

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE**

**SUMY NATIONAL AGRARIAN UNIVERSITY**

**Philosophy and socio-humanities chair**

**APPROVED**

**Head of the Chair**

**Shevel A.O.**

" 22 " 06 2020

**CURRICULUM**

(plan of instruction that details what students are to know by)

**PHILOSOPHY OF SCIENCE**

**Specialty:** *all specialties*

**Faculty:** *Postgraduate department*

**2020-2021 academic year**

Curriculum by «Philosophy of science» for postgraduate students of all specialties.

Author

Assistant  (Perelomov A.Y.)

The working program was approved at a meeting of the Philosophy chair.

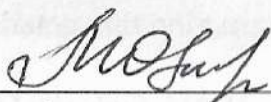
Records from "22" 06 № 12

Head of Chair



(Shevel A.O.)

Agreed:

Head of the Postgraduate department  (\_\_\_\_\_)

Dean of the faculty  (Melnik O.Y.)

Methodist of the methodic department \_\_\_\_\_ (\_\_\_\_\_)

Registered in the electronic database: date \_\_\_\_\_ 2020.

## 1. Description of the academic discipline

<b>The name of indicators</b>	<b>Area of knowledge, direction of training, educational and qualification level</b>	<b>Characteristics of the academic discipline</b>	
		<b>Full-time education</b>	<b>Extramural studies</b>
Number of credits - <b>3,5</b>	Field of knowledge: <i>all</i>	<i>Normative</i>	
	Specialty: <i>all</i>		
Modules – <b>2</b>	Educational degree: <i>bachelor</i>	<b>Year of preparation:</b>	
Content modules - <b>2</b>		2019-2020	2019-2020
The amount of hours - <b>90</b>		<b>Course</b>	
		1	1
		<b>Semester</b>	
		1	1
Weekly hours for daytime training: classroom - <b>3</b> independent work of the student - <b>4</b>		<b>Lectures</b>	
		12 hours	
		<b>Seminar</b>	
		12 hours	
	<b>Independent work</b>		
	66 hours		
	<b>Type of control</b>		
	exam		

The ratio of hours of classroom hours to independent and individual work is (%):  
for the daytime education - 41.9 / 58.1 (44/61);  
for the correspondence form of training - 11,4 / 88,6 (12/93).

## 2. Goals and objectives of the academic discipline

The purpose of teaching the discipline "Philosophy of Science" is: the formation of students' general ideas about the history of the development of a particular branch of science and the philosophy of scientific knowledge in general, the methodology of scientific creativity, the basic provisions that characterize research as a qualified scientific search in a particular field of science.

The objectives of studying the discipline of the "Philosophy of Science" are: to provide students with a weekend knowledge on the organization of research work, using general methods of scientific knowledge and applying formal logical laws and

philosophical principles in the processing, comprehension and generalization of scientific research results.

According to the requirements of the educational and professional program, students must:

**to know:** the main theoretical positions, important key problems of all the topics of the course, the basic concepts and categories of the discipline, to understand the development of scientific knowledge as the result of a creative search for a scientist, and science as one of the most important institutions of human society, to navigate the most important problems of scientific knowledge.

**be able to:** synthesize the acquired knowledge from professional and humanitarian disciplines into a holistic view of the world, apply the knowledge gained in scientific activity, apply practical skills in analyzing one or another method of scientific search.

### **3 The program of academic discipline**

*Approved by the Academic Council of the Sumy NAU (Minutes No. 11 of February 27, 2017)*

#### **Content module 1. Features of the philosophy of science.**

**Philosophy of science as a branch of philosophical knowledge.** Subject matter of the philosophy of science. The phenomenon of science in the structure of the philosophy of science. Historical types of outlook. The correlation of philosophy and science, the common and distinctive features of philosophy and science. Historical types of interrelation between philosophy and science. The phenomenon of science in the structure of the philosophy of science. Epistemology. Methodology of science. Sociology of Science Specificity of philosophical problems of science.

