uses. See List of environmental issues. When an act of violence is committed against someone or some institution in the name of environmental defense it is referred to as eco terrorism.

- The conservation movement seeks to protect natural areas for sustainable consumption, as well as traditional (hunting, fishing, trapping) and spiritual use.
- Environmental conservation is the process in which one is involved in conserving the natural aspects of the environment. Whether through reforestation, recycling, or pollution control, environmental conservation sustains the natural quality of life.
- Environmental health movement dates at least to Progressive Era, and focuses on urban standards like clean water, efficient sewage handling, and stable population growth. Environmental health could also deal with nutrition, preventive medicine, aging, and other concerns specific to human well-being. Environmental health is also seen as an indicator for the state of the environment, or an early warning system for what may happen to humans
- Environmental justice is a movement that began in the U.S. in the 1980s and seeks an end to environmental racism and prevent low-income and minority communities from an unbalanced exposure to highways, garbage dumps, and factories. The Environmental Justice movement seeks to link "social" and "ecological" environmental concerns, while at the same time preventing de facto racism, and classism. This makes it particularly adequate for the construction of labor-environmental alliances.
- Ecology movement could involve the Gaia Theory, as well as the Value of Earth and other interactions between humans, science, and responsibility.
- Bright green environmentalism is a currently popular sub-movement, which emphasizes the idea that through technology, good design and more thoughtful use of energy and resources, people can live responsible, sustainable lives while enjoying prosperity.
- Light green, and dark green environmentalism[53][54] are yet other sub-movements, respectively distinguished by seeing environmentalism as a lifestyle choice (light greens), and promoting reduction in human numbers and/or relinquishment of technology (dark greens)
- Deep Ecology is an ideological spinoff of the ecology movement that views the diversity and integrity of the planetary ecosystem, in and for itself, as its primary value.
- The anti-nuclear movement opposes the use of various nuclear technologies. The initial anti-nuclear objective was nuclear disarmament and later the focus began to shift to other issues, mainly opposition to the use of nuclear power. There have been many large anti-nuclear demonstrations and protests. Major anti-nuclear groups include Campaign for Nuclear Disarmament, Friends of the Earth, Greenpeace, International Physicians for the Prevention of Nuclear War, and the Nuclear Information and Resource Service.

Environmental reactivism. Numerous criticisms and ethical ambiguities have led to growing concerns about technology, including the use of potentially harmful pesticides, water additives like fluoride, and the extremely dangerous ethanol-processing plants.

NIMBY syndrome refers to public outcry caused by a knee-jerk reaction to an unwillingness to be exposed to even necessary developments. Some serious biologists and ecologists created the scientific ecology movement which would not confuse empirical data with visions of a desirable future world.

Today, the sciences of ecology and environmental science, in addition to any aesthetic goals, provide the basis of unity to some of the serious environmentalists. As more information is gathered in scientific fields, more scientific issues like biodiversity, as opposed to mere aesthetics, are a concern to environmentalists. Conservation biology is a rapidly developing field.

In recent years, the environmental movement has increasingly focused on global warming as one of the top issues. As concerns about climate change moved more into the mainstream, from the connections drawn between global warming and Hurricane Katrina to Al Gore's 2006 documentary film *An Inconvenient Truth*, more and more environmental groups refocused their efforts. In the United States, 2007 witnessed the largest grassroots environmental demonstration in years, Step It Up 2007, with rallies in over 1,400 communities and all 50 states for real global warming solutions.

Publicity and widespread organising of school strike for the climate began after Swedish schoolgirl Greta Thunberg staged a protest in August 2018 outside the Swedish Riksdag (parliament). The September 2019 climate strikes were likely the largest climate strikes in world history.

In 2019, a survey found that climate breakdown is viewed as the most important issue facing the world in seven out of the eight countries surveyed.

Much religious organizations. The religious movement is often supported by the interpretation of scriptures. Most major religious groups are represented including Jewish, Islamic, Anglican, Orthodox, Evangelical, Zoroastrian, Christian and Catholic.

Radical environmentalism emerged from an ecocentrism-based frustration with the co-option of mainstream environmentalism. The radical environmental movement aspires to what scholar Christopher Manes calls "a new kind of environmental activism: iconoclastic, uncompromising, discontented with traditional conservation policy, at times illegal ..." Radical environmentalism presupposes a need to reconsider Western ideas of religion and philosophy including capitalism, patriarchy and globalization) sometimes through "resacralising" and reconnecting with nature. Greenpeace represents an organization with a radical approach, but has contributed in serious ways towards an understanding of critical issues, and has a science-oriented core with radicalism as a means to media exposure. Groups like Earth First! take a much more radical posture. Some radical environmentalist groups, like Earth First! and the Earth Liberation Front, illegally sabotage or destroy infrastructural capital.

Conservative critics of the movement characterize it as radical and misguided. Especially critics of the United States Endangered Species Act, which has come under scrutiny lately, and the Clean Air Act, which they said conflict with private property rights, corporate profits and the nation's overall economic growth. Critics also challenge the scientific evidence for global warming. They argue that the environmental movement has diverted attention from more pressing issues.

Theme 6. Philosophy of human needs and nature management
Question:

1. The concept of needs and their classification
2. Human needs in natural resources.
3. Evolution of needs with the development of society
4. Consumerism is one of the causes of growing needs and environmental degradation

6.1. The concept of needs and their classification

Any creature that lives on earth (a plant or an animal) fully exists when certain conditions are met. The concept of needs arises at the level of a biological theory (when it concerns animals or plants). The concept of needs is of a particular importance in the sciences of man and society.

Human nature can be revealed, and therefore understood, if its fundamental interests and needs are identified. They are the driving force behind the purposeful activity of man. You can say, “Depending on what kind of person you are, such are your needs. And vice versa, what your needs are, such a person you are. ” Needs are the identification of an objective need. They are subjectively perceived by the person as a certain impulse to consume certain material or spiritual goods, or as an impetus to creative activity, communication with other people, etc. As it is known, each person has his/her own needs, compared to the needs of the society. A society's activities are aimed at addressing the needs of each person. Depending on the need of a person, a goal is formed that motivates the person to take certain

actions. The actions themselves require a person to evaluate his /her own possibilities and abilities. Therefore, a man appears in the society as an active person. Hence, there is a question of human interaction with a society, its role in it. That is, a person tries to gain recognition in the society as such who performs a specific function in that society in order to satisfy his needs and aspirations.

The hierarchy of human needs, which are the driving force of their cognitive and world-transforming activity, is based on the assumption that dominant needs are located at the lower level and inherent in every living being, must be satisfied before a person realizes the needs of the next levels. This thesis is confirmed by the life practice of each individual and a society as a whole.

A need is an internal requirement for something on the part of the body; an individual, social group or society as a whole; it is the absence or lack of something necessary for life and development.

A need is a necessity of such conditions for a person that ensure his/her existence and self-sufficiency.

Meeting the needs is the goal of any human activity. They work to provide themselves with food, clothing, rest, entertainment, that is, the benefits needed in life and which are of no benefit to humans but actually have a cause. For example, almsgiving to those who give it, is a satisfaction of their higher mental needs.

Needs are divided into the following groups:

1) **physiological** (or biological), (in food, breathing, motor, in the reproduction of people);

2) **existential** (needs for security of existence, confidence in tomorrow, stability of society, job security);

3) **social** (depending on the team, group or community, in communication, caring for others, attention to oneself, participation in joint work activities);

4) **prestigious** (in respect of others, recognition and appreciation of their qualities, in service and high status in society);

5) **personal** (in self-expression, self-realization, i.e. in the active manifestation of oneself as an independent, original, creative personality);

6) **spiritual** (needs for new knowledge about the world, self-knowledge, involvement in the sciences, arts, etc.);

The first two groups are primary and congenital, the other four are acquired.

6.2. Human needs for natural resources

It should be borne in mind that all the needs of humanity reflect the dual nature of man as a biosocial being. On the one hand, humans have purely biological needs that connect them with other species existing in the biosphere. For the most part, these needs are naturally met without the use of specialized technical means and technologies. On the other hand, it is peculiar for a person to have social needs, which distinguishes him from a number of biological species. Emergence of these needs was the result of the development of social work as a special function of human society. With the development and improvement of tools, energy resources and technologies, social needs have become more important than biological ones, and as a result, humanity seeks to take in nature more than it needs for the species to exist. It is this contradiction - between biological and social needs - that has become the main contradiction of the biosphere, having led to the emergence of an environmental problem and the development of a global socio - ecological crisis. While meeting some needs, others are inevitably born. This continuous process will go on as long as humanity exists. There is a constant enrichment of needs. The increasing needs of modern man lead to great losses in nature. It is precisely in solving the problem of rational use of natural resources that the main contradiction of the economy is traced - between the unlimited human needs and the limited resources available in nature.

Humans, animals, and other living organisms have relied on natural resources for survival since the beginning of time. The conservation of natural resources is important as the world population continues to grow, with many of the most important natural resources being finite and non-renewable.

Natural resources are materials and substances that occur naturally and can be used for economic gain. They include minerals, forests, fertile land, and water. Some natural resources, such as soil and water, are essential for the existence of life.

