



Faculty of Mathematics

Mathematics

at Faculty of Mathematics, 16 Studentski trg, 11000 Belgrade, www.matf.bg.ac.rs

ECTS: 60/ LANGUAGE OF INSTRUCTION: SERBIAN/ DEGREE: MASTER

Study program content

This program lasts two semesters and covers 60 ECTS.

The program consists of compulsory and elective courses specific for a certain module: Theoretical Mathematics and Applications; Professor of Mathematics and Computer Science; Computer Science and Informatics; Statistics, Actuarial and Financial Mathematics; Applied Mathematics.

There is a number of active teaching classes, more than 20 hours per week, planned for these one-semester compulsory and elective courses.

The number of active teaching lessons led by teachers, theoretical exercises, research and practicum led by associates and the number of ECTS define each course. Study program provides practice in almost all cases. Each course is determined by the way of teaching as well as by the way of continuous evaluation. Due to the complexity of content and distribution of various forms of teaching and in order to overcome the anticipated content, 1 ESPB = 12 hours of student's work is the basis for calculating the number of points in each course and the total number of points in an academic program.

Study program goals

- To acquire knowledge in mathematics and applied mathematics, especially from the content relevant to the selected module. Each curriculum determines the type and quality of knowledge and in the development of each curriculum we have complied complex criteria that take into account the logical connection between the contents, the mathematical tradition, our and foreign universities' experience, the existing teaching staff and social needs.
- To gain skills such as: solving the tasks that deepen their knowledge, applying knowledge in new situations, perform and carry out various tasks on computers, training of students in elementary and secondary schools, statistical data processing, mathematical modeling and working in financial institutions and industry.

- To improve general education and to adopt general cultural skills relevant for the profession, such as the ability to use literature and collecting information over the Internet, data processing, drafting texts and modern electronic presentations on mother tongue or foreign language and in the logical connection and linguistically correct way to represent scientific or professional activities.
- To develop curiosity and logical, analytical and synthetic, inductive-deductive and abstract thinking that is very important in mathematics.
- To develop general and professional skills.
- To build professional and ethical attitudes and develop critical thinking.
- To prepare for further education at higher levels of study and education throughout life for inclusion in the scientific-research work in scientific institutions, educational and development institutions, as well as in other industries.

Modules

- Professor of Mathematics and Computer Science
- Theoretical Mathematics and Applications
- Applied Mathematics
- Statistics, Actuarial and Financial mathematics
- Computer Science and Informatics

Study program outcomes

Mastering the curriculum of this academic program student obtains the following general and specific skills:

- Governs concepts and principles of the fields of mathematics and related disciplines: computer science, statistics, celestial mechanics etc. that the program covers,
- Can make the optimal choice of literature for solving specific problems, to obtain a solution to process and report results using the computer and apply their knowledge in practice,
- Knows how to teach mathematics in primary and secondary schools in accordance with the regulations,
- Knows how to think critically about phenomena related to their profession, critically

examines and analyzes the facts, assembles the results that occur in an understandable manner using modern forms of processing and presenting results,

- Knows how to present the results to domestic as well as to international public in an understandable way and to spread knowledge to others,
- Knows how to respect the ethical principles of the profession,
- To be capable for further research.

Admission requirements

Candidates who have completed the appropriate undergraduate academic studies to the extent of 240 ECTS are entitled to enroll.

Contact

Head of the study program:

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Informatics

at Faculty of Mathematics, 16 Studentski trg, 11000 Belgrade, www.matf.bg.ac.rs

ECTS: 120/ LANGUAGE OF INSTRUCTION: SERBIAN/ DEGREE: MASTER

Study program content

This academic program lasts 4 semesters and covers 120 ECTS.

After graduation the student receives the academic title of master of computer sciences. Program consists of one-semester compulsory and elective courses with more than 20 hours of active teaching per week.

The number of active teaching led by teachers, theoretical and practical exercises led by associates and the number of ECTS define each course. This program provides exercise for all courses. It ends up with a final paper that covers 20 ECTS.

Study program goals

The main aims of this program are to enable students to acquire knowledge and to apply the acquired knowledge in business, education and development institutions and prepare them for further education at higher levels and training throughout life.

The program enables students to work in mathematics and computer science and related fields within the industry, development and scientific institutions and educational institutions or other activities.

This program provides students with general skills and enables them to use professional literature, think critically and analyze facts and to shape results in an understandable way. Finally, the program provides a foundation for further education for inclusion in the research work in a wide range of natural and technological sciences.

Raising awareness among students about the need of continuing education and development of skills and knowledge for presenting the results to professional and general public are also objectives of this academic program.

