

MASTER COURSE. LIST OF PROGRAMS.



31.05.2020

| Discipline | Description | Years |
|---------------------------------|--|-------|
| Chemistry | The program focuses on teaching in specialized areas of chemistry in combination with practical laboratory training, and is supplemented by various courses in the humanities, social and economic sciences, foreign languages, pedagogy, programming. The graduates are able to plan and conduct independent scientific research and upgrade their knowledge and skills in the field of chemistry, biology, physics, economics and other relevant areas. The program prepares students for successful scientific, teaching and managerial careers in accordance with the modern requirements of the labor market for innovative technologies and approaches. The qualification obtained allows the graduates to take part in international fundamental and applied scientific projects. | 2 |
| Petrochemistry | The Master's program in Petrochemistry develops understanding of oil and gas refining into engine fuels and raw materials for petrochemistry. The graduates possess knowledge of the technology of petrochemical synthesis, the fundamentals of heterogeneous and homogeneous catalysis, physical-chemical methods of catalysts study, as well as understanding of the fundamentals of oil heteroatomic compounds chemistry. | 2 |
| Applied Chemical Thermodynamics | The Master's program in Applied Chemical Thermodynamics focuses on teaching the fundamental discipline of Chemical Thermodynamics and is aimed at developing students' skills in applying the acquired competencies in new knowledge-intensive technologies and optimizing current technological processes. | 2 |



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| Organic Chemistry | The Master's program in Organic Chemistry provides graduates with theoretical and practical knowledge of modern organic chemistry. The graduates are able to apply the acquired knowledge and skills to plan and carry out chemical synthesis of organic and heterorganic compounds according to required conditions on the state-of-the-art level; to determine the structure of obtained molecules. The graduates master novel spectral research methods of organic compounds and quantum-chemical modelling methods. | 2 |
| Physical Chemistry | The Master's program in Physical Chemistry provides advanced training in the main fields of physical chemistry: quantum chemistry, the structure of molecules, chemical thermodynamics, kinetics and catalysis. The graduates of the program master experimental and calculation methods of physical chemistry, understand the physical fundamentals of modern research methods of substances and materials. | 2 |
| Colloid Chemistry | The Master's program in Colloid Chemistry provides graduates with theoretical knowledge and mastery of modern experimental methods of surface phenomena chemistry and disperse systems chemistry; with the understanding of colloid chemical principles on the application of surfactants to control the stability and properties of disperse systems. | 2 |
| Polymers | The Master's program in Polymer Science provides training in the chemistry and physics of polymers. The graduates of the program get theoretical knowledge on the synthesis and chemical modification of polymers, on the molecular and supramolecular structure of polymers and their physical properties, on the physicochemical properties of polymers including polyelectrolytes and biopolymers; to understand the relationship between the methods of synthesis, the structure and the properties of polymer systems; to possess the knowledge on the fundamentals of polymer production and processing technology, and to master the corresponding practical skills. | 2 |

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| Medical Chemistry | The main goal of the Master's program in Medical Chemistry is to provide both theoretical and practical training of specialists in the field of chemistry applied in medicine. The graduates are able to apply the acquired knowledge and skills to plan and carry out experiments in the synthesis of physiologically active substances as potential drugs. The graduates effectively apply molecular modelling and modern approaches of organic and element organic synthesis, methods for determining composition, structure and properties of physiologically active substances. | 2 |
| Inorganic Chemistry | The Master's program in Inorganic Chemistry provides theoretical and practical training. The graduates are able to apply the acquired knowledge and skills to plan and carry out experiments to synthesize the substances and materials with the required functional properties. The graduates effectively apply quantum chemical modeling and modern approaches in composition, structure, and inorganic substances and materials properties determination. | 2 |
| Radiochemistry | The Master's degree program in Radiochemistry involves studying the basic branches of modern radiochemistry including radioanalytical chemistry, environmental radioactivity, the chemistry of radioactive elements, isotope production, production of labeled compounds, and radiopharmaceuticals. The program includes workshops, where the graduates are trained to work with open and closed sources of radiation, and also to master the procedures on the modern radiometric equipment. | 2 |