



Syllabus Course Program



Methodology and organization of scientific researches

Specialty

053 Psychology

Educational program

Psychology

Level of education

Bachelor's level

Semester

7

Institute

Social and Humanitarian Technologies

Department

of Pedagogy and Psychology of Social System Management named after Academician I.A. Zyaziun (301)

Course type

Special (professional), Mandatory

Language of instruction

English

Lecturers and course developers

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PhD in Public Administration

Associated Professor of Department of Pedagogy and Psychology of Social System Management named after Academician I.A. Zyaziun NTU «KhPI». Scientific work experience – 16 years. Author over 35 scientific papers. Leading lecturer in disciplines: Psychology of safety of human activity, Economic Psychology (2021-2023), Political Psychology, Conflictology, State social policy, National security, Methodology of organization of scientific researches, European studies, Technology of decision making in management.

[More about the lecturer on the department's website](#)

General information

Summary

During learning the discipline the student is able to retrospectively analyze domestic and foreign experience in understanding the nature of the emergence, functioning and development of mental phenomena.

Course objectives and goals

The purpose of studying the discipline is: to provide students with knowledge about the methodology and organization of scientific research, the theoretical problems of science as a form of cognitive activity, as well as the main methods of scientific research and way of their using.

Format of classes

Lectures, practices, consultations, self-study. Final control in the form of a test.

Competencies

General competencies:

GC1. Ability to apply knowledge in practical situations.

Special Competencies:

SC1. Ability to operate the categorical and conceptual apparatus of psychology.

SC2. The ability to retrospectively analyze domestic and foreign experience in understanding the nature of the emergence, functioning and development of mental phenomena.

SC4. Ability to independently collect and critically process, analyze and summarize psychological information from various sources.

SC6. Ability to independently plan, organize and carry out psychological research.

SC7. Ability to analyze and systematize the obtained results, formulate reasoned conclusions and recommendations.

Learning outcomes

PR3. Search for information from various sources, including using information and communication technologies to solve professional tasks

PR4. Justify own position, draw independent conclusions based on the results of own research and analysis of literary sources

PR5. Choose and apply valid and reliable psychodiagnostic tools (tests, questionnaires, projective methods, etc.) of psychological research and technologies of psychological assistance

PR6. Formulate the research's purpose and tasks, possess the skills of collecting primary material, follow the research procedure

PR7. Reflect and critically evaluate the reliability of the obtained results of psychological research, formulate reasoned conclusions

Student workload

The total volume of the course is 90 hours (3 ECTS credits): lectures - 16 hours, practices - 16 hours, self-study - 58 hours.

Course prerequisites

Previous disciplines: Experimental psychology, Psychodiagnosis, Philosophy. Necessary knowledges are understanding of different approaches to diagnostic and experimental psychological studies, ability to use analysis and synthesis, understanding of dialectic laws.

Features of the course, teaching and learning methods, and technologies

Methods of teaching in the discipline "Methodology and organization of scientific researches" are:

- verbal (conversation, discussion, lecture, work with a book);
- visual (illustration with practical examples);
- practical (practical exercises).

Active teaching methods used: discussion, brainstorming, problem-based methods, method of specific practical pedagogical situations, educational, business and role-playing games.

Program of the course

Topics of the lectures

Topic 1. Subject of scientific research methodology. Change of scientific paradigms

Concepts & classification: Science, Theory, Methodology, Scientific research, Hypotheses. Structure of theoretical knowledge. Hypotheses' way of formulation. Paradigm as a model of scientific activity.

Topic 2. Methodological principles of scientific research

Methodology's components. Methodology of science and logic of science. Levels in the structure of methodological knowledge. Principles of scientific research. The main signs of truth.

Topic 3. Methodology of scientific research in psychology (Part I)

Concrete and scientific level of methodology in psychology. Mental phenomena. Explanations and quasi-explanations. Laws in psychology. Problems of psychological research subject selection and definition.