A non-renewable natural resource is defined as a resource that cannot be replaced in our lifetime. They include metal ores, fossil fuels, earth minerals, and in some in certain situations groundwater.

Renewable natural resources are resources that can be replaced naturally in our lifetime and used repeatedly. Examples include freshwater, timber, oxygen, and solar energy.

6.3. Evolution of needs with the development of society

Having considered the basic types of needs, it is worth emphasizing: both the needs themselves and their types have historically changed. That is, needs evolved with the development of mankind.

The history of a society can be presented as a search for new ways to satisfy the development of the system of material and spiritual needs. Meeting human needs for any good is objectively required for their production, and resources are needed to produce the good. Through labor, they can be obtained from nature or created artificially as materials. The needs of mankind are constantly growing, this is pushing for a comprehensive intensification of production, and it inevitably creates new needs, forcing the expansion of production and the process of environmental management. Previously, so many natural resources have not been used to sustain society, there has never been such a large amount of waste that is returned to the environment, reducing the area of land suitable for safe living. Since social needs are dominant in modern society, they must be adjusted to the moral sphere of the individual who determines a full-fledged being aimed at satisfying needs that do not endanger another person's life.

If we look at the history of environmental sciences and environmental literature, we notice quite soon that for long environmental management was perceived as a technical matter: we have a problem and we manage it by developing and implementing a set of engineering actions. Simplistic examples would include fencing a forest in order to halt biodiversity loss or increasing a water table for wetlands maintenance. Although the actions included in the examples may lead to the desired effect, there is also a possibility that this would cause a significant deterioration of life quality in the neighborhood and/or close-downs many entrepreneurial opportunities. If in industrialized societies this problem was mostly addressed through a variety of compensation schemes and/or delayed and/or hampered ecosystem management actions already on a planning stage, in many developing countries the consequences were often reported only after an action was taken. The textbook examples are an increased wildlife pressure on local communities (e.g. attacks of large carnivorous species on the cattle or elephants rides on crops and plantations) and limited access to traditional food resources (e.g. when common game species move to a protected area). When identified and discussed, this issue had moved on a high political level and also penetrated scholarly literature, and nowadays multilateral environmental agreements (MEAs) recognize the stakeholder involvement as an integrative component of environmental planning and decision-making (e.g. in Aarhus and Espoo Conventions), and creation of a "sustainable livelihood"[1] is recognized as an ultimate target of biodiversity conservation (e.g. in the Convention on Biological Diversity). In the meantime, the issue gained recognition and was described as a problematic one in Western democracy countries too, and over the last decades, a large body of literature was developed on a divergence between conservation and socio-economic objectives. While the value of public participation is normally recognized and praised, many authors also point out that in a democratic political process (especially on a local level), nature conservation is usually given a lower priority, and local communities often opt for promoting socio-economic development, and not for expanding protected areas or setting up the new ones (e.g. in Poland with the numerous and largely unsuccessful attempts to expand Bialowieza National Park). Interestingly, top-down hierarchical governments often took the same strategy if economic development was at stake (e.g. in the Soviet Union where zapovedniks were re-organized and even abolished when newly announced economic growth policies needed quick resource support). At any rate, it is well established that that participatory processes contribute effectiveness of governance solutions and can lower costs of policy implementation [35]. Rauschmayer and Wittmer present evidence showing that participatory methods can support new resolutions to environmental management challenges; although their uptake remains slow, they have been recognized as useful for improving the management performance.

The point we want you to take from these examples is that ecosystem/biodiversity management rarely can be limited to "an engineering solution", and a broader circle of stakeholders usually needs to be involved in order to find a solution that would be *acceptable* for local communities (and sometimes also the broader regions) and/or other parties involved into management and/or exploitation of the area, dependent on its resources or framing the public opinion. "*Acceptable*" in this context also means "*legitimate*", because *formal institutions* (e.g. regulation and legislation) can fail to back the conservation action, if the new rules do not become a new *collective choice*. Of course, *monitoring, enforcement* and *conflict resolution* instruments also need to be created, and once all these requirements are observed, we can tell of an efficient *governance system* set up for a biodiversity conservation or ecosystem management.

The Earth System Governance Project (Biermann et al) refers to *governance* as to "…forms of steering that are less hierarchical than traditional governmental policy-making (even though most modern governance arrangements will also include some degree of hierarchy), rather decentralized, open to self-organization, and inclusive of non-state actors that range from industry and non-governmental organizations to scientists, indigenous communities, city governments, and international organizations". Jouni Paavola defines *environmental governance* as "…the establishment, reaffirmation or change of institutions to resolve conflicts over environmental resources"; the *social justice* is recognized here as an integral part of environmental decisions. Summing up, environmental/natural resource governance can be defined as an actors' network created around natural resource management or exploitation, and all the interaction within the network and with larger architectures the network is inbuilt in.

Apparently, more than one decision-making center can exist in an environmental governance system: the formal authorities share (willingly or unwillingly) the power with non-governmental actors that can claim a certain form of legitimacy coming, say, from the proved or claimed expertise, trust, financial backing etc. Hooghe and Marks refer to the process of the dispersion of central government authority both vertically and horizontally as *multi-level governance*. The multi-level governance can either be related to dispersion of governmental authority to general-purpose territorial jurisdictions with non-intersecting membership or to special purpose jurisdictions tailoring membership, rules of operation, and functions to a particular policy problem. This process is also referred to as *polycentric governance* which describes the co-existence of many centers of decision-making that are formally independent of each other. A central characteristic of multi-level governance is an increasing participation of non-state actors in political decision-making.

6.4 Consumerism is the cause of growing needs and environmental degradation

The first to talk about consumerism was an American sociologist Thorstein Veblen. In a study of then-prestigious consumption in the US upper class, he outlined his theory of "demonstrative consumption." It views consumer behavior as going beyond basic needs and begins to serve the growth of social prestige.

Consumerism or consumer society is a set of social relations based on the principle of individual consumption. However, consumerism is not to be confused with consumption - the satisfaction of needs that meet the inner nature of man and without which life itself is impossible. Consumer-related attitude to nature leads to: the disappearance of organisms in the environment, disruption of ecosystems, changes in the appearance of the earth's surface, the increase of unsuitable habitats, the onset of starvation on the planet and deterioration of human health.

Theme 7. World outlook and philosophical understanding of the environment and nature management

Question:

1. Ecological knowledge and education as a prerequisite for the development of environmental consciousness.
2. Socio-ecological outlook: origins and problems of formation
3. Basic directions of socio-ecological outlook formation.
4. Socio-ecological consciousness and ecological worldview, their dependence on the state of the environment.
5. Socio-ecological responsibility as a component of ecological outlook

7.1.Environmental knowledge and education as a prerequisite for the formation of environmental consciousness.

The phenomenon of ecological knowledge emerges as a result of the growing need of a society to change a society and improve the processes of environmental management. Ecological knowledge is a proven, logical result of the knowledge of nature, its ecological interconnections, its adequate reflection in the human mind in the form of environmental ideas, concepts, judgments, theories. It can have varying degrees of authenticity and be recorded in the form of natural and artificial language signs. Ecological knowledge covers the awareness and understanding of environmental laws, principles of the relationship between different objects of nature and its resources to ensure the vital activity of man and

humanity, the need to build relationships between nature and man on reasonable principles, or on the principles of "noosphere" (according to V.I. Vernadsky). Environmental knowledge (like any other scientific one) is a specific component of the outlook, their impact on the settings of certain populations or individuals (including decision makers), an issue that seems relevant and needs to be properly considered.

Specificity of ecological knowledge is its normative character, because within the framework of ecological consciousness not only a relationship between society and the environment is reflected, but also certain norms of rational use of nature with preservation of the main functional characteristics of the biosphere are formed. A significant feature of environmental knowledge is the fact that it reflects not only the existing but also shows the necessary, that is, directed towards the future, giving a certain orientation to the actions of people in the use of natural resources for the development of society. Therefore, it contributes to the formation of the predictive dimension of environmental awareness, which is extremely important in today's context. Environmental education plays an important role in the acquisition of environmental knowledge.

Environmental education is the direct acquisition and development of knowledge about the interaction of society and nature. The content of environmental education is built on three levels: scientific, value, normative. A scientific level covers knowledge of the main ideas, theories, concepts that characterize the relationship between man and the environment. A value level covers awareness of the environmental orientation of the society and the history of development, ideas that characterize nature, its universal value; introduction of ecological and economic assessment of the environment for further calculations of losses caused by economic activity, costs necessary for its restoration. A normative level is the understanding of the aesthetic, moral, legal principles, norms, rules of environmental character, conditioned by the attitude of the society to the environment.

