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| **Study program** Master Studies Chemistry |
| **Course title** Methodology of scientific research work (H203C) |
| **Name of lecturer/lecturers** Аleksandra N. Pavlović |
| **Type of course** Obligatory |
| **Number of ECTS allocated** 4 |
| **Course objectives**The aim of the course is to learn students about the methodology of scientific research in chemistry, and understand the importance of using scientific information and the basic principles of communicating and publishing research results. |
| **Course outcomes**Having finished this course successfully, a student will be able to:- notice the difference between scientific and professional work,- use an adequate methodological approach in the research process,- independently collect, organize and study the literature needed for writing a scientific work, applying the acquiredknowledge when using index databases and appropriate literature search services inelectronic and paper form,- processes, presents research results and independently writes a scientific paper with properliterature citation,- designs and uses visual means of presentation of scientific results,- respects the ethical norms of his activity and scientific practice. |
| **SYLLABUS***Lectures*Methodology of scientific-research work-introduction. Knowledge methods (modeling method, statistical method,analysis and synthesis method, induction and deduction, experimental method, historical method, case method,empirical method, synthetic method). Elements of scientific knowledge: scientific facts, concepts, category sizes, laws, principles, hypotheses, theories, scientific system. Procedure and stages of scientific research work. Research structure. Scientific information-sharing. The library as a source of information. Cobson. Interlibrary loan. UDC number. Internet as a source of information. Measurement in research. Statistical data processing. Tabular and graphical presentation of results. Division of scientific papers. Periodical and non-periodical publications. Types of scientific meetings. Impact factor (IF). The structure of the original scientific paper: title of the paper, authors' names, abstract, introduction, material and methods of work, research results, discussion, conclusion, acknowledgments, literature, attachment. Manuscript review. Evaluation of scientific work through citation analysis. Curriculum vitae (CV) and summary. Methods of presentation of scientific results. Technical preparation of the poster - Power Point. Designing and using visual aids. Scientific research projects. The ethical side of scientific research. Copyright. *Laboratory work* Scientific information: primary and secondary publications. The library as a source of information.Searching literature data in the library and on the Internet. A study of existing literature.Hypothesis testing. Statistical data processing. Tabular and graphical display of results. Citationof literature. Writing a seminar paper on a given topic. Technical preparation and poster composition.Designing and using a slide. Creating a CV. |
| **References**1. V. Milankov, P. Jakšić, Metodologija naučno-istraživačkog rada u biološkim disciplinama, University of Novi Sad, Faculty of Science, Department of Biology and Ecology, Novi Sad, 2006.2. P. S. Veljović, Metode naučnog rada, Faculty of Agriculture, Čačak, 2001.3. A. Pavlović, Snabdevanje naučnim dokumentima u Srbiji, University of Belgrade, "Svetozar Marković" University Library, Belgrade, 2012.4. Z. Popović, Kako napisati i objaviti naučno delo, Akademska misao i Institut za fiziku, Belgrade, 2004. |
| **Active teaching classes** | **Lectures** 30 | **Laboratory work**  30 |
| **Teaching mode**Lectures, theoretical exercises, demonstration, seminar, consultation. |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** |
| **Pre exam duties** | **Points** | **Final exam**  | **Points** |
| Activity during lectures | 5 | Written examination | - |
| Practical teaching | 20 | Oral examination | 30 |
| Teaching colloquia | 30 |  |  |
| Seminar | 15 |  |  |