Topic 4. Methodology of scientific research in psychology (Part II)

Specific scientific methods of psychological research. Method of objective observation. The method of self-observation, or introspection. Laboratory experiment. A natural experiment. Test method. Method of

questions. Self-report method. Anamnesis method. The method of expert evaluations. The method of the semantic radical. Mathematical methods in psychological research. The problem of objectivity of research methods in psychology.

Topic 5. Foundations of scientific ethics

Principles of scientific ethics, moral principles, principles of humanism. The value of scientific knowledge and truth. Relations between science and society. Scientific ethics in the preparation of publications. Ethics of quoting. Plagiarism. Ethics of co-authorship.

Topic 6. Writing and design of scientific papers (Part I)

Methods of preparation and design of course and diploma (bachelor) papers of psychology's students: structure elements, technical and conceptual requirements, stages of preparation.

Topic 7. Writing and design of scientific papers (Part II)

Methodology of preparation and design of master's diploma: structure elements, technical and conceptual requirements, stages of preparation. Language and style of scientific work.

Topic 8. Organization and conduct of psychological scientific research

Levels of analysis. Types of validity. Logic of organizing modern scientific research. Psychological research: general stages. Research activities of psychology students.

Topics of the workshops

Topic 1. Subject of scientific research methodology. Change of scientific paradigms

Discussion of lecture's material. Preparing a scheme "Psychology among other sciences". Formulation of the topic of future bachelor work and its hypotheses.

Topic 2. Methodological principles of scientific research

Discussion of lecture's material. Making table of methodological principles of scientific research.

Topic 3. Methodology of scientific research in psychology (Part I)

Discussion of lecture's material. Choosing research subject for future bachelor work.

Topic 4. Methodology of scientific research in psychology (Part II)

Discussion of lecture's material. Choosing research methods (with explanation what you receive from it) for future bachelor work.

Topic 5. Foundations of scientific ethics

Discussion of lecture's material. Making ethics' principles classification box.

Topic 6. Writing and design of scientific papers (Part I)

Discussion of lecture's material. Building a structure for future bachelor work..

Topic 7. Writing and design of scientific papers (Part II)

Discussion of lecture's material. Presentation of Individual Task.

Topic 8. Organization and conduct of psychological scientific research

Discussion of lecture's material. Presentation of Individual Task.

Topics of the laboratory classes

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Self-study

Studying of lecture material, Preparation for practical studies, Preparing Individual Task (topic is chosen from the list). Control is provided on workshops.

Course materials and recommended reading

BASIC LITERATURE

1. Button, K. S., & Munafò, M. R. (2017). Powering reproducible research. In S.O. Lilienfeld and I. D. Waldman (Eds.), Psychological science under scrutiny: Recent challenges and proposed solutions (pp. 22–33). John Wiley & Sons. <https://doi.org/10.1002/9781119095910>
2. Frederick Betz. Managing Science : Methodology and Organization of Research. Portland State University: Portland, 2016. 420 p. (https://fmipa.umri.ac.id/wp-content/uploads/2016/03/Frederick_Betz_Managing_Science_Methodology_andBookFi.org_2.pdf)
3. Iyer, R. (2019) YourMorals.org [Homepage]. URL: <https://www.yourmorals.org/index.php>

4. Millsap, R. E., & Meredith, W. (2007). Factorial invariance: Historical perspectives and new problems. In R. Cudeck and R. C. MacCallum (Eds.), *Factor analysis at 100: historical developments and future directions* (pp. 131–152). Lawrence Erlbaum Associates. https://doi.org/10.1111/j.1751-5823.2008.00054_24.x
5. Schmidt, F. L. (1996). Statistical significance testing and cumulative knowledge in psychology: Implications for training of researchers. *Psychological Methods*, 1(2), 115–129. <https://doi.org/10.1037/1082-989X.1.2.115>

