

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
WEST UKRAINIAN NATIONAL UNIVERSITY**

**APPROVED**

Director of Bohdan Havrylyshyn  
Education and Research Institute of  
International Relations



Iryna IVASHCHUK  
2023

**APPROVED**

Interim Vice-rector  
for Academic Affairs and Research



Viktor OSTROVERKHOV  
2023

## COURSE OUTLINE

### *METHODOLOGY OF SCIENTIFIC RESEARCH*

<b>Degree of higher education –</b>	<b>Master</b>
<b>Field of knowledge –</b>	<b>07 Management and administration</b>
<b>Speciality –</b>	<b>073 Management</b>
<b>Educational and scientific program –</b>	<b><i>International Management</i></b>

### Department of International Economic Relations

Form of study	Year	Semester	Lectures (hours)	Practical classes (hours)	Individual study (hours)	Training, complex practical individual task (hours)	Self-instruction (hours)	Total (hours)	Exam (sem.)
Full-time	1	1	30	15	5	6	94	150	1


Ternopil – WUNU  
2023

The course outline is compiled on the basis of the educational and scientific master's program in the field of knowledge 07 *Management and Administration*, speciality 073 *Management* approved by the Academic Council of West Ukrainian National University (Minutes No 10 from 23.06.2023).

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The course outline was approved at the meeting of the Department of International Economic Relations (Minutes No. 1 dated August 29, 2023)

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Reviewed and approved by the Board for Quality Assurance of 073 Speciality *Management*, Minutes No 1 on 31.08.2023.

Head of the Board for Quality Assurance of the Speciality,  
Doctor of Economic Sciences, Professor



Myklailo SHKILNIAK

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Candidate of Economic Sciences, Associate Professor



Tetyana DLUHOPOLSKA

# **METHODOLOGY OF SCIENTIFIC RESEARCH: COURSE STRUCTURE**

## **1. Course Description**

<b>Course</b> <i>Methodology of Scientific Research</i>	<b>Field of Knowledge, speciality, degree of higher education</b>	<b>Course Features</b>
Number of credits ECTS – 5	Field of knowledge: 07 Management and administration	<b>Course status:</b> obligatory <b>Language of Instruction:</b> English
<b>Number of Credit Modules</b> – 4	Specialty: 073 Management Educational and scientific program <i>International Management</i>	<b>Year of study</b> – 1 <b>Semester</b> – 1
<b>Number of content modules</b> – 2	<b>Degree of higher education</b> – Second (master's degree)	<b>Lectures</b> – 30 hours <b>Practical classes</b> – 15 hours
<b>Total quantity of hours</b> – 150		<b>Self-instruction:</b> 96 hrs. <b>Trainings &amp; Complex Practical Individual Task (CPIT):</b> 4 hrs. <b>Individual study:</b> 5 hrs.
<b>Hours per week</b> – 10, <b>Contact hours</b> – 3		<b>Final assessment</b> – exam

## **2. Aim and learning outcomes of the course *Methodology of scientific research***

### **2.1. The purpose of the course studying**

The purpose of the discipline *Methodology of Scientific Research* is to get acquainted with the methodology of scientific research, to develop the skills of applying it in practical activities.

### **2.2. Learning objectives of the course**

- formation of a holistic system of knowledge in students regarding the methodology and organization of scientific research;
- assimilation of elements of research activity, principles of organization, methodology and technology of conducting scientific research;
- formation of students' ability to independently conduct author's research and, in particular, in the part of formulating the goal and tasks of the research, theoretical premises and working hypotheses;
- development of students' practical skills in conducting scientific research, practical application of theoretical knowledge regarding the analysis of scientific economic literature, selection of analytical information, formulation of goals and tasks of scientific research, systematization, generalization and highlighting of the results of scientific theoretical and research searches in course and diploma (master's) works, etc.

### **2.3. Course Competences and their Description**

#### **Special Competences:**

- (GC 1) the ability to conduct research at the appropriate level;
- (GC 7) ability to abstract thinking, analysis and synthesis;
- (SC 1) Ability to choose and use management concepts, methods and tools, including in accordance with defined goals and international standards
- (SC 9) the ability to plan and carry out scientific and applied research, to present their results;
- (SC 11) ability to independently acquire new knowledge, use modern educational and research technologies in the field of management.

