FEATURES OF THE COURSE "METHODOLOGY AND ORGANIZATION OF RESEARCH" TEACHING FOR MASTER LEVEL AT ECOLOGY AND BIOTECHNOLOGY FACULTY OF NUBIP OF UKRAINE

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Abstract

The article outlines the basic aspects of the discipline "Methodology and organization of scientific research", a brief description of the basic requirements for undergraduate study during the course.

Key words: student, research, master student, object, subject.

Knowledge in methodology, theory, technology, methods and research activities organization is the basis for the master students, postgraduate students, organizers of research activities at all levels. Growth of requirements for training graduates need more active involvement of students in research work. Successful mastering the research and creative work skills by bachelors, masters helps them relatively easily incorporated into professional activities, transform scientific knowledge into practical use. For early stage researchers it is very important to have an idea about the methodology and methods of science, because the first step to mastering the skills of most scientific questions is methodological. First, it is a lack of experience in using methods of scientific knowledge, logical application of laws and rules, new tools and technologies. This discipline covers the theoretical basis of methodology, technology and organization of research activities, i.e. theoretical and practical foundation for effective students research. Mastering the research methods and methodology promotes rational creative thinking, optimal organization of scientific work.

Course "Methodology and organization of scientific research" does not aim at developing some new knowledge about nature or human, it should deepen student understanding of independent creative scientific thinking and develop skills of scientific activities throughout the sequence of processes. Undergraduate student already has sufficient knowledge of theoretical and applied ecology, as it has a clear understanding of the scientific study from the previous courses, participation in research work of departments, student involvement in scientific and practical conferences and experience in bachelor thesis. However, the undergraduate student should understand the importance and binding nature of knowledge and skills in their elective courses of scientific research, e.i. ecology. Professional
ecologist may not work without this knowledge and skills. Under modern development of environment expert can create a professional conclusions on the basis of scientific development, knowing the latest research methods that help to future environmentalists to obtain various quantitative and qualitative data necessary for the common characteristics of objects, processes, environment, and comparing the parameters that contribute to selecting of right decisions, navigate the laws and regulations and having ability to express their views clearly, scientifically grounded formats that meet the scientific documentation. All this aspects is a significant step in the formation of future ecologist to entry into practical skills. Obtaining new knowledge follows the scheme: paradigm - a paradox - a new paradigm. Development of science is the change of paradigms, methods, thinking of stereotypes. The transition from one paradigm to another denies logical description for each of them, because of rejection the previous and new result of research that can not be logically lead to the known theories. A special role is played by scientific research of intuitive mechanisms that are not based on formal logic.

Subject of new in science are not always seen by researcher himself. New scientific facts and even inventions, which meaning is not clear, can remain in reserve in science for a long time and are not used in practice. Scientific research is important in every detail. By focusing on major themes or key issues, we can not consider the adverse facts, which seems to be insignificant at first glance. But such facts can obscure important beginning of discovery. It is not important enough for researchers to establish a new fact, to give him an explanation from the perspective of modern science to reveal its general, theoretical or practical significance [1].

Aim of the course "Methodology and organization of scientific research at the National University of Life and Environmental Sciences of Ukraine are:

- a holistic understanding of science as a system of knowledge and learning tools;
- promoting understanding and unity of systemic knowledge of life sciences - knowledge about nature and human;
- assistance under views formation on methodology of scientific knowledge;
- the dissertation and general scientific methods and principles of special environmental studies;
- confidence in necessity of the research results performance skills which make them accessible to a broad scientific audience;
- promotes the scientific creativity of future specialists maximumly - ecologist in any activity, particularly in ecology and environmental protection.
- positive impact on the selection of ethical standards for the conservation of biological and landscape diversity as a prerequisite for human survival;
- promotes the aspirations of acquiring a critical volume of modern environmental knowledge, which allows to navigate among the complicated environmental problems, and to take a motivated public position in difficult situations.