**The phenomenon of science.** The basic forms of the existence of science. Genesis of scientific knowledge, classical, non-classical, post-non-classical science. Science as a specific type of knowledge, attributive characteristics of scientific knowledge. Science as a cognitive activity. Science as a social institution. System nature of science. The main functions of science.

**Structure and methods of scientific knowledge.** Levels of scientific knowledge. Structure of empirical knowledge. Methods of empirical research: scientific observation, comparison, measurement, experiment. The relationship of empirics and theory. Methods of theoretical knowledge: idealization, formalization, mathematical modeling. Structure of the scientific theory. Metatheoretical level of scientific knowledge. The scientific picture of the world, the ideals and norms of scientific research and the philosophical foundations of science.

#### **Content module 2. Theory and practice of science as a public institution.**

**Ethics of science. Science and morality.** Ethics and deontology, the professional code of honor of the scientist. The main themes of the ethical discussion of scientific and technical activities (the goals of science, the means of scientific activity, the consequences of scientific activity, the meaning of scientific activity). Scientific knowledge: freedom and control. Ethical issues of special sciences. The influence of

science on posing new ethical problems. Scientific and technological progress and its moral problems.

**Philosophical problems of biology.** Specificity of philosophical and methodological problems of biology. Reductionism vitalism in the history of biology. The essence of the living. Scientific concepts of the origin of life. The idea of development in biology (transformism, Saltationism, evolutionism). Global problems of mankind and the role of biology in their solution.

#### 4. Structure of the academic discipline

Names of content modules and topics	Number of hours											
	Daily form						Extramural					
	Total	including					Total	including				
		l.	s.	lab	ind	i.w.		l	s	lab	ind	i.w.
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Module 1. Features of the philosophy of science</b>												
<b>Content module 1. <i>Features of the philosophy of science.</i></b>												
<b>Theme 1.</b> Philosophy of science as a branch of philosophical knowledge.	20	4	4			12						
<b>Theme 2.</b> The phenomenon of science. The basic forms of the existence of science.	20	2	2			12						
<b>Theme 3.</b> Structure and methods of scientific knowledge.	20	2	2			12						
<b>Total for content module 1</b>	<b>60</b>	<b>8</b>	<b>8</b>			<b>36</b>						
<b>Module 2. Theory and practice of science as a public institution.</b>												
<b>The content module 2. <i>Theoretical and methodological problems of philosophy.</i></b>												
<b>Theme 1.</b> Ethics of science.	15	2	2			11						
<b>Theme 2.</b> Philosophical problems of biology.	15	2	2			11						
<b>Total for content module 2</b>	<b>30</b>	<b>4</b>	<b>4</b>			<b>22</b>						
<b>Total hours.</b>	<b>90</b>	<b>12</b>	<b>12</b>			<b>61</b>						

### 5. Themes of lecture classes (full-time course)

№ i/o	Themes title and plan	Number of hours
1	<p><b>Theme 1 Philosophy of science as a branch of philosophical knowledge.</b></p> <p>1. Philosophy of science as a special philosophical discipline. 2. Specificity of the philosophical problems of science. 3. Historical types of interrelation between philosophy and science.</p>	4
2	<p><b>Theme 2. Philosophical analysis of the essence of science and its social functions.</b></p> <p>1. Classical science, its characteristics. 2. Non-classical science, its features. 3. Post-classical science, its main features.</p>	2
3	<p><b>Theme 3. The phenomenon of science. The basic forms of the existence of science.</b></p> <p>1. Features of scientific knowledge. 2. Science as an activity. 3. Science as a social institution. 4. Functions of science.</p>	2
4	<p><b>Theme 4. Structure and methods of scientific knowledge.</b></p> <p>1. Empirical and theoretical levels, discrimination criteria. 2. Empirical level, its forms and methods. 3. Theoretical level, its forms and methods. 4. Fundamentals of scientific knowledge (ideals and norms of research, the scientific picture of the world, philosophical foundations)</p>	2
5	<p><b>Theme 5. Science as a public institution. Ethics of science.</b></p> <p>1. Ethical norms and values of science. 2. Main topics of ethical discussion of scientific and technical activities 3. Scientific knowledge: freedom and control.</p>	2
6	<p><b>Theme 6. The role of biology in the formation of a modern scientific picture of the world.</b></p> <p>1. Specificity of philosophical and methodological problems of biology. 2. Reductionism of vitalism in the history of biology. 3. The idea of development in biology (transformism, Saltationism, evolutionism).</p>	
7	<p><b>Theme 7. Theories of the origin and development of life.</b></p> <p>1. The essence of the living.</p>	