### **2.4. Prerequisites for the Course Study**

Acquisition of knowledge according to the unified entrance test in field of knowledge 07 *Management and Administration* and basic knowledge of the first (bachelor) level.

### **2.5 Learning outcomes:**

(PLO 12) plan and conduct scientific research, demonstrate the results of scientific works and prepare them for publication;

(PLO 15) identify and classify new tasks in the field of management, describe, analyze and evaluate relevant objects, phenomena and processes, choose optimal methods of their research.

## **3. METHODOLOGY OF SCIENTIFIC RESEARCH Course Outline**

### **Content module 1**

#### **THEORETICAL AND METHODOLOGICAL BASIS OF SCIENTIFIC KNOWLEDGE AND SCIENTIFIC RESEARCH**

##### **Topic 1. Science as a system of knowledge**

The essence of science: science as one of the forms of social consciousness; science as a system of knowledge; science as a special sphere of human activity; science as a separate field of scientific knowledge; science as art and creative activity. Science goals, purpose, task and functional purpose. Historical prerequisites for the birth and development of science.

##### **Topic 2. Patterns of development of science in the 21st century.**

Classification of sciences. Structural elements of science, their characteristics. The concept of the subject of science and the categorical apparatus. Scientific theory: essence and principles, driving forces and forms of development, functional purpose. The structure of scientific theory: concepts of idea, scientific concept, hypothesis, postulate. Peculiarities of carrying out scientific research in the digital space and in the period of technological and behavioral revolutions.

##### **Topic 3. Modern philosophy of economic education and methods of organizing scientific research in higher education**

Modern problems of education organization in Ukraine. The concept of economic education in Ukraine and the formation of new economic thinking. The role of scientific research in improving the quality of higher education. The relationship between the level of organization of economic education, scientific research and the socio-economic development of the state.

##### **Topic 4. Content and objective necessity of scientific research in higher education.**

Concept and classification of scientific research. Types of scientific research and forms of scientific presentation of research materials. Organization of scientific research of students in higher education. Essay writing. Scientific publication and scientific conference. Scientific article: purpose and logic of presentation of materials, necessary structural elements of a scientific article. Abstracts of the report. Report. Abstract. The main types of educational and research work in higher education.

##### **Topic 5. Theoretical and methodological foundations of scientific research**

Theoretical foundations and categorical apparatus of scientific research. Functions of scientific theory as the basis of scientific research. Scientific paradigm and theoretical conceptualization of scientific research. Methodology of scientific research. Concept of methodology and methods of scientific research.

##### **Topic 6. Methodology of research programs and social practice**

Theory, methodology, technology and practice as branches of science, their features and complementarity. A model of mutually determined genesis of science and practice. Concept of scientific plan and scientific project. Research program as the highest level of development of

modern science. The so-called solid core and protective belt of the research program. Methodological apparatus. Principles of methodology. Basics of empirical research methodology. Levels of methodological analysis. Cognitive techniques and forms of scientific research. Causal relationships in the methodology of scientific research. Hypotheses in the methodology of scientific research. Evidence in scientific research. The concept of research methodology.

#### **Topic 7. Methodology of scientific research in the field of economics**

Peculiarities of scientific research in economics. Analysis of the main subsystems of economic research methodology at the abstract level of theoretical analysis. Philosophical and general scientific principles, laws and categories of dialectics, economic laws and categories, disciplinary and interdisciplinary methods as the main structural subsystems of dialectical research in economic theory. Subject and object, subjective and objective in economic research

#### **Topic 8. Typology of methods and their application in scientific research**

Methods of scientific research. The concept of the method of scientific research. Structural elements of general and special methods of scientific knowledge. Philosophical and general scientific methods of scientific research. Theoretical and empirical methods of scientific research. The role of dialectic categories in the system of economic research. Essence and phenomenon. Content and form. Cause and effect. Quantitative and qualitative methods. Historical and logical. Abstraction. The method of going from the abstract to the concrete.