ADDITIONAL LITERATURE

1. Berkowitz, L., & Donnerstein, E. (1982). External validity is more than skin deep: Some answers to criticisms of laboratory experiments. *American Psychologist*, 37(3), 245–257. <https://doi.org/10.1037/0003-066X.37.3.245>
2. John, L. K., Loewenstein, G., & Prelec, D. (2012). Measuring the prevalence of questionable research practices with incentives for truth telling. *Psychological Science*, 23(5), 524–532. <https://doi.org/10.1177%2F0956797611430953>
3. Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84(3), 231–259. <https://doi.org/10.1037/0033-295X.84.3.231>
4. Orne, M. T. (1962). On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist*, 17(11), 776–783. <https://doi.org/10.1037/h0043424>
5. Self-Reports in Organizational Research: Problems and Prospects by Philip M. Podsakoff and Dennis W. Organ. *Journal of Management*, 12(4) (1986): 531–544.
6. Shrout, P. E., & Rodgers, J. L. (2018). Psychology, science, and knowledge construction: Broadening perspectives from the replication crisis. *Annual Review of Psychology*, 69, 487–510, <https://doi.org/10.1146/annurev-psych-122216-011845>
7. The Impact of Research Synthesis Methods on Industrial–Organizational Psychology: The Road from Pessimism to Optimism about Cumulative Knowledge by David S. DeGeest and Frank L. Schmidt *Research Synthesis Methods*, 1(3–4) (2010): 185–197.

INFORMATION RESOURCES ON THE INTERNET

1. NTU "KhPI" repository.
2. Psychology Courses. URL: <https://study.com/academy/subj/psychology.html>
3. What is the scientific method? By Gavin Wright. URL: <https://www.techtargget.com/whatis/definition/scientific-method>
4. Scientific Method in Organizational Research. URL: <https://openstax.org/books/organizational-behavior/pages/a-scientific-method-in-organizational-research>
5. Organizing Your Social Sciences Research Paper. URL: <https://libguides.usc.edu/writingguide/methodology>
6. What are scientific methods in psychology? URL: <https://uk.indeed.com/career-advice/career-development/scientific-methods-in-psychology>
7. Research Methods in Psychology. URL: <https://www.studysmarter.us/explanations/psychology/research-methods-in-psychology/>

Assessment and grading

Criteria for assessment of student performance, and the final score structure

Control of the systematic implementation of independent work and activity in practical classes
The assessment is carried out on a 5-point scale according to the following criteria:

- 1) understanding, the degree of assimilation of the theory and methodology of the problems being considered;
- 2) the degree of mastering the material of the discipline;
- 3) familiarization with the recommended literature, as well as with modern literature on the issues that are being considered;
- 4) the ability to combine theory with practice when considering production situations, solving problems, performing calculations when performing tasks submitted for independent work, and tasks submitted for consideration in the classroom;
- 5) logic, structure, style of presentation of material in written works and when speaking in an audience, the ability to substantiate one's position, generalize information and draw conclusions.

The mark "excellent" is given if the student's completed assignment or his oral answer meets all five specified criteria.

The absence of one or another component lowers the mark by the corresponding number of points.

When evaluating practical tasks, attention is also paid to their quality and independence, the timeliness of the delivery of completed tasks to the teacher (according to the schedule of the educational process). If any of the requirements are not met, the score will be lowered.

Intermediate control

Intermediate control of the level of knowledge involves the identification of the student's mastering of the material of the lecture material and the ability to apply it to solve a practical situation and is carried out in the form of control work.

Final control

The final grade for the discipline is calculated as the average of several components, taking into account the assessments of each type of control (two assessments based on the results of the current modular control, an assessment for the course project and the final test).

Grading scale

Total points	National	ECTS
90-100	Excellent	A
82-89	Good	B
75-81	Good	C
64-74	Satisfactory	D
60-63	Satisfactory	E
35-59	Unsatisfactory (requires additional learning)	FX
1-34	Unsatisfactory (requires repetition of the course)	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



15.06.23

Head of the department
Oleksandr ROMANOVSKIY

Guarantor of the educational
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Zhanna BOHDAN

14.06.23