Syllabus
Course Program

Fundamentals of Scientific Research

Code and name of the specialty
011 - Educational, pedagogical sciences

Institute
ESI of Social and Humanitarian Technologies

Educational program
Pedagogy of higher education

Department
Pedagogy and Psychology of Social Systems Management named after Academician I.A. Zyazyun (301)

Level of education
Master's degree

Type of discipline
Elective

Semester
1

Language of instruction
English

Teachers, developers

Alina Khrypunova
Alina.Khrypunova@khpi.edu.ua
Candidate of Pedagogical Sciences, Associate Professor, Associate Professor of the Department of Pedagogy and Psychology of Social Systems Management named after Academician I.A. Ziayun, NTU "KhPI".
She has 25 years of experience. Author of more than 100 scientific and educational works. Leading lecturer in the disciplines: "Pedagogy and Psychology of Higher Education", "Educational Management", "Fundamentals of Scientific Research", "World Experience of Higher Education".
More information about the teacher on the department's website
More about the teacher on the department's website https://web.kpi.kharkov.ua/ppuss/uk/portfolio-vorobjovoj-yevgeniyi-vyacheslavivni/

General information

Summary

The discipline "Fundamentals of Scientific Research" allows students to master modern approaches to acquire knowledge on the implementation of scientific activities in higher education, the ability to organize effective psychological and pedagogical research, the ability to analyze the results obtained, and confirmation the hypothesis of the organized and conducted research. The master will be able to gain skills in testing the results of psychological and pedagogical research in compliance with the principles of academic integrity.

Course objectives and goals

The aim of the discipline is: mastering by master students of modern managerial thinking and a system of special knowledge in the field of educational management; formation of understanding of the conceptual foundations of system management of educational institutions; the ability to apply the functions and principles of management in education, making adequate management decisions.

Format of classes

Lectures, practical classes, independent work. Final control - credit.

Competencies

GC1: Ability for abstract thinking, analysis and synthesis.
GC2: Ability to search, process and analyze information from various sources.
GC3: Ability to apply knowledge in practical situations.
GC6: Ability to identify, pose and solve problems.
GC10: Ability to conduct research at an appropriate level.
SC2: Ability to apply and develop new approaches to solving problems of a research and/or innovative nature in the field of education and pedagogy.
SC9: Ability to use modern information, communication and digital technologies in educational and research activities.

Learning outcomes

PLO1. Know at the level of the latest achievements the concepts of development of education and pedagogy, the methodology of relevant research.
PLO2. Use modern digital technologies and resources in professional, innovative and scientific activities.
PLO4. Communicate fluently in the state and foreign languages orally and in writing to discuss the results of educational, professional activities, presentations of scientific research and innovative projects.
PLO6. Develop and implement innovative and research projects in the field of education/pedagogy and interdisciplinary level in compliance with legal, social, economic, and moral standards.
PLO9. Search for necessary information on educational/pedagogical sciences in printed, electronic and other sources, analyze, systematize.

Student workload

The total volume of the discipline is 90 hours (4 ECTS credits): lectures - 16 hours, practical classes - 16 hours, independent work – 58 hours.

Course prerequisites

To successfully complete the course, you need to know: psychology of decision-making in education/pedagogy, monitoring the quality of education in higher education, pedagogy and psychology of higher education, etc.

Features of the discipline, teaching methods and technologies

Lectures are conducted interactively using multimedia technologies. Lectures include: story, explanation, demonstration, discussion. In practical classes, students perform group and individual tasks.
According to the sources of knowledge, the following teaching methods are used: verbal - conversation, discussion, lecture, work with the book; visual - illustration with practical examples, presentation; gaming - role-playing, business games; documentary - work with documents, analysis, preparation of documents; interactive - selection and discussion of video materials, cases, speech with presentation; self-study - processing of lecture material and professional literature; research - theoretical analysis of scientific sources, empirical research.
By the nature of the logic of knowledge, the following methods are used: analytical, synthetic, analytical-synthetic, inductive, deductive.
By the level of independent mental activity, methods are used: problematic, partially exploratory, research.
Learning materials available to students in Google Disk and One Drive cloud environments.

Program of the course

Topics of the lectures

Topic 1: Introduction to the discipline.
Subject, purpose and objectives of the academic discipline. Science as a system. Modern science. Basic concepts. The essence and concept of science.
Topic 2: Organization of research work.
Legislative basis of management and its organizational structure. Scientific and technical potential and its components. Training of scientific and scientific-pedagogical workers. Academic degrees and academic titles.
Topic 3: Science and scientific research.
Scientific research and its essence. Stages of scientific research.
Topic 4: Dialectics as a general methodology of scientific knowledge.
Methods of scientific research. Methods and techniques of scientific research. Special methods of scientific research. Methods used at the empirical and theoretical levels of research.
Topic 5: Writing a scientific paper.
Planning scientific research. Choosing a research topic. Formulation of the main elements of the research: relevance, purpose, object, subject, tasks
Topic 6: Information support of research work.
The place of creativity in scientific activity. Search and collection of scientific information. Scientific novelty and its features. Study of scientific literature. Preparation of a presentation and abstract for a scientific conference.
Topic 7: General requirements for research work.
Types and features of scientific research. Master's thesis as a scientific result. Procedural competence of the researcher: working with sources of scientific products and reviews of scientific works.
Topic 8: Features of scientific work and ethics of scientific work.
The structure of the dissertation and requirements for its structural elements. Academic integrity and plagiarism prevention. Types of academic virtue. Academic responsibility.
Topic 9: Defense of scientific work.
Design of structural parts of scientific works. Preparation for defense and results of scientific work. Testing of research results.