	2. Abiogenic concepts of the origin of life. 3. Biogenic concepts of the origin of life.	
	<b>Total</b>	<b>12</b>

### 5. Themes of lecture classes (correspondence form of training)

No i/o	Themes title and plan	Number of hours
1	<b>Theme 1 Philosophy of science as a branch of philosophical knowledge.</b> 1. Philosophy of science as a special philosophical discipline. 2. Specificity of the philosophical problems of science. 3. Historical types of interrelation between philosophy and science.	2
2	<b>Theme 2. Structure and methods of scientific knowledge.</b> 1. Empirical and theoretical levels, discrimination criteria. 2. Empirical level, its forms and methods. 3. Theoretical level, its forms and methods. 4. Fundamentals of scientific knowledge (ideals and norms of research, the scientific picture of the world, philosophical foundations).	2
3	<b>Theme 3. Theories of the origin and development of life.</b> 1. The essence of the living. 2. Abiogenic concepts of the origin of life. 3. Biogenic concepts of the origin of life.	2
	<b>Total</b>	<b>14</b>

### 6. Seminar topics to take (full-time form of training)

No i/o	Themes title and plan	Number of hours
1	<b>Theme 1.</b> Philosophy of science as a branch of philosophical knowledge.	2
2	<b>Theme 2.</b> Historical types of interrelation between philosophy and science. <b>Theme 7.</b> Structure and methods of empirical research.	2
3	<b>Theme 3.</b> The phenomenon of science in the structure of the philosophy of science.	2
4	<b>Theme 4.</b> Genesis of scientific knowledge, classical, non-classical, post-non-classical science.	2
5	<b>Theme 5.</b> Science as a specific type of knowledge.	2
6	<b>Theme 6.</b> Science as a social institution.	2
7	<b>Theme 7.</b> Structure and methods of empirical research.	

8	<b>Theme 8.</b> Structure and methods of theoretical knowledge.	
9	<b>Theme 9.</b> Metatheoretical level of scientific knowledge.	
10	<b>Topic 10.</b> Ethical problems of science.	
11	<b>Theme 11.</b> Ethical issues of special sciences.	
12	<b>Topic 12.</b> Scientific and technological progress and its moral problems.	
13	<b>Topic 13.</b> Features of the modern scientific picture of the world and the place in it of biology.	
14	<b>Theme 14.</b> Theories of the origin and development of life.	
15	<b>Theme 15.</b> The idea of development in biology.	
	<b>Total</b>	<b>12</b>

### 6. Seminar topics (extramural form of training)

N <sup>o</sup> i/o	Themes title and plan	Number of hours
1	<b>Theme 1.</b> The phenomenon of science. The basic forms of the existence of science	
2	<b>Theme 2.</b> Structure and methods of scientific knowledge	
3	<b>Theme 3.</b> Ethics of science	
<b>Total</b>		