7.2. Ecological outlook: origins and problems of formation

In conditions where approaches to solving environmental problems are overestimated, the whole system of ecological outlook formation should be restructured. After all, as experience shows, the previous system of ecological worldview formation does not always justify itself. The subject of environmental consciousness reflection in modern era is the relationship and connection between the environment and society as subsystems of a single holistic object, which is realized in the complex of social relations, connected with the performance of activities to optimize the system "society - nature". It is clear that environmental education plays an extremely important role in shaping the ecological worldview. It is considered as part of the general education process. Accordingly, the development of a holistic concept of eco-education and models of its practical implementation takes place in the context of reforming the entire educational sector based on the new philosophy of education. Eco-education can not be limited only to training specialists in the relevant profile or greening the educational process within traditional educational institutions, because improving the environment depends not only on compliance with environmental norms and standards in professional activity, but also on compliance with the relevant rules of conduct for all citizens in everyday life. These standards of behavior are manifested in the economical attitude towards energy and water, choice of everyday goods, management of household waste, use of vehicles, organization of their environment and so on. In such a situation, the question of continuous and comprehensive eco-education that would meet the needs of finding answers to the ongoing environmental challenges, is urgent. Therefore, any inhabitant of the planet should have the ecological worldview.

7.3. Main directions of ecological outlook formation

Considering the origins and problems in the formation of ecological outlook, we can conclude that environmental education and training can not be effective without forming the basis of outlook. In order for an individual to be able to participate practically in eliminating the threat of an ecological crisis, to make it an internal need, they need to be able to provide scientifically sound answers to questions about the essence of the world, nature, man, about the goals and limits of human knowledge, transformation of the environment, the meaning of human life. In the process of shaping the ecological worldview, the aspect of a humanistic, responsible attitude to the environment as to human value is increasingly taken into account. When solving the problems of an ecological worldview formation, we must build it on the principles of complexity, continuity, local lore.

7.4. Ecological consciousness, ecological outlook and dependence on the state of the environment

Ecological consciousness as a specific, independent form of social consciousness emerged only in the twentieth century, reflecting the threats of global environmental catastrophe and the rise of crisis phenomena in the relationship between the society and nature.

The subject of environmental consciousness reflection is the relationship and connection between the environment and society as a subsystem of a single holistic object, realized in the complex of social relations, connected with the performance of activities for optimization of the system "society - nature".

At the present stage of socio-natural relations development, there are functional and structural changes in the social consciousness, which reflect the global ecological situation. On the one hand, there is greening of social consciousness. Its new state emerges and develops, is widely spread, increasing the importance of social and environmental problems in the consciousness of the subjects of environmental activity.

On the other hand, ecological consciousness is formed as a new, independent form of social consciousness, characterized by a synthesized way of reflection and a complex character of regulating relationships in the system "society - nature".

According to the *epistemological criterion*, the following levels are distinguished in the Ecological consciousness: a) everyday socio-ecological consciousness, which reflects the daily life of a person, their direct interaction with the environment. b) specialized (theoretical) consciousness pertaining to scientific ecological knowledge in which the reflection of mass consciousness takes place.

According to the criterion of the media in the Ecological consciousness there can be distinguished the following forms: a) individual ecological consciousness, that is, a set of ideas, feelings, knowledge about the peculiarities of interaction between society and nature, which are specific to an individual and express its uniqueness. b) mass socio-ecological consciousness - reflects the inherent in a certain society or small group (class, nation, age group, etc.) about the peculiarities of relationships in the system "society - nature".

7.5. Social and ecological responsibility as a component of ecological outlook

Environmental responsibility is called socio – environmental responsibility. Its role in modern conditions is increasing enormously, because without it it is impossible to solve acute environmental problems. Social and environmental responsibility is directly determined by the content of environmental activities, encompassing all kinds and activities of people related to the environmental impact of society. Accordingly, social and environmental responsibility can have economic (material), political, legal, moral and other aspects. An important place in social and environmental responsibility belongs to the moral aspect. It is traced in the form of a voluntary commitment, which is viewed from the perspective of the individual and covers coercive sanctions, supported only by the power of public opinion and the conscience of the individual. It recreates the attitude to the future, the concern for a healthy environment not only for present but also for future generations.

Moral environmental norms are standards of behavior created on the basis of public opinion, perceptions of the good or the evil, a tool of social control.

Ecological norms perform informative, axiological and compulsory-stimulating functions.

The informative function is that these rules contain information on environmental rules, environmental requirements.

Axiological (holistic - normative) function is that it influences the beliefs, values and attitudes of the addressees, their feelings and emotions, social and individual ecological - legal consciousness, very closely intertwined with morality.

Formation of environmental protection societies

The late 19th century saw the formation of the first wildlife conservation societies. The zoologist Alfred Newton published a series of investigations into the *Desirability of establishing a 'Close-time' for the preservation of indigenous animals* between 1872 and 1903. His advocacy for legislation to protect animals from hunting during the mating season led to the formation of the Plumage League (later the Royal Society for the Protection of Birds) in 1889. The society acted as a protest group campaigning against the use of great crested grebe and kittiwake skins and feathers in fur clothing. The Society attracted growing support from the suburban middle-classes, and influenced the passage of the Sea Birds Preservation Act in 1869 as the first nature protection law in the world.

For most of the century from 1850 to 1950, however, the primary environmental cause was the mitigation of air pollution. The Coal Smoke Abatement Society was formed in 1898 making it one of the oldest environmental NGOs. It was founded by artist Sir William Blake Richmond, frustrated with the

pall cast by coal smoke. Although there were earlier pieces of legislation, the Public Health Act 1875 required all furnaces and fireplaces to consume their own smoke.

Systematic and general efforts on behalf of the environment only began in the late 19th century; it grew out of the amenity movement in Britain in the 1870s, which was a reaction to industrialization, the growth of cities, and worsening air and water pollution. Starting with the formation of the Commons Preservation Society in 1865, the movement championed rural preservation against the encroachments of industrialisation. Robert Hunter, solicitor for the society, worked with Hardwicke Rawnsley, Octavia Hill, and John Ruskin to lead a successful campaign to prevent the construction of railways to carry slate from the quarries, which would have ruined the unspoilt valleys of Newlands and Ennerdale. This success led to the formation of the Lake District Defence Society (later to become The Friends of the Lake District).

In 1893 Hill, Hunter and Rawnsley agreed to set up a national body to coordinate environmental conservation efforts across the country; the "National Trust for Places of Historic Interest or Natural Beauty" was formally inaugurated in 1894. The organisation obtained secure footing through the 1907 National Trust Bill, which gave the trust the status of a statutory corporation and the bill was passed in August 1907.

An early "Back-to-Nature" movement, which anticipated the romantic ideal of modern environmentalism, was advocated by intellectuals such as John Ruskin, William Morris, and Edward Carpenter, who were all against consumerism, pollution and other activities that were harmful to the natural world. The movement was a reaction to the urban conditions of the industrial towns, where sanitation was awful, pollution levels intolerable and housing terribly cramped. Idealists championed the rural life as a mythical Utopia and advocated a return to it. John Ruskin argued that people should return to a *small piece of English ground, beautiful, peaceful, and fruitful. We will have no steam engines upon it . . . we will have plenty of flowers and vegetables . . . we will have some music and poetry; the children will learn to dance to it and sing it.*

Practical ventures in the establishment of small cooperative farms were even attempted and old rural traditions, without the "taint of manufacture or the canker of artificiality", were enthusiastically revived, including the Morris dance and the maypole.

The movement in the United States began in the late 19th century, out of concerns for protecting the natural resources of the West, with individuals such as John Muir and Henry David Thoreau making key philosophical contributions. Thoreau was interested in peoples' relationship with nature and studied this by living close to nature in a simple life. He published his experiences in the book *Walden*, which argues that people should become intimately close with nature. Muir came to believe in nature's inherent right, especially after spending time hiking in Yosemite Valley and studying both the ecology and geology. He successfully lobbied congress to form Yosemite National Park and went on to set up the Sierra Club in 1892. The conservationist principles as well as the belief in an inherent right of nature were to become the bedrock of modern environmentalism. However, the early movement in the U.S. developed with a contradiction; preservationists like John Muir wanted land and nature set aside for its own sake, and conservationists, such as Gifford Pinchot (appointed as the first Chief of the US Forest Service from 1905 to 1910), wanted to manage natural resources for human use.

In the 20th century, environmental ideas continued to grow in popularity and recognition. Efforts were beginning to be made to save the wildlife, particularly the American bison. The death of the last passenger pigeon as well as the endangerment of the American bison helped to focus the minds of conservationists and popularize their concerns. In 1916 the National Park Service was founded by US President Woodrow Wilson. Pioneers of the movement called for more efficient and professional management of natural resources. They fought for reform because they believed the destruction of forests, fertile soil, minerals, wildlife and water resources would lead to the downfall of society.[23] The group that has been the most active in recent years is the climate movement.

The U.S movement began to take off after World War II as people began to recognize the costs of environmental negligence, disease, and the expansion of air and water pollution through the occurrence of several environmental disasters that occurred post-World War II. Aldo Leopold wrote "A Sand County Almanac" in the 1940s. He believed in a land ethic that recognized that maintaining the "beauty, integrity, and health of natural systems" as a moral and ethical imperative.

Another major literary force in the promotion of the environmental movement was Rachel Carson's *Silent Spring* about declining bird populations due to DDT, an insecticide, pollution and man's

attempts to control nature through use of synthetic substances. Her core message for her readers, was to identify the complex and fragile ecosystem and the threats facing the people. In 1958 Carson started to work on her last book, with an idea that nature needs human protection. Her influence was radioactive fallout, smog, food additives, and pesticide use. Carson's main focus was on pesticides, which led her to identify nature as fragile and the use of technology dangerous to humans and other species.