Study program outcomes

Acquiring the Master degree program of Computer Science students receive general ability:

- To govern concepts and principles in computer science covered by the program,
- To make the optimal choice of literature for solving specific problems, calculate, simulate, process and present results using the computer and to apply their knowledge in practice,
- To think critically about phenomena related to their profession, critically examine and analyze the facts, assemble the results that occur, in an understandable manner.

Admission requirements

Persons who have completed the appropriate undergraduate academic studies to the extent of 180 ECTS are entitled enroll this program.

Contact

Head of the study program:

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Astronomy and Astrophysics

at Faculty of Mathematics, 16 Studentski trg, 11000 Belgrade, www.matf.bg.ac.rs

ECTS: 120/ LANGUAGE OF INSTRUCTION: SERBIAN/ DEGREE: MASTER

Study program content

The academic program Astronomy and astrophysics lasts 2 semesters and covers 60 ECTS. The academic program consists of one-semester compulsory and elective courses and classes with more than 20 hours of active teaching per week. The number of active lessons led by teachers, theoretical and experimental exercises led by associates and the number of ECTS define each course. This program provides practice in almost all courses, with a significant number of experimental activities, and in the few cases, a special kind of exercises specific for astronomical purposes - astronomical observations.

Students perform exercises (observations) independently and they arrange the results by using computer processing of results. The way of teaching as well as the way of continuous evaluation is determined for each course. Due to the complexity of content and distribution of various forms of teaching and in order to overcome the anticipated content, 1 ESPB = 30 hours of students' work is the basis for calculating the number of points in each individual case and the total number of points in an academic program. Academic program consists of compulsory and elective courses and practical work in the professional astronomical observatories at home and abroad, which is defined by the contents of several courses in this program.

Study program goals

The main objectives of this program are to enable students to acquire knowledge and skills and to enable them to apply the acquired knowledge in a specific field of astronomy and astrophysics in scientific, educational and development institutions and to prepare them for further education at higher levels of study and education throughout the life.

The concept of the program is that the acquired knowledge and skills enable students to work in the field of astronomy and astrophysics and related fields within scientific institutions or the educational and development institutions and other activities. The aim of this program is to provide students with general and specific abili-

ties and skills, including mastery of concepts and principles in all areas covered by the program as well as the relevant parts of related sciences - mathematics, physics, computer science, chemistry, biology and archeology; to enable them to use literature, to calculate, simulate, process and present their results, think critically and analyze facts, shape results in an understandable manner using modern forms of processing and demonstrating results; to perceive the importance of ethical principles in science, to gain a routine in the application of astronomical methods and techniques in theoretical and experimental fields of astronomical, astrophysical, physical, chemical, biological, archaeological computer and other systems and to interpret their conditions, structure and processes at the level of elementary particles to the Universe as a whole.

An important aspect is to master the theoretical principles of astronomical and astrophysical methods, which provides a creative use of modern equipment for astronomical observations based on modern optics, electronics and automation and to efficiently maintenance equipment, to keep it in working order. Finally, the program provides a foundation for further education for inclusion in the research and scientific work in a wide range of natural and technological sciences.

Modules

Astronomy and Astrophysics

Study program outcomes

Mastering the curriculum of astronomy and astrophysics a student obtains the general ability:

- To handle concepts and principles of the fields of astronomy and astrophysics and related sciences - mathematics, physics, computer science, covered by the program;
- To make the optimal choice of literature to solve specific astronomical problems, calculate, simulate, process and present results using the computer and to apply acquired knowledge in practice;
- To critically think about phenomena related to their profession, critically examine and

analyze the facts, assemble the results, that occur, in an understandable manner using modern forms of processing and presenting results;

- To present results to both domestic and international public in an understandable way and to spread knowledge to others;
- To respect the ethical principles of the profession.

Through this program, a student obtains the following specific competencies:

- To have a routine in the application of astronomical methods and techniques in the fields of theoretical and experimental astronomical, physical, chemical, biological, archaeological, computer and other systems and to interpret their conditions, structure and processes at the micro and macro levels;
- To use instrumental analysis methods, such as photometric, spectroscopic, polarimetric and radio astronomy, in the practice;
- To take a creative view at the possibility of using modern equipment for astronomical measurements, for nonspecific use, and effectively maintain the equipment, to keep it in working order;

- To teach astronomy, astrophysics, physics and related subjects in higher education institutions and schools in accordance with the regulations.

Admission requirements

Candidates who have completed the appropriate undergraduate academic studies to the extent of 240 ECTS are entitled to enroll.

Contact

Head of the study program:

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