#### **Topic 9. Organization of research work in Ukraine**

Organizational structure of scientific research activities in Ukraine. Organizational and legal provision of scientific activity in higher education. State policy in the field of scientific and scientific and technical activity. State regulation and strategic management in the field of science and scientific and technical activity in Ukraine. Financial and credit and tax levers of regulation and budgetary financing of scientific activity.

#### **Topic 10. Priority areas of science development in Ukraine.**

Ways of stimulating innovative activity. State scientific and scientific and technical programs. Peculiarities of carrying out scientific activity in war conditions. A three-level system of science support. The system of training scientific personnel in Ukraine. Tasks of scientific research in the training of economists and scientific personnel. The organization and functioning of self-governing youth scientific organizations in higher educational institutions as a necessary condition for the integration of Ukraine into the European educational space.

#### **Topic 11. Scientific activity and ethics of a scientist**

Peculiarities of scientific activity. Principles of work organization in scientific activity. Workplace and working day of a scientist. The researcher's rational mode of work and the organization of his workplace. Ethical norms and the value of science. Ethics of a scientist. The main personal and creative qualities corresponding to the status of a scientist: professional knowledge, hard work on oneself, initiative, a sense of novelty, punctuality and thoroughness, responsibility and reliability, sociability, benevolence and ambition.

### **Content module 2**

## **ORGANIZATION AND METHODOLOGY OF CONDUCTING SCIENTIFIC RESEARCH**

#### **Topic 12. Methodology of organization and content of the main stages of scientific research**

General scheme and stages of scientific research. Outline of the problem and construction of a prospectus plan for future scientific research. Concept of scientific direction, scientific problem and

topic of scientific research. Preparation of justification. Key elements of the justification of the topic: statement of the problem, relevance of the research topic and determination of the level of its development, scientific novelty and practical significance of the development of the problem, the purpose and tasks of the research, the choice of the object and subject of the research, outline of the structure of the work.

**Topic 13. Finding scientific information and working with literary sources.** The concept of a source of scientific information, the specific structure of sources of scientific information. Selection and elaboration of the statistical and factual research base /digital material/. Creation of analytical tables, graphic material and drawings. Preparation of the manuscript of a scientific paper: logic of presentation, language and style of scientific research. Preparation of the introduction, conclusions, description of the literature and formation of appendices.

**Topic 14. Master's thesis: manuscript preparation**

Master's thesis as a form of research work. General characteristics and basic requirements for writing master's theses. The main stages of preparation of master's theses. Organization of scientific research while preparing the manuscript of the master's thesis: choosing a topic, drawing up work plans, searching for literary sources, working on the final version of the manuscript.

**Topic 15. Compositional structure and technical design of the master's thesis.**

Preparation for the defense and defense of the master's thesis. Reviewing and filing of documents and materials related to job protection. Preparation of the master's student for the presentation of the work. Content of the report and preparation of accompanying illustrative material. The procedure for public defense of a master's thesis.

**4. METHODOLOGY OF SCIENTIFIC RESEARCH: course credit structure**

Course content	Number of hours					
	Lectures	Practical classes	ISW	Independent work	Training, CPIT	Control measures
<b>Content module 1. Theoretical and methodological foundations of scientific knowledge and scientific research</b>						
Topic 1. Science as a system of knowledge	2	2	-	5	-	Discussion
Topic 2. Patterns of development of science in the 21st century.	2	-	2	5	-	-
Topic 3. Modern philosophy of economic education and methods of organizing scientific research in higher education	2	2	-	6	-	Essay presentation
Topic 4. Content and objective necessity of scientific research in higher education	2	-	2	6	-	-
Topic 5. Theoretical and methodological	2	2	-	6	-	Presentation of theses

foundations of scientific research						
Topic 6. Methodology of scientific research programs and social practice	2	-	-	10	-	-
Topic 7. Methodology of scientific research in the field of economics	2	-	-	1	-	-
Topic 8. Typology of methods and their application in scientific research	2	-	-	10	-	-
Topic 9. Organization of research work in Ukraine	2	2	-	6	-	Discussion
Topic 10. Priority areas of science development in Ukraine.	2	-	-	5	-	-
Topic 11. Scientific activity and ethics of a scientist	2	2	-	5	-	Discussion
<b>Content module 2. Organization and methodology of scientific research</b>						
Topic 12. Methodology of organization and content of the main stages of scientific research	2	2	-	5	2	Presentation of theses
Topic 13. Finding scientific information and working with literary sources.	2	-	-	5	-	-
Topic 14. Master's thesis: manuscript preparation	2	2	1	5	2	Justification of the relevance of the topic of the master's thesis
Topic 15. Compositional structure and technical design of the master's work	2	1	-	5	2	Discussion
<b>Total</b>	<b>30</b>	<b>15</b>	<b>5</b>	<b>94</b>	<b>6</b>	<b>150</b>