### 7. Individual work (full-time education))

N <sup>o</sup> i/o	Themes title and plan	Number of hours
1	<b>Theme 1. Philosophy of science as a branch of philosophical knowledge.</b> Subject matter of the philosophy of science. The phenomenon of science in the structure of the philosophy of science. Historical types of outlook. The correlation of philosophy and science, the common and distinctive features of philosophy and science. Historical types of interrelation between philosophy and science. The phenomenon of science in the structure of the philosophy of science. Epistemology. Methodology of science. Sociology of Science Specificity of philosophical problems of science.	12
2	<b>Theme 2. The phenomenon of science. The basic forms of the existence of science.</b> Genesis of scientific knowledge, classical, non-classical, post-non-classical science. Science as a specific type of knowledge, attributive characteristics of scientific knowledge. Science as a cognitive activity. Science as a social institution. System nature of science. The main	12



	functions of science.	
3	<b>Theme 3. Structure and methods of scientific knowledge.</b> Levels of scientific knowledge. Structure of empirical knowledge. Methods of empirical research: scientific observation, comparison, measurement, experiment. The relationship of empirics and theory. Methods of theoretical knowledge: idealization, formalization, mathematical modeling. Structure of the scientific theory. Metatheoretical level of scientific knowledge. The scientific picture of the world, the ideals and norms of scientific research and the philosophical foundations of science.	12
4	<b>Topic 4. Ethics of science.</b> Science and morality. Ethics and deontology, the professional code of honor of the scientist. The main themes of the ethical discussion of scientific and technical activities (the goals of science, the means of scientific activity, the consequences of scientific activity, the meaning of scientific activity). Scientific knowledge: freedom and control. Ethical issues of special sciences. The influence of science on posing new ethical problems. Scientific and technological progress and its moral problems.	12
5	<b>Theme 5. Philosophical problems of biology.</b> Specificity of philosophical and methodological problems of biology. Reductionism vitalism in the history of biology. The essence of the living. Scientific concepts of the origin of life. The idea of development in biology (transformism, Saltationism, evolutionism). Global problems of mankind and the role of biology in their solution.	12
	<b>Total</b>	<b>60</b>

### 7. Independent work (correspondence course of study)

№ i/o	Themes title and plan	Number of hours
1	<b>Theme 1. Philosophy of science as a branch of philosophical knowledge.</b> Subject matter of the philosophy of science. The phenomenon of science in the structure of the philosophy of science. Historical types of outlook. The correlation of philosophy and science, the common and distinctive features of philosophy and science. Historical types of interrelation between philosophy and science. The phenomenon of science in the structure of the philosophy of science. Epistemology. Methodology of science. Sociology of Science Specificity of philosophical problems of science.	18

2	<b>Theme 2. The phenomenon of science. The basic forms of the existence of science.</b> Genesis of scientific knowledge, classical, non-classical, post-non-classical science. Science as a specific type of knowledge, attributive characteristics of scientific knowledge. Science as a cognitive activity. Science as a social institution. System nature of science. The main functions of science.	20
3	<b>Theme 3. Structure and methods of scientific knowledge.</b> Levels of scientific knowledge. Structure of empirical knowledge. Methods of empirical research: scientific observation, comparison, measurement, experiment. The relationship of empirics and theory. Methods of theoretical knowledge: idealization, formalization, mathematical modeling. Structure of the scientific theory. Metatheoretical level of scientific knowledge. The scientific picture of the world, the ideals and norms of scientific research and the philosophical foundations of science.	19
4	<b>Topic 4. Ethics of science.</b> Science and morality. Ethics and deontology, the professional code of honor of the scientist. The main themes of the ethical discussion of scientific and technical activities (the goals of science, the means of scientific activity, the consequences of scientific activity, the meaning of scientific activity). Scientific knowledge: freedom and control. Ethical issues of special sciences. The influence of science on posing new ethical problems. Scientific and technological progress and its moral problems.	18
5	<b>Theme 5. Philosophical problems of biology.</b> Specificity of philosophical and methodological problems of biology. Reductionism vitalism in the history of biology. The essence of the living. Scientific concepts of the origin of life. The idea of development in biology (transformism, Saltationism, evolutionism). Global problems of mankind and the role of biology in their solution.	18
	<b>Total</b>	<b>93</b>

## 8. Individual tasks

### 1. Preparation of abstracts:

1. The place and role of epistemology and epistemology in the philosophy of science
2. Science as an object of philosophical reflection.
3. Variety of forms of knowledge. Scientific and scientific knowledge.
4. Philosophical principles and methodological principles of fundamental sciences.