Topics of practical classes

Topic 1: Priorities of scientific policy.
Objectives and principles of scientific policy. World trends in the development of higher education.
Topic 2. Scientific work of students and improving the quality of training specialists.
Topic 3. Scientific research as a special form of cognitive activity in the field of pedagogy.
Research activity of master's degree students.
Topic 4. Method of scientific cognition: essence, content, main properties.
Laws of dialectics on the example of formation and development of the personality of a future teacher-researcher
Topic 5. Apparatus of scientific research.
Features of scientific work. Content and structure of writing a dissertation.
Topic 6. Integrative-algorithmic approach to working with scientific information and its sources.
Practice of developing a scientific and logical research apparatus.
Topic 7. Preparation and writing of a scientific text.
Rules of academic writing.
Topic 8. Procedural competence of a researcher: the place of creativity in scientific activity, creativity of a teacher-researcher. Fundamentals of academic writing.
Topic 9. Formation of scientific and pedagogical culture of the researcher.
Pedagogical culture, ethics and research skills.

Independent work

The student's independent work is limited to studying the lecture material, preparing for practical classes, performing an individual version of the calculation task (in groups of 3) using the methodological recommendations.

Students are also recommended additional materials (videos, articles, textbooks) for independent study and analysis, preparation for lectures and practical classes.

Literature and educational materials

Main literature

1. Golikov V. A., Kozminykh M. A., Onishchenko O. A. Methodology of scientific research: navch. pos_b. Odessa. 2014. – 163 p.
2. Kostyukevich V. M., Konnova M. V. Methodology of scientific research: basic handbook. Vinnytsia. T. 172.-2017.
3. Kustovska O. V. Methodology of a systematic approach and scientific research: Course of lectures. Ternopil. 2005.-124 p.
4. Maligina V. D. Methodology of scientific research. Rivne. 2016. - 247 p.
5. Mokin B.I. Methodology and organization of scientific research: navch posib. Vinnytsia. 2014.-180p.
6. Palekha Yu. I. Fundamentals of scientific research work: basic science. pos_b. Kyiv. 2013. -336 p.
7. Radionova I. F. Methodology of scientific research: applied aspect: navch. pos_b. Kyiv. KNEU. 2010. -106 p.
8. Yurinet V. E. Methodology of scientific research: navch. pos_b. / V.E.Yurinets. Lviv. 2011.- 180 p.
9. Limón, M., Mason, L. (Eds.) Reconsidering conceptual change: Issues in theory and practice. Dordrecht, The Netherlands: Kluwer. 2002.
10. Bang, M., and Medin, D. Cultural processes in science education: Supporting the navigation of multiple epistemologies. Science Education, 2010. №94(6), P.1008-1026.
11. Barron, B., Gomez, K., Pinkard, N., and Martin, C.K. The Digital Youth Network: Cultivating Digital Media Citizenship in Urban Communities. Cambridge, MA: MIT Press. 2014.

Additional literature

12. Artemchuk G.I. Methodology of organization of research work: study guide. Kyiv: Forum, 2000. - 270 p.
12. Bykov V. Yu. Models of organizational systems of open education: monograph. Kyiv: Atika, 2008. – 684 p.
13. Biluk ha M. T. Methodology of scientific research. Textbook for bachelors, masters and postgraduates in economic specialties of higher schools. Kyiv: ABU, 2002. - 480 p.
14. Hryshchenko. I. M. Fundamentals of Scientific Research: Study Guide, Kyiv, 2001.
15. Yerina A.M. Methodology of scientific research: teaching. guide Kyiv: Center of educational literature, 2004. - 212 p.
16. Klymenyuk O. V. Presentation and presentation of the results of scientific research. Textbook. Nizhin: Aspect-Polygraph, 2007. - 398 p.
17. Kovalchuk V.V. Fundamentals of scientific research: teaching. manual 2nd ed., Kyiv: Professional, 2004. - 208 p.
18. Krushelnytska O. V. Methodology and organization of scientific research: a textbook. Kyiv: Condor, 2009. - 206 p.
19. Sheiko V. M. Organization and methodology of scientific research activity. Textbook — 5th edition. Kyiv: Znannia, 2006. - 307 p.

Criteria for evaluating student performance and distribution of points

100% of the final grade consists of the results of the assessment in the form of a test (20%) and current assessment (80%).
Credit: written assignment (2 questions on theory + practical assignment with analytical conclusion) and an oral report.
Current assessment: 4 online tests (60%), and a calculation task (20%)

Rating scale

Sum of points	National assessment	ECTS
90–100	Excellent	A
82–89	Good	B
75–81	Good	C
64–74	Satisfactory	D
60–63	Satisfactory	E
35–59	Unsatisfactory (additional study is required)	FX
1–34	Unsatisfactory (re-study is required)	F

Norms of academic integrity and course policy

The student must adhere to the Code of Ethics of Academic Relations and Integrity of NTU "KhPI": to demonstrate discipline, good manners, kindness, honesty, and responsibility. Conflict situations should be openly discussed in academic groups with a lecturer, and if it is impossible to resolve the conflict, they should be brought to the attention of the Institute's management. Regulatory and legal documents related to the implementation of the principles of academic integrity at NTU "KhPI" are available on the website: http://blogs.kpi.kharkov.ua/v2/nv/akademichna-dobrochesnist/

Approval

Approved by

Date, signature

Head of the department
Nina PIDBUTSKA

Date, signature

Guarantor of the educational program
Natalia SEREDA