## 5. Topics for practical classes

### Practical class No. 1

Topic: Science as a system of knowledge.

Purpose: to learn the functional purpose of science and to understand the role of the discipline "Scientific Research Methodology" in deepening theoretical knowledge and its significance for master's training.

Questions for discussion:

1. The essence of science, its goals, tasks and functional purpose.
2. Stages of formation and development of science. Classification of sciences.
3. Structural elements of science, their characteristics. The concept of the subject of science and the categorical apparatus.
4. Scientific theory: essence and principles, driving forces and forms of development, functional purpose.

### Practical class No. 2

Topic: Modern philosophy of economic education and methods of organizing scientific research in higher education.

The goal: to understand the objective necessity and role of scientific research in improving the quality of higher education, to learn the peculiarities of preparing certain types of scientific products.

Questions for discussion:

1. The role of scientific research in improving the quality of higher education. The relationship between the level of organization of economic education, scientific research and the socio-economic development of the state.
2. Content and objective necessity of scientific research in higher education.
3. Organization of scientific research of students in higher education. Scientific publication and scientific conference.
4. Main types of educational and research work in higher education.

### Practical class No. 3

Topic: Theoretical and methodological foundations of scientific research.

Purpose: to understand the essence of the methodology as a philosophy of economic science and its functional purpose in scientific research.

Questions for discussion:

1. Theoretical foundations and categorical apparatus of scientific research. Scientific paradigm and theoretical conceptualization of scientific research.
2. Methodology as a philosophy of economic science. Universal and specific definitions of methodology. Methodology functions.
3. Methodology of scientific research. Causal relationships in the methodology of scientific research. Cognitive techniques and forms of scientific research.
4. The concept of the methodology of scientific research.

### Practical class No. 4

Topic: Organization of research work in Ukraine.

Purpose: to get acquainted with the priority directions of the development of science and the system of training of scientific personnel in Ukraine, to understand the ethical norms of behavior that are important to observe when conducting scientific research and presenting their results.

Questions for discussion:

1. State policy in the field of scientific and scientific and technical activities.
2. Priority areas of science development in Ukraine.
3. The system of training scientific personnel in Ukraine.



### **Practical class No. 5**

Topic: Scientific activity and ethics of a scientist.

Purpose: to get acquainted with the principles of work organization in scientific activity, the researcher's work mode and the organization of his workplace, to reveal the ethical norms and value principles of science.

Questions for discussion:

1. Scientific activity: the essence and peculiarities of the organization.
2. Ethical norms and the value of science.
3. Ethics of a scientist. Personal and creative qualities corresponding to the status of a scientist.

### **Practical class No. 6**

Topic: Methodology of organization and content of the main stages of scientific research.

Purpose: to learn the logic of organization and the content of the main stages of scientific research, to learn how to build logic and build a plan-prospect of future scientific research, to justify the choice of a research topic.

Questions for discussion:

1. General scheme and stages of scientific research.
2. Outline of the problem and construction of a prospectus plan for future scientific research.
3. Search for scientific information and work with literary sources.
4. Selection and processing of the statistical and factual research base /digital material/. Creation of analytical tables, graphic material and drawings.
5. Preparation of the manuscript of a scientific work: logic of presentation, language and style of scientific research.

### **Practical class No. 7**

Topic: Master's thesis: manuscript preparation and defense.

The goal: to understand the importance of a master's thesis as a final qualification thesis of scientific content, to learn all the requirements related to its content and technical design.

Questions for discussion:

1. Master's thesis as a form of research work: general characteristics and requirements for writing.
2. The main stages and organization of scientific research in the preparation of the manuscript of the master's thesis.
3. Compositional structure and technical design of the master's thesis.
4. Preparation for the defense and defense of the master's thesis.