Both of these books helped bring the issues into the public eye Rachel Carson's *Silent Spring* sold over two million copies. Beginning in 1969 and continuing into the 1970s, Illinois-based environmental activist James F. Phillips engaged in numerous covert anti-pollution campaigns using the pseudonym "the Fox". His activities included plugging illegal sewage outfall pipes and dumping toxic wastewater produced by a US Steel factory inside the company's Chicago corporate office. Phillips' "ecotage" campaigns attracted considerable media attention and subsequently inspired other direct action protests against environmental destruction.

The first Earth Day was celebrated on 22 April 1970. Its founder, former Wisconsin Senator Gaylord Nelson, was inspired to create this day of environmental education and awareness after seeing the oil spill off the coast of Santa Barbara in 1969. Greenpeace was created in 1971 as an organization that believed that political advocacy and legislation were ineffective or inefficient solutions and supported non-violent action. 1980 saw the creation of Earth First!, a group with an ecocentric view of the world – believing in equality between the rights of humans to flourish, the rights of all other species to flourish and the rights of life-sustaining systems to flourish.

In the 1950s, 1960s, and 1970s, several events illustrated the magnitude of environmental damage caused by humans. In 1954, a hydrogen bomb test at Bikini Atoll exposed the 23-man crew of the Japanese fishing vessel *Lucky Dragon 5* to radioactive fallout. In 1967 the oil tanker *Torrey Canyon* ran aground off the coast of Cornwall, and in 1969 oil spilled from an offshore well in California's Santa Barbara Channel. In 1971, the conclusion of a lawsuit in Japan drew international attention to the effects of decades of mercury poisoning on the people of Minamata.

At the same time, emerging scientific research drew new attention to existing and hypothetical threats to the environment and humanity. Among them were Paul R. Ehrlich, whose book *The Population Bomb* (1968) revived Malthusian concerns about the impact of exponential population growth. Biologist Barry Commoner generated a debate about growth, affluence and "flawed technology." Additionally, an association of scientists and political leaders known as the Club of Rome published their report *The Limits to Growth* in 1972, and drew attention to the growing pressure on natural resources from human activities.

Meanwhile, technological accomplishments such as nuclear proliferation and photos of the Earth from outer space provided both new insights and new reasons for concern over Earth's seemingly small and unique place in the universe.

In 1972, the United Nations Conference on the Human Environment was held in Stockholm, and for the first time united the representatives of multiple governments in discussion relating to the state of the global environment. This conference led directly to the creation of government environmental agencies and the UN Environment Program.

By the mid-1970s anti-nuclear activism had moved beyond local protests and politics to gain a wider appeal and influence. Although it lacked a single co-ordinating organization the anti-nuclear movement's efforts gained a great deal of attention, especially in the United Kingdom and United States. In the aftermath of the Three Mile Island accident in 1979, many mass demonstrations took place. The largest one was held in New York City in September 1979 and involved 200,000 people.

Since the 1970s, public awareness, environmental sciences, ecology, and technology have advanced to include modern focus points like ozone depletion, global climate change, acid rain, mutation breeding, genetically modified crops and genetically modified livestock. With mutation breeding, crop cultivars were created by exposing seeds to chemicals or radiation. Many of these cultivars are still being used today. Genetically modified plants and animals are said by some environmentalists to be inherently bad because they are unnatural. Others point out the possible benefits of GM crops such as water conservation through corn modified to be less "thirsty" and decreased pesticide use through insect – resistant crops. They also point out that some genetically modified livestock have accelerated growth which means there are shorter production cycles which again results in a more efficient use of feed. Besides genetically modified crops and livestock, synthetic biology is also on the rise and environmentalists argue that these also contain risks, if these organisms were ever to end up in nature.

This, as unlike with genetically modified organisms, synthetic biology even uses base pairs that do not exist in nature.

Theme 8. Ethnicity and the environment

Question:

1. The role of the natural environment in the formation of ethnic groups.
2. Geoculture of people and their ecological consciousness. Ethnicity and the environment as a holistic phenomenon.

8.1. The role of the natural environment in the formation of ethnic groups

The very fact of the significant influence of nature on the life of society has attracted the attention of scientists for a long time - even in the time of the ancient Greeks (Herodotus, Aristotle).

The first theoretical substantiation of the geodeterminism idea (Latin *determinare* - I define) is traditionally associated with the name of Charles Montesquieu ("On the Spirit of Laws", 1748). He believed, for example, that the hot and humid nature of the South relaxed the human psyche, and the terrible phenomena of nature - floods, volcanic eruptions - suppressed their will. This, according to Montesquieu, contributes to the emergence of oppressive forms of government in the southern countries. If the human psyche is relaxed and the will is suppressed, it is easy for a despot to rise above the crowd. On the other hand, the austere nature of the North tempers the will and psyche of a person to promote democracy. Therefore, the fate of man is determined not only by his character, but he himself is a component of social, natural - geographical, cosmic factors.

The idea of geodeterminism was substantiated in the writings of Alexander Humboldt, Karl Ritter and other representatives of the new school of geography of the early X1X centuries. They focused on the natural factor of the geographical environment, and the role of the geographical factor was reduced to the influence of the natural environment features (specificity of the terrain, flora and fauna, etc.) on the life of society.

However, such an interpretation of the concept of geographical factor in the life of mankind is narrow, although it correctly focuses on some dependencies - interaction between the natural environment and society. The question must be broadened: what is the relationship between the specificity of the geographical space within which the ethnos and its culture are formed. In modern literature, the ethnic group is considered as the initial ecological - social system, in which the peculiarities of the national existence reality are fixed. Ethnogenesis (from ancient Greek - tribe, origin, formation of ethnic community), respectively, is defined as the process of the ethnic group evolution, the end result of which is the emergence of a nation. That is, the emergence of the highest taxonomic community, characterized by the specificity of relations between humans, between humans and nature. The geographical factor must be considered not only as features of the terrain, climate, flora and fauna, but also as specific cultural space - because the geographically defined territory of the ethnic group is located not in a vacuum, but is surrounded by the territories of other peoples, other cultures.

Each ethnic group that existed or exists on Earth had its own ethnic territory. Modern settlement of peoples is not accidental. It is the result of a long historical process - the gradual settlement of man on the earth's surface and subsequent ethnic displacements. The early stages of human history are characterized by almost complete dependence of humans on nature. In the later stages of development, humanity has increasingly freed itself from the relentless pressure of natural factors. In the context of a geocultural approach, one should consider the most specific features of the ethnic life culture and their changes in relation to changes in the natural environment. Virtually every ethnic group is what it is among. The specificity of each ethnic group is that different ethnic groups interact with the environment differently. Therefore, the nature of interaction with the environment, in the context of which ethnicity emerges and develops, is its essential feature. Each ethnic group is formed within the "ecological niche", certain natural conditions, and the specificity of this "ecological niche" is inevitably reflected in the culture of life support of the people (housing, food, clothing, etc.). Therefore, the indigenous ethnos forms for a very long time in one natural environment,establishing harmony between him and this environment. Ethnoses, like animal populations, live by exchanging energy with nature, maintaining or disrupting the balance. In addition, representatives of a particular ethnic group are associated with a specific ecological niche of the food and respiratory chains.

The content of ethnic mentality is embodied in the characteristic features of the worldview; moral requirements, norms and values; prevailing moods of life; types of character; forms of relationships; attitude to work and organization of life, etc. The importance of preserving the mentality of each ethnic group is that it (this mentality) is uniquely valuable for the transformation of ethnogenesis into a process that enables each individual representative of humanity to be enriched by the effects of a society creation that has been practiced for many millennia under different natural conditions. Ethnicity has arisen and exists due to the diversity of Nature itself, and the experience of each ethnic group in mastering its natural range is invaluable to each people.

8.2. Geoculture of the people and their ecological consciousness. Ethnicity and the environment as a holistic phenomenon.

Understanding of the role of the environment in the formation of historical - national forms of human existence has an interesting perspective - the problem of becoming geoculture under the influence of the environment. Each national culture is made up of many components that are synthesized into complex organic integrity. Among the multifaceted aspects of identifying the specificity of a particular national culture, there is an environmental dimension. In the context of ecological analysis, complex specific traits and characteristics of national culture, both subjective and spiritual, are made more understandable in the historical past, present and in the foreseeable future. The geoculture of a nation is created on the basis of centuries-old communication with the earth, establishing with it (and everything existing on it) partnerships. It occurs when man recognizes environment through trial and error, regulation of relations with him in the process of management. In the work "The Purpose of the Nation" I. Mirchuk analyzes the nature of culture and the culture of nature, substantiates the provisions on civilization as an adaptive tool for humanity for survival in the biosphere.

