BULGARIAN ACADEMY OF SCIENCES
INSTITUTE OF MATHEMATICS AND INFORMATICS

Approved:
(Acad. V. Drensky, Director of IMI-BAS)

QUALIFICATION PROFILE

Higher Education Area:
4. Natural Sciences, Mathematics and Informatics

Professional Field:
4.5. Mathematics

PhD Programme:
Probability Theory and Mathematical Statistics

The PhD programme in Probability Theory and Mathematical Statistics provides the third level of higher education, that for the acquisition of the educational and scientific degree of Doctor of Philosophy.

The Qualification Profile determines the knowledge, skills, personal and professional competences of the PhD students who have pursued and completed the PhD programme in Probability Theory and Mathematical Statistics at the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences (IMI-BAS).

Requirements for admission and training

The admission and training of PhD students are in accordance with the legal requirements of:

- the Higher Education Act;
- the Act on Development of the Academic Staff in the Republic of Bulgaria;
- the Regulations for the Implementation of the Act on Development of the Academic Staff in the Republic of Bulgaria;
- the Regulations on the Conditions and Order for Acquiring Scientific Degrees and Occupying Academic Positions at the Bulgarian Academy of Sciences;
- the Regulations on the Conditions and Order for Acquiring Scientific Degrees and Occupying Academic Positions at the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences;

- the Regulations on the Activity of the Training Centre (TC) and the Academic Council (AC) at the Bulgarian Academy of Sciences.

The duration of the programme is:

- 3 years in case of full-time training;
- 4 years in case of part-time training;
- up to 3 years in case of self-study.

The PhD programme in Probability Theory and Mathematical Statistics provides the candidate the opportunity to obtain the educational and scientific degree of Doctor of Philosophy in professional field 4.5. Mathematics upon:

- successful completion of all stages of the candidate's individual plan;
- successful defense of the candidate's dissertation.

Aim

The PhD program in Probability Theory and Mathematical Statistics aims to prepare highly qualified specialists with in-depth fundamental and professional competence in the field of probability and statistics for independent and collaborative research, applied work and teaching activities, creating the skills necessary to plan, organize, conduct and present the results of scientific and applied research.

The PhD programme in Probability Theory and Mathematical Statistics fully complies with the mission and objectives of IMI-BAS outlined in the Research Development Strategy of the Institute of Mathematics and Informatics, in particular in the field of Stochastics within prority area **Mathematical Modeling**, which includes the development and study of mathematical models for the description of probabilistic processes, the construction of statistical tools for data analysis, modeling and forecasting with applications in other sciences, medicine, economics, business, etc.

Competencies

Holders of the educational and scientific degree of Doctor of Philosophy, awarded by IMI-BAS, shall possess the intellectual ability, knowledge, practical skills and habits for:

- independent study;
- teamwork;
- planning and completing scientific and practical tasks in time;
- setting problems, proposing solutions, justifying choices of approach or methods;
- formulating, expressing and defending scholar arguments, ideas and concepts;
- conducting comprehensive scientific research;
- qualitative written and oral presentation of scientific results;
- performing all the above tasks fluently in English.

In particular, graduates of the PhD programme in Probability Theory and Mathematical Statistics at IMI-BAS shall:

- have mastered methods and tools for research – collection, selection (synthesis), analysis and summary of experimental data;
- have mastered the mathematical apparatus necessary for the construction and analysis of various probabilistic and statistical models;
- be able to develop and explore stochastic methods for data analysis and description of various probabilistic processes;
- be able to implement schemes for monitoring and (self-)control of research activities.

Placement

PhD graduates in Probability Theory and Mathematical Statistics from IMI-BAS are highly qualified specialists who can work as:

- lecturers at universities, colleges, etc.;
- researchers at scientific institutions and laboratories;
- leaders or members of teams working on national or international projects in fundamental or applied sciences;
- project evaluators in the field of probability and statistics;
- governmental or public experts on issues related to probability, statistics, data analysis and stochastic modeling;
- consultants on issues related to probability and statistics;
- experts on stochastic modeling and statistical data analysis;
- heads of departments for data analysis and forecasting of socio-economic factors, etc.

Graduates of the PhD programme can:

- participate in various forms of continuing qualification (postdoctoral programmes);
- apply for academic positions and/or obtain scientific degrees.

The Qualification Profile was approved by the Scientific Council of IMI-BAS on 15-18.05.2020 (Minutes № 5).