### **Practical class No.8**

Topic: Compositional structure and technical design of the master's work.

Purpose: To study the procedure for preparing and conducting a public defense of a master's thesis

Questions for discussion:

1. Preparation for the defense and defense of the master's thesis.
2. Reviewing and processing of documents and materials related to job protection.
3. Preparation of the master's student for the presentation of the work.
4. Content of the report and preparation of accompanying illustrative material.
5. The procedure of public appointment

## 6. COMPLEX PRACTICAL INDIVIDUAL TASK

A complex practical individual task (CPIT in *Methodology of Scientific Research* provides:

1. Individual preparation by each student of the prospectus plan and justification of the choice of the topic of scientific research within the framework of the chosen topic of the master's thesis. The justification must necessarily contain the following structural elements: statement of the problem, relevance of the topic and the level of its research, formulation of the goal, tasks, definition of the object, subject and methods of research, formulation of scientific novelty and practical significance of the work. The completed task compositionally includes the plan-prospectus of the master's work, the justification of the choice of topic, the list of literature that was used in the performance of this task and which, including future research will be based on.

2. Other forms of individual work at the student's choice (preparation of a thematic crossword puzzle or a test in *Methodology of Scientific Research*, writing and presenting an abstract on one of the topics presented below, etc.).

CPIT topics in *Methodology and Organization of Scientific Research*:

1. Science as a system of knowledge about the patterns of development of nature and society.
2. Historical prerequisites for the emergence and main stages of the development of science.
3. Economic science in the system of humanitarian knowledge.
4. The subject of economic theory: transformation in the context of the development of economic science.
5. Economic categories, laws and principles.
6. Structure and functions of scientific theory.
7. Formation of a new methodological culture of science.
8. Methodology as a philosophy of economic science.
9. The concept of the scientific method and its transformation in the context of the development of science.
10. Methods of learning economic phenomena and processes.
11. Method of analysis of intersystem transformations.
12. Irreversibility of social processes and the methodology of research of complex systems.
13. Crisis of economic theory and challenges to scientific values.
14. Problems of methodological renewal of economic theory.
15. Ethical norms and values of science.
16. Erudition of the researcher and correctness of work with scientific sources.
17. Scientific information and information communications as a basis for the organization of scientific research.
18. Methods of searching and collecting scientific information.
19. Scientific research of students in higher education as a basis for the formation of the personality of a future scientist, highly qualified specialist.
20. Prospects of scientific research in the conditions of the formation of a single scientific space of Europe.

## 7. STUDENTS' SELF-INSTRUCTION

1. The essence of science: science as one of the forms of social consciousness; science as a system of knowledge; science as a special sphere of human activity; science as a separate field of scientific knowledge; science as art and creative activity.

2. Goals of science, purpose, task and functional purpose.
3. Historical prerequisites for the birth and development of science.
4. Classification of sciences. Structural elements of science, their characteristics.
5. The concept of the subject of science and the categorical apparatus.
6. Scientific theory: essence and principles, driving forces and forms of development, functional purpose.