Ecological culture depends not so much on the natural features of ethnogenesis, as on the general tendencies of social development. The idea of the society's development as a process of interaction, mutual influence of internal and external factors, or, in other words, the process of the system's development in the context of an environment that is actively influenced by it, will be developed in the work "Comprehension of History" by A.J. Toynbee. It proceeds from the fact that every civilization emerges as a response to the Challenge of the natural environment. The whole life of civilization, according to Toynbee, is a continuous stream of more or less successful Answers to the Challenges of the Environment, which are diverse in both form, and character. Toynbee characterizes the environment as dual in nature - socially - natural, which can be the source of the Challenges of natural and human. Toynbey's main merit in developing geocultural issues lies in the detailed analysis of the environment as a context for the development of a human community and in the elucidation of patterns, dynamics of the relationship between society and the environment. Toynbee identifies the environment as a positive factor contributing to the development of civilization. He perceives the environment as a necessary condition for the life of the society itself. The connection of ethnic groups with a certain environment, their distinctiveness in the features of landscapes is obvious. However, everyone is the bearer of certain values, peculiar cultural and mental characteristics, language, spirituality, material culture, population - racial characteristics, etc. The formation of these characteristics in the history of the people and the individual life of each of these representatives occurs in a specific environment, adaptively adequate to a particular ethnic group [9]. It is in such conditions that the foundations of creation and reproduction of the world outlook of the people are traced.

Theme 9. Ethical and aesthetic aspects of human interaction with the environment
Question:

1. Ethical Foundations of Environmental Philosophy and Environmental Management
2. Nature as value and object of a esthetic attitude.

9.1 Ethical Foundations of Environmental Philosophy and Environmental Management

Ethics and aesthetics are the spheres of knowledge that relate to man, the human attitude to reality, although human relations are at the forefront. Consequently, ethics as a practical philosophy seeks to morally improve a person, which is made possible by the level of personal development on the basis of their own perception of universal values. Only in such an approach are universal values transformed into moral convictions and become the regulative ideas of human social existence. Today's understanding of the environment has stimulated the search for new ideals of human attitude to the

organisms that surround us. Man is regarded not as the master of nature and the center of the universe, but as a creature introduced into the diversity of life, which is an integral part of the living matter of the biosphere, related to its other parts not as competition and domination, but as cooperation and reciprocity (E. Laszlo) , F. Capra, B. Callicott, O. Leopold, and others). From these positions moral and ethical norms of social behavior are considered.

An ethical and aesthetic factor is important in the field of the ecology of human being, that is, in affirming the harmony of ecological interaction of man and the environment, at the same time, of man and the human environment. It is this factor that attests to the organic connection with the most important features of human being, with the fact that ethics and aesthetics in content and orientation are the manifestations of the internal attitude of man towards the environment. If we consider a person as a biosocial phenomenon, without focusing on its moral and ethical essence, then we face only a social robot. The biosocium becomes a man, and further - a person, among other things, due to its moral and ethical determination, which enriches the spiritual essence of man with the truths of good and love. Even the German philosopher I. Kant said that all actions, actions and thoughts of man have a moral evaluation.

Exacerbation of contradictions in the interaction of society and nature at the present stage makes us rethink the main moral and ethical foundations of human and social life. Humanity is beginning to realize not only the power of its influence on the outside world, but also the responsibility to future generations for the preservation of this world. If the society is aware of the basic moral and ethical principles of relations, as well as the principles of the attitude of people to other living beings and nature in general, then it is possible to change the current negative trends of social development. The tragedy of the present is that there is very little time left to replace the system of environmental management (as scientists predict).

Given the complexity of social relations, it became necessary to specify the moral norms, rules regarding certain areas of everyday life. Beginning with Aristotle, ethics is regarded as a separate philosophical discipline. Aristotle is considered the father of ethics, and in the first half of the twentieth century its main principles were formed. In this way different directions of applied ethics were formed - political ethics, journalistic ethics, medical ethics, environmental ethics.

Although nature was the focus of much nineteenth and twentieth century philosophy, contemporary environmental ethics only emerged as an academic discipline in the 1970s. The questioning and rethinking of the relationship of human beings with the natural environment over the last thirty years reflected an already widespread perception in the 1960s that the late twentieth century faced a human population explosion as well as a serious environmental crisis. Among the accessible work that drew attention to a sense of crisis was Rachel Carson's *Silent Spring* (1963), which consisted of a number of essays earlier published in the *New Yorker* magazine detailing how pesticides such as DDT, aldrin and deildrin concentrated through the food web. Commercial farming practices aimed at maximizing crop yields and profits, Carson speculates, are capable of impacting simultaneously on environmental and public health.

In a much cited essay (White 1967) on the historical roots of the environmental crisis, historian Lynn White argued that the main strands of Judeo-Christian thinking had encouraged the overexploitation of nature by maintaining the superiority of humans over all other forms of life on earth, and by depicting all of nature as created for the use of humans. White's thesis was widely discussed in theology, history, and has been subject to some sociological testing as well as being regularly discussed by philosophers (see Whitney 1993, Attfield 2001). Central to the rationale for his thesis were the works of the Church Fathers and The Bible itself, supporting the anthropocentric perspective that humans are the only things that matter on Earth. Consequently, they may utilize and consume everything else to their advantage without any injustice. For example, *Genesis* 1: 27–8 states: "God created man in his own image, in the image of God created he him; male and female created he them. And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over fish of the sea, and over fowl of the air, and over every living thing that moveth upon the earth." Likewise, Thomas Aquinas (*Summa Contra Gentiles*, Bk. 3, Pt 2, Ch 112) argued that non-human animals are "ordered to man's use". According to White, the Judeo-Christian idea that humans are created in the image of the transcendent supernatural God, who is radically separate from nature, also by extension radically separates humans themselves from nature. This ideology further opened the way for untrammeled exploitation of nature. Modern Western science itself, White argued, was "cast in the

matrix of Christian theology" so that it too inherited the "orthodox Christian arrogance toward nature" (White 1967: 1207). Clearly, without technology and science, the environmental extremes to which we are now exposed would probably not be realized. The point of White's thesis, however, is that given the modern form of science and technology, Judeo-Christianity itself provides the original deep-seated drive to unlimited exploitation of nature. Nevertheless, White argued that some minority traditions within Christianity (e.g., the views of St. Francis) might provide an antidote to the "arrogance" of a mainstream tradition steeped in anthropocentrism.

Around the same time, the Stanford ecologists Paul and Anne Ehrlich warned in *The Population Bomb* (Ehrlich 1968) that the growth of human population threatened the viability of planetary life-support systems. The sense of environmental crisis stimulated by those and other popular works was intensified by NASA's production and wide dissemination of a particularly potent image of earth from space taken at Christmas 1968 and featured in the *Scientific American* in September 1970. Here, plain to see, was a living, shining planet voyaging through space and shared by all of humanity, a precious vessel vulnerable to pollution and to the overuse of its limited capacities. In 1972 a team of researchers at MIT led by Dennis Meadows published the *Limits to Growth* study, a work that summed up in many ways the emerging concerns of the previous decade and the sense of vulnerability triggered by the view of the earth from space. In the commentary to the study, the researchers wrote:

We affirm finally that any deliberate attempt to reach a rational and enduring state of equilibrium by planned measures, rather than by chance or catastrophe, must ultimately be founded on a basic change of values and goals at individual, national and world levels. (Meadows et al. 1972: 195)

The call for a "basic change of values" in connection to the environment (a call that could be interpreted in terms of either instrumental or intrinsic values) reflected a need for the development of environmental ethics as a new sub-discipline of philosophy.

The new field emerged almost simultaneously in three countries—the United States, Australia, and Norway. In the first two of these countries, direction and inspiration largely came from the earlier twentieth century American literature of the environment. For instance, the Scottish emigrant John Muir (founder of the Sierra Club and "father of American conservation") and subsequently the forester Aldo Leopold had advocated an appreciation and conservation of things "natural, wild and free". Their concerns were motivated by a combination of ethical and aesthetic responses to nature as well as a rejection of crudely economic approaches to the value of natural objects (a historical survey of the confrontation between Muir's reverential and the human-centered conservationism of Gifford Pinchot (one of the major influences on the development of the US Forest Service) is provided in Norton 1991; also see Cohen 1984 and Nash (ed) 1990). Leopold's *A Sand County Almanac* (1949), in particular, advocated the adoption of a "land ethic":

That land is a community is the basic concept of ecology, but that land is to be loved and respected is an extension of ethics. (Leopold 1949)

A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise. (Leopold 1949: 224–5)

However, Leopold himself provided no systematic ethical theory or framework to support these ethical ideas concerning the environment. His views therefore presented a challenge and opportunity for moral theorists: could some ethical theory be devised to justify the injunction to preserve the integrity, stability and beauty of the biosphere?

The land ethic sketched by Leopold, attempting to extend our moral concern to cover the natural environment and its non-human contents, was drawn on explicitly by the Australian philosopher Richard Routley (later Sylvan). According to Routley (1973 (cf. Routley and Routley 1980)), the anthropocentrism imbedded in what he called the "dominant western view", or "the western superethic", is in effect "human chauvinism". This view, he argued, is just another form of class chauvinism, which is simply based on blind class "loyalty" or prejudice, and unjustifiably discriminates against those outside the privileged class. Echoing the plot of a popular movie some three years earlier (see Lo and Brennan 2013), Routley speculates in his "last man" (and "last people") arguments about a hypothetical situation in which the last person, surviving a world catastrophe, acts to ensure the elimination of all other living things and the last people set about destroying forests and ecosystems after their demise. From the human-chauvinistic (or absolutely anthropocentric) perspective, the last person would do nothing morally wrong, since his or her destructive act in question would not cause any damage to the interest and well-being of humans, who would by then have disappeared.