5. Place and role of philosophy in the system of culture: history and modernity.
6. The essence of the philosophical concepts of the XIX-XX centuries in the light of scientism and antisycytism.
7. The concept of science. The problem of the historical age of science.
8. The structure of scientific knowledge.
9. Classical, non-classical stages of the development of science.
10. Science as a specialized form of knowledge.
11. Scientific and unscientific knowledge in the historical aspect.
12. Science as a social institution.
13. Science and scientific and technological progress.
14. The concept of scientific rationality and "common sense".
15. Place and role of empirical knowledge in modern biology.
16. Abstraction and abstraction in the structure of biological science.
17. Theoretical methods of cognition in modern biology
18. Theoretical methods of cognition in engineering.
19. The problem of the origin of science in the philosophy of the Enlightenment (XVIII century.)
20. Ancient science: natural philosophy, archa, cosmology, cosmogony, the origin of life
21. Aristotle as the systematization of modern scientific knowledge: logic, physics, theology
22. Empirical science of modern times in the philosophy of F. Bacon, R. Descartes and T. Hobbes.
23. Scientific discoveries in the beginning of the XIX century and features of positivism by O. Comte and G. Spencer
24. The course of scientific discoveries at the intersection of the nineteenth and twentieth centuries
25. Fundamental and worldview changes in the biological science of the XIX century.
26. Theoretical and methodological aspects of the concept of development of science Thomas Kuhn.
27. Scientific activity as a special profession.
28. History of the emergence and development of scientific organizations and scientific publications.
29. Types of communication in science.
30. Scientific activity and its economical business aspects.
31. Moral choice and moral responsibility of the scientist.
32. Values and ethics of the "great science".
33. The doctrine of Darwin and the development of the idea of evolutionism.
34. Nedarvinivsky the concept of evolution.
35. Scientific and technological progress: ethics, ecology, globalization.

## 9. Methods of teaching

### 1. Methods of research on sources of knowledge:

1.1. **Verbal: story, explanatory, conversation (heuristic and reproductive), lecture, work with the book (reviewing, note-taking).**

1.2. **Visual: a demonstration.**

### 2. Methods of teaching by the nature of the logic of cognition.

2.1. **Analytic**

2.2. **Synthesis methods**

2.3. **Inductive method**

2.4. **Deductive method**

3. **Methods of teaching on the nature and level of independent mental activity of students.**

3.1. **Problem (problem-information)**

3.2. **Partial-search (heuristic)**

4. **Active methods of training) - use of technical means of training, brainstorming, debates, round tables, use of problem situations, use of educational and monitoring tests.**

5. **Interactive learning technologies - the use of multimedia technologies.**

## 10. Methods of control

1. Rating control on 100-grade scale of estimation of ECTS

2. Intermediate control during the semester (intermediate certification)

3. Policiary evaluation of current work of students:

- the level of knowledge demonstrated at the seminar sessions;
- activity during the discussion of issues that are on the lessons;
- independent processing of the topic as a whole or separate issues;
- writing essays;
- test results;
- Written assignments in the course of control works.

## 11. The distribution of scores, which are received by full-time students

Current testing and independent work								IWS	Total for modules and IWS	Certification	Final test, exam	Amount
I.W. 1 – 20 b				I.W. 2 – 20 b								
T1	T2	T3 - 4	T5 - 6	T.1	T.2	T. 3	T.4	15	55	15	30	100
4	2	6	8	5	5	5	5		(40+15)			

### 11. Distribution of points that students receive in correspondence courses

Current testing and independent work									Total for modules and IWS	Certification	Final test, exam	Amount
I.W. 1 – 20 b				I.W. 2 – 20 b				IWS				
T1	T2	T3 - 4	T5 - 6	T.1	T.2	T. 3	T.4	30	70		30	100
4	2	6	8	5	5	5	5		(40+30)			