7. The structure of a scientific theory: the concept of an idea, a scientific concept, a hypothesis, a postulate.
8. Peculiarities of carrying out scientific research in the digital space and in the period of technological and behavioral revolutions.
9. Modern problems of education organization in Ukraine.
10. The concept of economic education in Ukraine and the formation of new economic thinking.
11. The role of scientific research in improving the quality of higher education.
12. Relationship between the level of organization of economic education, scientific research and socio-economic development of the state
13. Concept and classification of scientific research. Types of scientific research and forms of scientific presentation of research materials.
14. Organization of scientific research of students in higher education.
15. Writing an essay. Scientific publication and scientific conference
16. Scientific article: purpose and logic of presentation of materials, necessary structural elements of a scientific article.
17. Abstracts of the report. Report.
18. Abstract. The main types of educational and research work in higher education
19. Theoretical foundations and categorical apparatus of scientific research
20. Functions of scientific theory as the basis of scientific research
21. Scientific paradigm and theoretical conceptualization of scientific research
22. Methodology of scientific research. Concept of methodology and methods of scientific research.
23. Theory, methodology, technology and practice as fields of science, their features and complementarity.
24. Model of mutually determined genesis of science and practice.
25. Concept of scientific plan and scientific project.
26. Research program as the highest level of development of modern science.
27. The so-called hard core and protective belt of the research program.
28. Methodological apparatus. Principles of methodology
29. Fundamentals of empirical research methodology. Levels of methodological analysis.
30. Cognitive techniques and forms of scientific research.
31. Causal relationships in the methodology of scientific research.
32. Hypotheses in the methodology of scientific research. Evidence in scientific research
33. Concept of research methodology.
34. Peculiarities of scientific research in economics.
35. Analysis of the main subsystems of economic research methodology at the abstract level of theoretical analysis.
36. Philosophical and general scientific principles, laws and categories of dialectics, economic laws and categories, disciplinary and interdisciplinary methods as the main structural subsystems of dialectical research in economic theory.
37. Subject and object, subjective and objective in economic research
38. Methods of scientific research. The concept of the method of scientific research
39. Structural elements of general and special methods of scientific knowledge
40. The role of dialectic categories in the system of economic research. Essence and phenomenon. Content and form. Cause and effect.
41. Quantitative and qualitative research methods
42. Historical and logical. Abstraction. The method of going from the abstract to the concrete
43. Organizational structure of research activity in Ukraine.
44. Organizational and legal provision of scientific activity in higher education.
45. State policy in the field of scientific and scientific and technical activity.

46. State regulation and strategic management in the field of science and scientific and technical activity in Ukraine.
47. Financial and credit and tax levers of regulation and budgetary financing of scientific activity.
48. Ways of stimulating innovative activity. State scientific and scientific and technical programs
49. Peculiarities of carrying out scientific activity in war conditions. A three-level system of science support.
50. The system of training scientific personnel in Ukraine. Tasks of scientific research in the training of economists and scientific personnel.
51. Organization and functioning of self-governing youth scientific organizations in higher educational institutions as a necessary condition for Ukraine's integration into the European educational space.
52. Peculiarities of scientific activity. Principles of work organization in scientific activity
53. Workplace and working day of a scientist. The researcher's rational mode of work and the organization of his workplace
54. Ethical norms and the value of science. Ethics of a scientist. The main personal and creative qualities corresponding to the status of a scientist: professional knowledge, hard work on oneself, initiative, a sense of novelty, punctuality and thoroughness, responsibility and reliability, sociability, benevolence and ambition.
55. Outline of issues and construction of a prospectus plan for future scientific research.
56. Concept of scientific direction, scientific problem and topic of scientific research.
57. Preparation of justification. Key elements of the justification of the topic: statement of the problem, relevance of the research topic and determination of the level of its elaboration, scientific novelty and practical significance of the development of the problem, the goal and task of the research, the choice of the object and subject of the research, outline of the structure of the work
58. Searching for scientific information and working with literary sources. The concept of a source of scientific information, the specific structure of sources of scientific information.
60. Selection and elaboration of the statistical and factual research base /digital material. Creation of analytical tables, graphic material and drawings. Preparation of the manuscript of a scientific paper: logic of presentation, language and style of scientific research.
61. Preparation of the introduction, conclusions, description of the literature and formation of appendices.
64. Master's thesis as a form of research work. General characteristics and basic requirements for writing master's theses.
65. The main stages of preparation of master's theses.
62. Organization of scientific research while preparing the manuscript of the master's thesis: choosing a topic, drawing up work plans, searching for literary sources, working on the final version of the manuscript.
67. Preparation for the defense and defense of the master's thesis.
63. Reviewing and filing of documents and materials related to job protection.
69. Preparation of the master's student for the presentation of the work.
64. Content of the report and preparation of accompanying illustrative material. The procedure for public defense of a master's thesis.

## **8. TRAINING**

### **Topic: Approbation of the PBL method (problem-oriented learning) in the organization of scientific research.**

The goal: to form students' practical skills in the methodology of scientific research, using the PBL method in the organization of scientific research.

Goal: to learn how to formulate current scientific problems and solve them professionally in a group.

Task: development of students' practical skills in conducting scientific research and group solving of actual scientific problems using appropriate methods and techniques for obtaining,

storing and performing initial processing of empirical data and their proper presentation using modern technical means.