Nevertheless, Routley points out that there is a moral intuition that the imagined last acts would be morally wrong. An explanation for this judgment, he argued, is that those non-human objects in the environment, whose destruction is ensured by the last person or last people, have intrinsic value, a kind of value independent of their usefulness for humans. From his critique, Routley concluded that the main approaches in traditional western moral thinking were unable to allow the recognition that natural things have intrinsic value, and that the tradition required overhaul of a significant kind.

Leopold's idea that the "land" as a whole is an object of our moral concern also stimulated writers to argue for certain moral obligations toward ecological wholes, such as species, communities, and ecosystems, not just their individual constituents. The U.S.-based theologian and environmental philosopher Holmes Rolston III, for instance, argued that species protection was a moral duty (Rolston 1975). It would be wrong, he maintained, to eliminate a rare butterfly species simply to increase the monetary value of specimens already held by collectors. Like Routley's "last man" arguments, Rolston's example is meant to draw attention to a kind of action that seems morally dubious and yet is not clearly ruled out or condemned by traditional anthropocentric ethical views. Species, Rolston went on to argue, are intrinsically valuable and are usually more valuable than individual specimens, since the loss of a species is a loss of genetic possibilities and the deliberate destruction of a species would show disrespect for the very biological processes which make possible the emergence of individual living things (also see Rolston 1989, Ch 10). Natural processes deserve respect, according to Rolston's quasi-religious perspective, because they constitute a nature (or God) which is itself intrinsically valuable (or sacred).

Meanwhile, the work of Christopher Stone (a professor of law at the University of Southern California) had become widely discussed. Stone (1972) proposed that trees and other natural objects should have at least the same standing in law as corporations. This suggestion was inspired by a particular case in which the Sierra Club had mounted a challenge against the permit granted by the U.S. Forest Service to Walt Disney Enterprises for surveys preparatory to the development of the Mineral King Valley, which was at the time a relatively remote game refuge, but not designated as a national park or protected wilderness area. The Disney proposal was to develop a major resort complex serving 14000 visitors daily to be accessed by a purpose-built highway through Sequoia National Park. The Sierra Club, as a body with a general concern for wilderness conservation, challenged the development on the grounds that the valley should be kept in its original state for its own sake.

Stone reasoned that if trees, forests and mountains could be given standing in law then they could be represented in their own right in the courts by groups such as the Sierra Club. Moreover, like any other *legal person*, these natural things could become beneficiaries of compensation if it could be shown that they had suffered compensatable injury through human activity. When the case went to the U.S. Supreme Court, it was determined by a narrow majority that the Sierra Club did not meet the condition for bringing a case to court, for the Club was unable and unwilling to prove the likelihood of injury to the interest of the Club or its members. In a dissenting minority judgment, however, justices Douglas, Blackmun and Brennan mentioned Stone's argument: his proposal to give legal standing to natural things, they said, would allow conservation interests, community needs and business interests to be represented, debated and settled in court.

Reacting to Stone's proposal, Joel Feinberg (1974) raised a serious problem. Only items that have interests, Feinberg argued, can be regarded as having legal standing and, likewise, moral standing. For it is interests which are capable of being represented in legal proceedings and moral debates. This same point would also seem to apply to political debates. For instance, the movement for "animal liberation", which also emerged strongly in the 1970s, can be thought of as a political movement aimed at representing the previously neglected interests of some animals (see Regan and Singer (eds.) 1976, Clark 1977, and also the entry on the moral status of animals). Granted that some animals have interests that can be represented in this way, would it also make sense to speak of trees, forests, rivers, barnacles, or termites as having interests of a morally relevant kind? This issue was hotly contested in the years that followed. Meanwhile, John Passmore (1974) argued, like White, that the Judeo-Christian tradition of thought about nature, despite being predominantly "despotic", contained resources for regarding humans as "stewards" or "perfectors" of God's creation. Skeptical of the prospects for any radically new ethic, Passmore cautioned that traditions of thought could not be abruptly overhauled. Any change in attitudes to our natural surroundings which stood the chance of widespread acceptance, he argued, would have to resonate and have some continuities with the very tradition which had legitimized our

destructive practices. In sum, then, Leopold's land ethic, the historical analyses of White and Passmore, the pioneering work of Routley, Stone and Rolston, and the warnings of scientists, had by the late 1970s focused the attention of philosophers and political theorists firmly on the environment.

The confluence of ethical, political and legal debates about the environment, the emergence of philosophies to underpin animal rights activism and the puzzles over whether an environmental ethic would be something new rather than a modification or extension of existing ethical theories were reflected in wider social and political movements. The rise of environmental or "green" parties in Europe in the 1980s was accompanied by almost immediate schisms between groups known as "realists" versus "fundamentalists" (see Dobson 1990). The "realists" stood for reform environmentalism, working with business and government to soften the impact of pollution and resource depletion especially on fragile ecosystems or endangered species. The "fundies" argued for radical change, the setting of stringent new priorities, and even the overthrow of capitalism and liberal individualism, which were taken as the major ideological causes of anthropogenic environmental devastation. It is not clear, however, that collectivist or communist countries do any better in terms of their environmental record (see Dominick 1998).

Underlying these political disagreements was the distinction between "shallow" and "deep" environmental movements, a distinction introduced in the early 1970s by another major influence on contemporary environmental ethics, the Norwegian philosopher and climber Arne Næss. Since the work of Næss has been significant in environmental politics, the discussion of his position is given in a separate section below.

9.2. Nature as value and object of aesthetic attitude

The aesthetic sense of nature is a socially valuable feeling, because it is the basis of a reasonably-active attitude to nature in combination with a caring attitude to it as the sources and treasures of life on Earth and as a temple, to the beauty of which one cannot but bow. The aesthetic sense of nature is needed to make a person aware of his involvement in nature, his responsibility for it, is the guarantor of active, offensive protest against insensitivity, cruelty, violence against nature, the pledge of future decisive actions against thoughtless "heroism" in the transformation of nature, against the barbaric at its core. That is why today a new direction of modern aesthetic science is being formed - ecological aesthetics. For a scientific solution to the problem of the beauty of nature, philosophical and aesthetic thought has sufficient methodological justification. First, we must refer to the principle of materialistic monism. Matter as a substance is the unity of all forms of movement, is the cause of itself, endowed with its own activity, does not require any external excitatory reasons. Substance is the subject of all changes, taking into account the ratio of "thinking" and "non-thinking" matter. A subject endowed with consciousness is not only a way to self-knowledge of matter, but only one of the many aspects in the relation of subjective and objective within the single matter as substance. Human activity is directed not only to the destruction of natural objects, people often initiate harmonious and expedient landscapes.

Landscape architecture uses material, natural factors and environmental components (relief, water, vegetation, etc.) for a healthy environment. The philosophy and myths of the ancient peoples prove that the character of the people and the mentality of the peoples, language and state structure, songs and dances reproduce the climate, the relief and the geographical position of the area. Nature, the world, the universe - the first, widest sphere of revealing the aesthetic in the life of modern society. In his creative insights man borrows a lot from nature, learns from it. Man seeks not to mechanically copy nature. He always wants to be a creator. He seeks to transcend himself, nature, to create something ingenious and perfect. This movement to absolute perfection is the basis of creativity embedded in human nature. The most essential feature of human activity, aimed at changing nature is aesthetically related to this. For millennia man has learned to transform and adapt nature to his own needs, interests, aspirations. The meaning of aesthetic activity is due to the very nature of man, creative abilities that help to create new cultural values. Aesthetic as a characteristic of human attitude to the environment is universal in nature, so there is aesthetics of production, sphere of life and environment, aesthetics of human communication of socio - political processes and phenomena. A creative way of thinking is formed in the process of aesthetic activity, a value attitude towards the environment is developed. Not only the environment, the subject environment, life is transformed, but also the culture of the people themselves as subjects of aesthetic activity improves.

