Applied analytical and bioanalytical chemistry

Learning objectives and graduate profile
The study programme encourages the principles of scientific work, its ethical and social aspects, scientific problem formulation, presentation and publication of scientific results, provides the necessary knowledge for the development of the scientific and study field, emphasises the research - development - application link and the evaluation of its own contribution to practice. Also, the creative activity of the graduate in the field of analytical chemistry and chemical analysis.
Students are also involved in the solution of scientific projects, thus developing and deepening the principles of scientific work, solving complex problems, analytical and synthetic thinking, a sense of teamwork. The aim of studying in the doctoral study programme Applied Analytical and Bioanalytical Chemistry is the development of intellectual and creative abilities, practical skills of the student. The graduate has an active command of a foreign language (English), is able to work in a team, to forecast developments in his/her field. In the course of his studies he will deepen his knowledge of analytical and bioanalytical chemistry necessary for the development of analytical methods and procedures, as well as for the development of analytical chemistry instrumentation, he will master the principles of scientific work, forms of processing and presentation of results. Gain experimental skills and experience in working with modern instrumentation. The student will be able to search, process and interpret information from available sources (scientific databases, scientific publications). The student will be able to process, publish and present the results obtained at scientific events.

Graduates of doctoral studies
Graduates of the study programme are able to work independently and creatively in various areas of application of analytical chemistry, as well as in borderline disciplines related to analytical chemistry, with particular preference given to the analytical orientation in the direction of biological sciences related to chemistry, such as biochemistry, pharmaceutical and clinical chemistry, laboratory medicine and biotechnology. The graduate masters the scientific approaches and research methodology in selected application areas of analytical chemistry and obtain solutions using separation, electrochemical, spectral, magnetochemical, and possibly other instrumental methods (nuclear, thermal, etc.). He/she is also able to design, manage and objectively evaluate problem-oriented experiments aimed at serious problems of contemporary social practice. From an analytical point of view, he/she is usually more deeply specialised in certain problem areas, such as the analysis of components in multicomponent matrices, trace analysis, analysis of harmful substances in the environment, characterisation and prediction of the properties of new materials, etc. It contributes to obtaining decisions in areas beyond analytical chemistry. It is also active in various other areas of social practice, in quality assurance and quality management, in environmental monitoring, in pharmaceutical chemistry, in clinical chemistry and laboratory medicine, in the food industry and elsewhere. He/she has basic management skills, focused on the application of applied analytical chemistry and bioanalytical chemistry in practice, can lead a research team, plan team tasks, and also has knowledge of relevant environmental, economic, legal and ethical aspects. On the basis of the knowledge acquired, the graduate of the study programme is also competent to teach specialised chemistry subjects at university. Recommended study plan (full-time)
In case of interest, it is possible to look at the profile subjects of the study programme and find out what knowledge, skills or competences the student will acquire after their successful completion, or to look at the detailed description of the study programme in full-time form.

Requirements for applicants, method of selection and recommended personal qualities
Number of students admitted to the study programme: 4 (full-time)/ 5 (part-time)
Requirements for applicants and the method of their selection are specified in §56 to 58 of Act no. 131/2002 Coll. on Higher Education Institutions, they are regulated in more detail by the UCM Study Regulations in Trnava and the UCM Admission Procedure Regulations.
The basic condition for admission to doctoral studies is a second-degree university degree (Section 56(3) of Act No. 131/2002 Coll. on Higher Education and on Amendments and Additions to Certain Acts). Graduates of domestic or foreign universities may apply for admission if they have completed a master's degree or an engineering degree. The admission procedure at the FNS UCM is carried out in accordance with Act No 131/2002 Coll. on Higher Education and on Amendments and Additions to Certain Acts, Sections 56 to 58. The admission procedure enables an applicant who demonstrates fulfilment of the specified admission conditions to become a student of the chosen study programme. The student applies for one of the dissertation topics and develops a framework project on the topic. An applicant who fails to demonstrate fulfilment of the basic conditions for admission to the study at the time of verification of fulfilment of the conditions for admission may be admitted to the study conditionally, provided that he or she is obliged to demonstrate fulfilment of the basic conditions for admission to the study no later than on the date set for enrolment in the study. Admission to doctoral studies will take place in the form of an admission interview, at which the applicant will present his/her motives, the project on the topic of the doctoral thesis and the prerequisites for the studies, as well as his/her knowledge of a foreign language.

Graduate employment and occupations that a graduate of the SP can pursue
Graduates of the Applied Analytical and Bioanalytical Chemistry are employed throughout Slovakia, such as: Researchers: Institute of Oncology in Bratislava, Slovak Academy of Sciences, Ministry of Economy of the Slovak Republic, State Institute for Drug Control Bratislava.

Scientific and pedagogical staff at universities: Faculty of Medicine, UK in Bratislava, FPV UCM Trnava, PF Jan Evangelista Purkyně University in Ústí nad Labem, Slovak Medical University in Bratislava, UMB in Banská Bystrica, Faculty of Pharmacy, UK in Bratislava, TU in Trnava.
Specialists in companies: PRAGOLAB s.r.o.- sales, service consulting of laboratory equipment, BIOTECH s.r.o.- sales of laboratory equipment, Zentiva, a.s. Bratislava and Saneca Pharmaceutical, a.s. Hlohovec- production of drugs, ALAGENEX life s.r.o.- sale and distribution of chemical products, UNI - TECH, s.r.o. Púchov- production of tires, Eurofins Bel / Novamann s.r.o. Bratislava - laboratory tests.
The professions that a graduate can apply for are, for example, scientific research worker, laboratory diagnostician, product specialist, chemical production operator, raw material intake worker, production technician, quality controller, research and development specialist, technologist, sanitation and hygiene specialist.

Teaching and learning rules
The rules of teaching are clearly defined in the information sheets of individual courses as well as in the UCM Study Regulations, which govern the FNS.

Assessment procedures and criteria
Lists of information sheets

Conditions for completion of the study programme
The PhD. degree is conditional upon the acquisition of at least 240 credits and the completion of the dissertation defence.

Success rate
75 %

Further detailed information about the study programme is available at **vsk.ucm.sk** or on the department's website.

Person responsible for the quality of the study programme
prof. RNDr. Ján Titiš, PhD.

Persons responsible for profile subjects
doc. RNDr. Cyril Rajnák, PhD. et PhD.
doc. Ing. Jozef Sokol, CSc.
doc. RNDr. Miroslav Horník, PhD.
prof. Ing. Oľga Križanová, DrSc.