Result: participation in the implementation of a group scientific project will help students master the skills of independent creative work, reveal strong personal business qualities and professional qualities of a scientist, improve business communication skills in a team.

Conducting procedure.

1. Students of the academic group are divided into several subgroups of 4-5 people. Each subgroup receives a problem-oriented task of multi-level complexity, which must be solved during the semester and prepare a written project based on a pre-approved prospectus plan, present and defend it in the group.

2. The first stage within the framework of PBL involves the accumulation of necessary scientific information, the search, study and analysis of literary and empirical sources on the topic of research, the development of hypotheses and theoretical premises of the research, the definition of a scientific task, the choice of research methods, which are tools for obtaining actual material and a necessary condition achievement of the set goal. The result of this stage is the refinement of the prospectus plan.

3. The second stage involves the processing and analysis of the results of the experimental study, the preparation of the obtained results in the form of a calculation-explanatory note, which contains a descriptive part, analysis of empirical data, posing problematic questions and conclusions from the conducted research. A successfully and timely prepared calculation and explanatory note is a prerequisite for the successful and timely completion of the project.

4. The third stage involves preparing a presentation and defending the project in an academic group. The project is presented by a subgroup (report of up to 20 minutes) with a deep argumentation of the obtained results. The research results presented by the subgroup are discussed in the academic group. The evaluation is carried out according to a two-level system: "credited" - "not credited" (the project as a whole) and "excellent", "good", "satisfactory" (taking into account the individual contribution of each member of the subgroup to the preparation and protection of the project).

## **9. ASSESSMENT TOOLS AND METHODS OF DEMONSTRATING LEARNING OUTCOMES**

During the study of *Methodology of Scientific Research*, the following assessment tools and methods of demonstrating learning results are used:

- current survey;
- credit module testing and survey;
- analytical reports, abstracts, essays, theses, articles;
- presentations of the results of completed tasks and research;
- student presentations and performances at scientific events;
- evaluation of the results of CPIT;
- exam.

## **10. ASSESSMENT CRITERIA, FORMS OF CURRENT AND FINAL TESTS**

The final score (on a 100-point scale) in *Methodology of Scientific Research* is defined as an average grade, depending on the specific weight of each credit component:

Credit module 1	Credit module 2	Credit module 3	Credit module 4
20%	20%	20%	40%
Surveys (testing) during classes 7 topics x 3 points max 21 points. Essay max 19 points. Hypothesis max 60 points.	Surveys (testing) during classes 8 topics x 3 points. max 24 points. Abstracts max 86 points.	CPIT preparation – max 40 points. CPIT presentation - max 30 points. Trainings – max 30 points.	Tests ( 5 items x 5 points) max 25 points. Open question - max 75 points.

#### Assessment Scale

University scale	National Scale	ECTS Scale
90-100	Excellent	<b>A</b> (excellent)
85-89	Good	<b>B</b> (very good)
75-84		<b>C</b> (good)
65-74	Satisfactory	<b>D</b> (satisfactory)
60-64		<b>E</b> (quite satisfactory)
35-59	Unsatisfactory	<b>FX</b> (unsatisfactory with retaking)
1-34		<b>F</b> (unsatisfactory with a revision course)

### 11. EQUIPMENT, HARDWARE AND SOFTWARE FOR THE COURSE

№	Name	topics
1	Multimedia support	1-15
2	Laptop	1-15
3	Power Point, Microsoft Excel	1-15
4	ETXT, Anti-plagiarism Unicheck	1-15

### RECOMMENDED SOURCES OF INFORMATION

1. Академічний словник української мови. URL: <http://sum.in.ua/s/ghlosarij>.
2. Антиплагиат: Безкоштовна перевірка на плагиат у Unicheck. URL: <https://unicheck.com/uk-ua/free-plagiarism-checker-online>.
3. Антиплагиат: Порядок здійснення заходів з перевірки на ознаки плагиату академічних текстів ЗУНУ (сервіс Бібліотеки ім. Л. Канищенка Західноукраїнського національного університету) URL: <http://library.wunu.edu.ua/index.php/uk/servisy/antypalahiat>.
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