Questions for self-control

1. What special features does science have, that is, how is it different from other forms of social consciousness (art, religion, morality, law, etc.)?
2. How are sciences classified by subject and method? How is the complex nature of the current stage of science development understood?
3. What is the difference between science and pseudoscience?
4. What are the main functions of science in modern society? Which of these functions are fulfilled by other forms of social consciousness, and which are specifically scientific?
5. How is imaginative and symbolic thinking different from one another? What are the benefits of symbolic thinking?
6. What is a symbol and why can words be considered a symbol?
7. What is the difference between scientific symbols (words) and others?
8. What is a scientific theory and what is its performance?
9. How is the first sublevel of scientific theory (temporal models and laws) different from the second sublevel (advanced theory)? Give examples from the natural sciences.
10. What is a sensory perception of reality? Which of the human sensory feelings are used in science?
11. What is the specificity of scientific knowledge in terms of sensory perception? How does this specificity set two levels of sensory knowledge in science?
12. What is the level of empirical data in sensory cognition and how is it different from the level of empirical facts?
13. What is the “theoretical load of facts”?
14. What is positivism in general and what are its main causes?
15. What is the attitude of positivism to philosophy?
16. Who were the main representatives of the "first wave" positivism and what theoretical basis did they develop to support it?
17. Why did positivism of the "first wave" suffer a crisis at the end of the 19th century? What was this crisis?
18. How was this crisis solved by the "second wave" of positivism - empiriocriticism? Who developed empiriocriticism and its variants?
19. What is the essence of empiriocriticism? What is the difference between empiriocriticism and the "first wave" positivism?
20. What is the principle of "economy of thinking"?
21. What was the inability of empiriocriticism and in what writings and by which authors was this inability indicated?
22. What is the cause of public attention to empiriocriticism?
23. What scientific theories have challenged empiriocriticism and why?
24. What contradiction in positivism in general was revealed by the crisis of empiriocriticism? How did neo-positivism as the "third wave" of positivism propose to resolve these contradictions?
25. What were the main postulates of neo-positivism and who were its main authors?
26. What is logical positivism and what is linguistic positivism?
27. What function was assigned to the philosophy by neo-positivism?
28. How did Bertrand Russell classify the statements? Give examples of each type of expressions.
29. What is the principle of verification? What is its failure?
30. How did the failure of the verification principle reveal the ideological failure of positivism in general? What was this failure?
31. Why, despite the ideological inability of positivism in general, does the majority of the scientific community hold the view of "spontaneous positivism"?
32. What is postpositivism and how is it different from positivism in general?
33. What is the difference in views on science between positivism and postpositivism?
34. What is the "concept of non-cumulative development of scientific knowledge"?
35. What is K. Popper's falsification principle and what is its rationale?
36. How did K. Popper understand the falsification of scientific knowledge?
37. What is N. Bohr's "compliance principle"?
38. How does old and new scientific knowledge relate: is it not correlated, or correlated as a part and the whole? Give examples of modern science.

39. Give examples of using K. Popper's falsification principle as a demarcation principle between science and other forms of social consciousness (ideology, morality, religions, and niches.)
40. What is T. Kun's paradigm (first and second versions)? What are the elements of the paradigm? Explain each by an example.
41. What is a "puzzle", "normal science", "scientific revolutions"? When do the conditions for a scientific revolution arise? What are the conditions for its successful completion?
42. In what sciences (under what conditions) is it problematic to use the concept of T.Kun's scientific revolutions? Give examples.
43. What is the difference between the concept of "paradigm" and the concept of "research program".
44. What elements does the research program include according to I. Lakatos? Which of these elements have a counterpart in the paradigm structure, and which do not have?
45. What is the basic principle of science development according to the concept of I. Lakatos?
46. What is the scientific theory according to S. Toulmin and why does this understanding of the theory allow him to draw an analogy between the evolution of science and biological evolution?
47. What is a “matrix of understanding” or a “theoretical standard” according to S. Toulmin? What is the evolution of science in general according to S.Tulmin?
48. What are the prerequisites for the development of science according to S. Toulmin? What is the role of the scientific elite and what are its main functions?
49. How does the state of a society affect the development of science? Which spheres of the society are more shaped by the social order for the development of science? Give specific examples.
50. What are the advantages and disadvantages of S. Toulmin's theory of social conditioning of scientific knowledge?
51. How are we to understand the concept name of scientific knowledge functioning by P. Feyerabend "a concept of epistemological anarchism"? What is the concept behind the development of science at its core?
52. Why is P. Feuerabend's conclusion that science is to be equated with religion and mythology according to its relations with the state, that is, science, religion and mythology are forms of ideologies, absurd?
53. What does this absurdity say about the basic principles of this concept?
54. What functions of science does P. Feyerabend neglect in his theory?
55. What are the determinants of environmental management?
56. What is the object of nature management?
57. What do you see as the combination of social and natural elements?
58. What kind of environmental management is called rational?
59. What nature is called irrational?
60. What are the environmental postulates aimed at?
61. What are the areas covered by the socio-environmentalization of human activity?
62. How does the concept of human needs arise?
63. Analyze the hierarchy of human needs.
64. What does 'meeting needs' mean?
65. What groups of needs can you relate to nature management?
66. What are your priority needs - spiritual or material. Why?
67. Analyze the theory of "demonstrative consumption".
68. What does consumer environmental management lead to?
69. What is the effect of a geographical factor in the life of mankind?
70. Give examples of geodeterminism.
71. How do you see the problem of becoming geoculture under the influence of the environment?
72. What does ecological culture depend on?
73. Name the founders of environmental ethics.
74. How does the philosophy of peoples’ myths prove the connection between human and nature?
75. What is the meaning of aesthetic activity?
76. How is landscape architecture related to the aesthetics of nature management?

Тексти лекцій, презентації та додаткові матеріали розміщно у дистанційному курсі на базі платформи MOODLE.

Workshops / Практичні заняття

Workshop 1
Science: specificity, functions and levels. Positivism and its varieties. Positivism of the first and second waves

The aim of the workshop is to deepen theoretical knowledge about the features of science as a form of social consciousness, social functions of science, theoretical and empirical level of scientific knowledge, as well as the essence of positivism and its causes, specific features of positivism of the first and second "waves".

Course of the lesson

The scientific seminar is held in the form of a forum in which students make presentations and participate in discussions. Students should prepare a short report for the seminar, which is a structured and critical overview of information on one of the topics suggested below. The seminar aims to deepen and consolidate students' theoretical knowledge regarding features of science as a form of social consciousness, social functions of science, theoretical and empirical level of scientific knowledge, as well as the nature of positivism and its causes, the specific features of positivism of the first and second "waves".

Topics of the workshop reports 1

1. Science as a form of social consciousness.
2.Social functions of science.
3. The theoretical level of scientific knowledge, its essence, and its structure.
4. Empirical level of scientific knowledge, its essence, and its structure.
5. The essence of positivism and its main sources.
6. The positivism of the "first wave".
7. Empiriocriticism as the second wave positivism.
8. Scientific revolution at the beginning of XX century and the failure of empiricocriticism.

Discussion questions

1. What are the main features of science that distinguish it from other forms of social consciousness.?
2. How do the sciences differ?
3. How is science different from scientific knowledge?
4. What are the social functions of science common to all forms of social consciousness, and which are specifically scientific?
5. Which of the general functions of science are the most important in modern society?
6. How are the "productive" and "transformational" functions of science linked in today's society?
7. What underlies theoretical thinking?
8. What is a subset of temporal models and laws and what is a subset of advanced theory?
9. How have the two sub-levels evolved historically, and how are they linked?
10. What is the specificity of the empirical level precisely for science?
11. How are the sublevels of observation and the sublevels of empirical facts related?
12. What is the role of theory in functioning of the empirical level of scientific knowledge?
13. What is positivism in general?
14. How does positivism relate to philosophy?
15. Why and when did positivism arise?
16. What is the specificity of the "first wave" positivism?
17. How did O.Kont theoretically justify positivism?
18. How did the development of science cause the crisis of the first wave of positivism?
19. How did empiriocriticism as positivism of the "second wave" differ from the positivism of the "first wave"?
20. What is the principle of saving thinking?
21. What authors criticized empiriocriticism? How did they do this?
22. What advances in science have challenged empiriocriticism?
23. Why has empiriocriticism failed in the development of science?
24. What are the major contradictions between theory and empiricism in the development of science?

Workshop 2
Neo-positivism as the "third wave" positivism. Post-positivist concepts of science.

The purpose of the workshop is to deepen theoretical knowledge about neo-positivism as positivism of the "third wave" and to show how the crisis of neo-positivism caused the emergence of postpositivism, to consider its peculiarities and specificities and concepts of some authors of the postpositivism direction, namely K. Popper, T. Kuat, I. Kuhn, I. Kuhn, I. S.Tulmin, P. Feyerabend.

Course of the lesson

The scientific seminar is held in the form of a forum in which students make presentations and participate in discussions. For the seminar, students should prepare a short report, which is a structured and critical overview of information on one of the topics suggested below. The seminar is aimed at deepening and consolidation of students' theoretical knowledge about neo-positivism as positivism of the "third wave" of consideration, as the crisis of neo-positivism caused the emergence of postpositivism, and its consideration of peculiarities and specifics, as well as concepts of some authors of the post-positivist direction, I.Lakatos, S.Tulmin, P.Feierabend.

Topics of the workshop reports 2

1. Specificity of neo-positivism, its main stages and personalities.
2.Logical and linguistic neo-positivism.
3.Principle of verification.
4. Inability of positivist concepts.
5. Differences in the understanding of science in positivism and postpositivism.
6. K. Popper's conception of science and the principle of falsification.
7. The Structure of Scientific Revolutions by T. Kuhn.
8. "Research programs" of I.Lakatos.
9. The concept of social conditionality of scientific knowledge of S. Toulmin.
10.Epistemological anarchism of P. Feyerabend.