The tasks of the discipline "Methodology and organization of scientific research” is the formation of professionals which are capable to: master the basic theoretical principles and practical skills in scientific research: practical nesessery to master the discipline - acquiring knowledge and skills of scientific work in ecology. The teaching of the course "Methodology and organization of scientific research" is harmonized with the Master's Thesis, preparation reports for scientific student conferences, preparation of publications, participation in competitions.
By forming a system of knowledge, ecological and ethical culture of the future ecologist the course “Methodology and organization of scientific research” suggests that students acquire knowledge about:

- environmental science as a system of knowledge and learning tools;
- systematic unity and knowledge of life sciences - knowledge about nature and human;
- views on methodology of scientific knowledge;
- nature and general scientific methods and principles of special environmental studies;

Graduate Students acquire such skills:

- independent creative scientific thinking;
- develop skills of scientific activity around the following sequence of processes:
  - clarify the current issues from scientific problem;
  - formulating the research topic;
  - identifying the purpose, object, subject, performance analysis, planning research;
  - preparation of critical literature review;
  - setting up of the experiment;
  - developing critical and analytical results;
  - drawing conclusions, discussion and publication of them;
  - designing of research results in scientific paper format;
  - implementation of research results, etc.

- selection of ethical standards for the conservation of biological and landscape diversity as a prerequisite for human survival;
- aspirations to acquiring a critical volume of modern environmental knowledge, which allows to navigate among the complicated environmental problems, and to take a motivated public position in difficult situations.

Undergraduate study within the discipline should be familiar with: the main databases on the current knowledge on the ecology and environment, the laws of Ukraine and the main current regulations in ecology and environment etc.

Studying the course “Methodology and organization of scientific research” is based on the knowledge that students acquire while studying the normative parts - training humanitarian and socio-economic cycles, natural and scientific, professional and practical parts - the choice of university and student elective courses.

The student should mastering before:

1) basic philosophical categories that explain the relationships in the workplace, general communication and general items conditionality, development, as the transition of quantitative changes in quality that are taught in the course "Philosophy";
2) tillage systems, methods of growing and storing of crops, taught in the course "Agroecological monitoring and certification of land";
3) the basic norms and laws on environmental impact assessments of soil and water ecosystems that are studied in the course "Ecological Expertise";
4) the role of pesticides and agrochemicals in the system "soil-plant", the state tests to determine basic parameters of pesticide that are studied at the course “Ecotoxicology”;
5) with the major databases on the current knowledge in ecology and environment, the laws of Ukraine and the main regulations in force in ecology and environment, etc., taught in the course "Environmental standardization and certification";
6) basic aspects of environmental control, proper selection of samples for analysis, training and research, knowledge of many methods of analysis that is studied in the course "Methods of measuring environmental parameters;

7) the comprehensive monitoring of the environment for business formation and based on objective findings and recommendations aimed at improving their environmental policies, taught in the course "Environmental audit and inspection”.

Discipline provides the student an idea about independent creative scientific thinking and develops skills of scientific activity, helps circulate the latest environmental research methods that allow to obtain quantitative and qualitative data required for general ecological characteristics of objects, processes, environment, in selecting the right technology, organizational and administrative decisions, the ability to navigate the laws and regulations and develops clear evidence-based conclusions [2].

In recent years scientific research activity has changed both informational and organizational. In this context, we have new requirements for personal and professional qualities of the scientist. Now in all developed countries in preparing scientists special attention are paying to expansion of erudition and professional outlook into account the level of intuition, imagination, enthusiasm, diligence, emotion, ambition, which are important for success in research activity [3]. So, studying this course helps undergraduates to expand scientific view, creates habits of scientific research, study, synthesis and dissemination of best practice experience fully prepares students for scientific and practical activities after graduation. It also allows them to navigate freely in the selected topic of study, to be the most informational person, to be someone who could analyze and summarize scientific facts, to defend private point of view, to attract the opponents to its side and replenish the scientific schools.

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