### Scale of assessment national and ECTS

The sum of points for all types of educational activity	Evaluation ECTS	National scale rating	
		For exam	for credit
90 – 100	<b>A</b>	excellent	credited
82-89	<b>B</b>	good	
75-81	<b>C</b>		
69-74	<b>D</b>	satisfactorily	
60-68	<b>E</b>		
35-59	<b>FX</b>	unsatisfactory with the possibility of retaking	Not reckoned with the possibility of re-surrender
1-34	<b>F</b>	unsatisfactory with the obligatory re-study of the discipline	Not reckoned with the mandatory re-study of the discipline

### 12. Methodological support

1. Educational-methodical complex for studying discipline "Philosophy of Science" for students of the specialty "Agronomy", "Forestry" (electronic version).

### 13. Recommended literature

#### 1. Philosophy of science as a branch of philosophical knowledge.

##### Basic

1. Berdyayev N.N. Filosofiya svobody. Smysl tvorchestva. – M., 1989.
2. Bashlyar G. Novyy ratsionalizm. – M, 1987.
3. Vandishev V.M. Fílosofíya: yekskurs v ístoríyu vchen' í ponyat'. – Kiïv, 2006.
4. Gusserl' E. Filosofiya kak strogaya nauka. – Novochoerkassk, 1994.

5. Zelenov L.A., Vladimirov A.A., Shchurov V.A. Istoriya i filosofiya nauki. – M., 2008.
6. Ivin A.A. Sovremennaya filosofiya nauki. – M., 2005.
7. Illarionov S.V. Teoriya poznaniya i filosofiya nauki. – M., 2007.
8. Istoriya i filosofiya nauki / Pod red. A.S. Mamzina. – SPb., 2008.
9. Istoriya i filosofiya nauki: Vvedeniye v spetsial'nost' / Pod red. A. Ursula. – M., 2005.

### **Additional**

1. Istoriya i filosofiya nauki (Filosofiya nauki) / Pod red. YU. Kryaneva, L. Motorinoy. – M., 2007.
2. Karamova O.V. Filosofiya, metodologiya i istoriya ekonomicheskoy nauki. – M., 2007.
3. Kotenko V.P. Istoriya i filosofiya klassicheskoy nauki. – M., 2005.
4. Kokhanovskiy V.P. Osnovy filosofii nauki: Uchebnoye posobiye dlya aspirantov. – Rostov-na-Donu, 2006.
5. Kokhanovskiy V.P. Filosofiya nauki v voprosakh i otvetakh. – Rostov-na-Donu, 2007.
6. Lektorskiy V.A. Epistemologiya klassicheskaya i neklassicheskaya. 2-ye izd. – M., 2006.
7. Lipkin A.I. Filosofiya nauki. – M., 2007.
8. Naydysh V.M. Kontseptsii sovremennogo yestestvoznaniya / Izd. 2-ye, pererab. i dop. – M., 2004.
9. Nikitich L.A. Istoriya i filosofiya nauki. – M., 2008.
10. Nikiforov A. Filosofiya nauki. Istoriya i teoriya. – M., 2006.
11. Popper K.R. Znaniye i psikhofizicheskaya problema. – M., 2008.
12. Porus YA.P. Epistemologiya: nekotoryye tendentsii // Voprosy filosofii. – 1997. – №2.
13. Reale Dzh., Antiseri TS. Zapadnaya filosofiya ot istokov do nashikh dney. – SPb., 1997. CH. 2.
14. Rozin V.M. Metodologiya: Stanovleniye i sovremennoye sostoyaniye. – M., 2006.
15. Shvyrev B.C. Teoreticheskoye i empiricheskoye v nauchnom poznanii. – M., 1978.

## **2. The phenomenon of science. The basic forms of the existence of science**

### **Basic**

1. Vernadskiy V.I. Razmyshleniya naturalista. Nauchnaya mysl' kak planetarnoye yavleniye. – M., 1978.
2. Gaydenko P.P. Evolyutsiya ponyatiya nauki (XVII-XVIII vv.). – M., 1987.
3. Diskursy ezoteriki (filosofskiy analiz) / Otv. red. L.V. Fesenkova. – M., 2001.
4. Il'in V.V. Kriterii nauchnosti znaniya. – M., 1989.