Discussion questions

1. How does neo-positivism resolve contradiction between the general nature of theory and the temporal nature of empirical experience?
2. What is the function of neo-positivism in philosophy?
3. Why is neo-positivism divided into logical and linguistic positivism?
4. How are scientific judgments classified according to B. Russell?
5. How is the verification principle formulated?
6. What scientific statements do not comply with the principle of verification?
7. Why does not positivism fit the logic of science at all?
8. Why are positivist views widespread among the scientific community in general, despite their ideological inability?
9. What is mandatory in science according to post-positivism that has not been mandatory according to positivist approaches?
10. What is science according to postpositivism?
11. What is the logic behind the statement of the falsification principle?
12. What did K. Popper mean by "falsification"?
13. What is a "paradigm" according to T. Kuhn?
14. When do scientific revolutions occur according to T. Kuhn?
15. What is a "research program"?
16. How is the "research agenda" different from the "paradigm"?
17. What is the basic condition for the development of science according to S. Toulmin?
18. What role does the scientific elite play in the development of science according to S. Toulmin?
19. What approach to development of scientific knowledge is the concept of P. Feyerabend based on?
20. Why is P. Feyerabend's concept called "Epistemological Anarchism"?

Workshop 3

The philosophical essence of nature management (T5 and 6)

The purpose of the workshop is to deepen theoretical knowledge on international cooperation in the field of sustainable development, as well as to get acquainted with the content of the main international documents concerning implementation of the principles of sustainable development of mankind.

Course of the lesson

The scientific seminar is held in the form of a forum in which students make presentations and participate in discussions. For the seminar, students should prepare a short report, which is a structured and critical overview of information on one of the topics suggested below. The seminar is aimed at deepening and consolidating students' theoretical knowledge of environmental management, as well as simulating the development of logical thinking skills, building argumentative speech and culture of controversy.

Topics of the workshop reports 3

1. The philosophical essence of rational use of nature.
2. Limited self-reproduction and self-regulation of nature.
3. Dependence of changes of nature components on anthropogenic influence.
4. Formation of natural anthropogenic territorial and social territorial complexes.
5. Ecological postulates in nature management.
6. Philosophical analysis of the laws of B. Commonner.
7. Socioecologization of nature management.
8. Nature management and human needs philosophy.
9. The evolution of needs.

Discussion questions

1. What are the determinants of environmental management?
2. What is the object of nature management?
3. What do you see as the combination of social and natural elements?
4. What kind of environmental management is called rational?
5. What nature is called irrational?
6. What are the environmental postulates aimed at?
7. What are the areas covered by the socio-environmentalization of human activity?
8. How does the concept of human needs arise?
9. Analyze the hierarchy of human needs.
10. What does 'meeting needs' mean?
11. What groups of needs can you relate to nature management?
12. What are your priority needs - spiritual or material. Why?
13. Analyze the theory of "demonstrative consumption".
14. What does consumer environmental management lead to?

Workshop 4
Environmental Ethics and Aesthetics

The aim of the workshop is to investigate the ethic-aesthetic problems of human interaction with the environment, as well as to familiarize with the main directions in the formation of the ethnological character of people.

Course of the lesson

The scientific seminar is held in the form of a forum in which students make presentations and participate in discussions. For the seminar, students should prepare a short report, which is a structured, and critical overview of information on one of the topics is suggested below. The seminar aims to deepen and consolidate students' theoretical knowledge of the ethics and aesthetics of nature management, as well as to simulate the development of logical thinking skills, construct a reasoned speech and culture of controversy.

Topics of the workshop reports 4

1. The idea of geodeterminism - history and modernity.
2. "Ethnicity is what it is among."
3. Ecological consciousness of people.
4. Geoculture of the people.
5. Ethnicity and environment integrity.
6. Evolution of environmental ethics.
7.Ecological aesthetics.

Discussion questions

1. What is the effect of a geographical factor in the life of mankind?
2. Give examples of geodeterminism.
3. How do you see the problem of becoming geoculture under the influence of the environment?
4. What does ecological culture depend on?
5. Name the founders of environmental ethics.
6. How does the philosophy of peoples' myths prove the connection between human and nature?
7. What is the meaning of aesthetic activity?
8. How is landscape architecture related to the aesthetics of nature management?

Детальні вказівки щодо підготовки до практичних робіт та семінарських занять розміщно у дистанційному курсі на базі платформи MOODLE.

Independent work / Самостійна робота

Activities of Independent work : reading and discussion of assigned papers for seminars and preparation for lectures; course group assignment; group work: contribution to the group case-study projects and contribution to the preparation and delivery of individual presentation.

Independent work:

Studying the first topic the students receive knowledge about: – Science as a form of social consciousness. – Social functions of science. – The theoretical level of scientific knowledge, its essence and structure. – Empirical level of scientific knowledge, its essence and structure.
When studying the second topic students must master the theoretical material of the discipline on the issues: – The essence of positivism and its main sources. – Positivism of the "first wave". – Empiriocriticism as the second wave of positivism. – Scientific revolution at the beginning of the XX century and the failure of empiriocriticism.
When studying the third topic, it is necessary to comprehensively examine and understand: – Specificity of neo-positivism, its main stages and personalities. – Logical and linguistic neo-positivism. – Verification principle. – Inability of positivist concepts.
Studying the teme № 4 the students receive knowledge about: – Differences in understanding of science in positivism and post-positivism. – K. Popper's conception of science and the principle of falsification. – “The Structure of Scientific Revolutions “by T. Kuhn. – Lakatos's "Research Programs". – S.Toulmin’s concept of social conditionality of scientific knowledge. – Methodological anarchism of P. Feuerabend.

Детальні вказівки щодо самостійної роботи розміщено в дистанційному курсі на базі платформи MOODLE.

Final control / Підсумковий контроль

Final control of the course "PS" is conducted according to the curriculum for PhD students in order to determine the students' mastering level in electronic learning materials.

The test consists of closed tasks in which the PhD student should demonstrate logic, coherence, integrity, use of basic concepts and terms, logical conclusions, express their opinion on the problem. Its performance reflects the reproductive, reproductive-algorithmic, creative levels of knowledge.

The test task consists of 40 questions. Each correct answer is rated at 1 point. Points for correct answers add up. Maximum score for the final control is 40 points.

The PhD students should be responsible for their readiness to the final test.

In order to master theoretical electronic materials in the process of independent preparation for the completion of the final test task, PhD students should thoroughly familiarize themselves with the lecture materials, consider and understand the content of the questions for the exam, study recommended sources, special compulsory and additional literature. Access to the Internet resources online, which are also referred to in the literature, is useful. PhD students test their knowledge through self-monitoring questions.

Active participation in the forum will give an opportunity to discuss issues from many sides, help develop thinking and language, facilitate assimilation of the material.

Preparation for the final exam should be creative and independent, based on the knowledge gained.

Questions to prepare for the final test

1. A characteristic feature of science is...
2.What social function is inherent in science only...
3.The sciences differ from each other...
4.What sub-level of a theoretical level of scientific knowledge arises historically first...
5. The problem of "theoretical load of facts" in modern science arises because...
6.Which of the general theoretical scientific methods gives unambiguous knowledge...
7.What scientific empirical method is extremely productive...
8. The basic thesis of positivism of all "waves" is that
9. To find out if a scientist is a positivist, you can ask him about his attitude to...
10. The crisis of positivism of the "first wave" arose through the development of...
11. Empiriocriticism has argued that science reflects...
12. Empiriocriticism has failed because...
13. Neo-positivism believed that philosophy was needed for scientific theory as...
14. As it turned out, it is impossible to verify the judgments that form the basis of theoretical knowledge (especially in natural science) according to the principle of neopositivism verification These judgments are called...
15. According to postpositivism, a characteristic mandatory feature of scientific knowledge is...
16. According to K. Popper's principle of scientific knowledge falsification a scientist must...
17. According to T. Kun's concept of scientific revolutions, scientific revolutions occur when...
18. According to the concept of I.Lakatos's research programs, "positive heuristics" is...
19. According to the concept of social conditionality of S.Tulmin's scientific knowledge, new effective scientific theories emerge when...
20. According to the concept of P. Feyerabend's epistemological anarchism, science is a form of...
21. Realization of object - transforming potentialities of the person...
22. The term "environmental management" is proposed in...
23. Environmental management is...

24. Regularities of essential theoretical importance for further development of nature management as an interdisciplinary object of research formulated by M.M. Palamarchuk and O.M. Palamarchuk...
25. Nature management as a socially managed process is characterized by...
26. The need for cognition, communication, training, transmission and storage of information shall be ensured by...
27. The first to talk about consumerism was...
28. "And in earlier times, among other peoples, such a consumerist attitude to nature with the same sad consequences is evident. For 15 thousand years BC there were no deserts on Earth, but now, wherever you look, there is a desert. And any desert is a consequence of the death of nature as a result of the activity of man, who imagines himself to be his king »...
29. Consumer attitude towards nature leads to...
30. Environmental education is...
31 According to the epistemological criterion, the following levels are distinguished in ecological consciousness...
32. The environmental and legal rules are implemented by...
33. The process of the ethnic group evolution, the end result of which is the emergence of a nation is...
34. The founder of Environmental Ethics is...
35. The subject of environmental ethics is...
36. The tragedy of today is...
37. "All actions, activities and thoughts of a person have moral evaluation" ...
38. Landscape architecture uses…

Підсумковий тест розміщено в дистанційному курсі на базі платформи MOODLE.

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