5. Karpinskaya R. S., Liseyev I. K., Ogurtsov A. P. *Filosofiya prirody: koevolyutsionnaya strategiya.* – M., 1995.
6. Kasavin I.T., Sokuler Z.A. *Ratsional'nost' v poznanii i praktike.* – M., 1996.
7. Kezin A. *V Nauchnost': etalony, idealy, kriterii.* – M., 1985,
8. Kosareva A.M. *Predmet nauki.* – M., 1977.
9. Lebedev S.A. *Filosofiya nauki: slovar' osnovnykh terminov.* – M., 2006.
10. Lektorskiy V.A. *Sub'yekt, ob'yekt, poznaniye.* – M., 1980.

#### **Additional**

1. *Nauka v kul'ture.* – M., 1998.
2. Nenashev M.I. *Vvedeniye v logiku.* – M., 2004.
3. *Sovremennyye filosofskiye problemy yestestvennykh, tekhnicheskikh i sotsial'no-gumanitarnykh nauk / Pod red. V.V. Mironova.* – M., 2006.
4. *Sotsial'naya dinamika sovremennoy nauki / Pod red. V.ZH. Kelle.* – M., 1995.
5. *Sotsiokul'turnyy kontekst nauki.* – M., 1998.
6. Stepin B.C. *Teoreticheskoye znaniye. Struktura, istoricheskaya evolyutsiya.* – M., 2000.
7. Stepin B.C. *Filosofiya nauki. Obshchiye problemy.* – M., 2006.
8. Stepin V. S. *Filosofskaya antropologiya i filosofiya nauki.* – M., 1992.
9. Stepin B.C., Gorokhov V.T., Rozov M.A. *Filosofiya nauki i tekhniki.* – M., 1996.
10. Filatov V.P. *Nauchnoye poznaniye i mir cheloveka.* – M., 1989.
11. *Filosofiya: problemnyy kurs: Uchebnik / Pod red. S.A. Lebedeva.* – M., 2002.

### **3. Structure and methods of scientific knowledge**

#### **Basic**

1. Bazhenov L.B. *Stroyeniye i funktsii yestestvennonauchnoy teorii.* – M, 1978.
2. Vandishev V.M. *Filosofiya: yekskurs v istoriyu vchen' í ponyat'.* – Kiïv, 2006.
3. *Idealy i normy nauchnogo issledovaniya.* – Minsk, 1981.
4. Karnap R. *Filosofskiye osnovaniya fiziki. Vvedeniye v filosofiye nauki.* – M., 1971,
5. *Kontseptsii sovremennoy yestestvoznaniya / Pod red. S.A. Lebedeva.* – M., 2007.
6. Kun T. *Struktura nauchnykh revolyutsiy.* – M., 1985.
7. Lebedev S.L. *Induktsiya kak metod nauchnogo poznaniya.* – M., 1980.
8. Lebedev S.A. *Sovremennaya filosofiya nauki.* – M., 2007.
9. Manchur Ye.L. *Problemy sotsiokul'turnoy determinatsii nauchnogo znaniya.* – M., 1987.
10. Merkulov I.P. *Metod gipotez v istorii nauchnogo poznaniya.* – M., 1984.

#### **Additional**

1. Nikitin Ye.P. *Otkrytiye i obosnovaniye.* – M., 1988.
2. Polani M. *Lichnostnoye znaniye.* – M., 1985.
3. Popper K. *Logika i rost nauchnogo znaniya.* – M., 1983.

4. Sovremennaya filosofiya nauki: Khrestomatiya / Sost. A.A. Pechenkin. – M., 1991.
5. Stepin B.C. Osnovaniya nauki i ikh sotsiokul'turnaya razmernost' // Nauka v kul'ture. – M., 1998.
6. Stepin B.C. Teoreticheskoye znaniye. – M., 2000.
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