



Master's Programme

Аналитика данных и прикладная статистика / Data Analytics and Social Statistics



Field of Study

01.04.02 Applied Mathematics
and Informatics



Duration

2 years



Mode of Study

Full-time online programme



Study tracks

- Computational Social and Network Sciences ([link](#))
- Applied Statistics and Data Science ([link](#))



Language

English



Contacts

- [Website](#)
- [Vkontakte](#)
- [Telegram](#)

CONTENTS

ABOUT THE PROGRAMME	3
INTERNATIONAL BENCHMARKS.....	4
OUR ADVANTAGES.....	5
WHAT WE TEACH	6
DURING YOUR STUDIES	7
AFTER GRADUATION	9
ALL YOU HAVE TO KNOW BEFORE APPLYING.....	10
ENROLLMENT PATHWAY	10
TUITION FEE AND DISCOUNTS IN 2024	10



ABOUT THE PROGRAMME

Master's programme «Data Analysis and Social Statistics» at HSE University is created on the basis of the International Laboratory of Applied Network Research ([ANR-Lab](#)) and is implemented together with the Faculty of Social Sciences. The programme is based on the best practices of educational programmes in applied analytics of the University of Indiana, the University of Illinois in the United States and the University of Ljubljana in Slovenia.

The founders of the programme are Indiana University professor Stanley Wasserman and HSE associate professor Valentina Kuskova. Currently, the programme is being implemented under the scientific supervision of Honorary Professor of the University of Ljubljana Anuška Ferligoj and the academic guidance of HSE University Associate Professor Ivan Aleksandrovich Klimov.

The programme prepares highly qualified specialists in the field of data analytics and social statistics, who are becoming increasingly in demand in the business environment, the public sector and the field of science. Specialists in the field of data analysis will be able to work in business, think tanks and

universities both in Russia and abroad. A special feature of the programme is the opportunity to dive into the field of network analysis, another rapidly developing area in the field of computational social sciences.

The programme is full-time, but implemented in an online format. Online classes are conducted in both asynchronous and synchronous formats – students can independently study pre-recorded material on a special learning platform, as well as meet with teachers in online sessions, which are also recorded and transmitted to students.

In terms of educational courses, the programme is English-taught for compulsory courses, but also includes courses in Russian as elective courses. Classes in the programme are taught by [foreign teachers](#) – programme partners from the University of Ljubljana – as well as employees of the International Laboratory for Applied Network Research and the National Research University Higher School of Economics.

Unlike traditional statistics or data science programmes, students are given the opportunity to create their

own learning path by choosing one of the specialization tracks:

1. Computational Social and Network Sciences

2. Applied Statistics and Data Sciences

The main goal of the programme is to teach students to use advanced methods of statistical analysis to solve applied problems in the social sciences using modern computer data processing methods, regardless of their initial education.

The educational process is not limited to the study of exclusively theoretical aspects of data analysis methods. Students can engage in academic research at the International Laboratory for Applied Network Research of the National Research University Higher School of Economics, as well as participate in applied projects implemented by the Laboratory's research members and programme teachers.

INTERNATIONAL BENCHMARKS

The master's programme has no analogues in Russia. It is based on the best practices of educational programmes in applied analytics at universities such as Indiana University, the University of Illinois

in the USA and the University of Ljubljana in Slovenia. Compared to similar programmes in applied statistics abroad, the cost of studying in our master's programme is several times cheaper.



OUR ADVANTAGES

The programme involves training based on real data and tasks. Teachers present not only methods and tools for data analysis, but also show how to work with existing data in practice and select appropriate methods for their processing and analysis.

The programme has no analogues in Russia and has the following advantages:

- * **online programme with full-time status:** students receive all the opportunities of students studying in offline programs,
- * **access to the infrastructure** and capabilities of a leading university in Russia and training at the online campus of the National Research University Higher School of Economics;
- * **flexible studying hours:** conducting synchronous online classes in the evening, allowing you to combine educational activities with work;
- * **the ability to choose a specialization** – Computational Social and Network Sciences or Applied Statistics and Data Sciences – and individual curricula that allow students to create their own learning path;
- * **teaching the programme in English** and the possibility of foreign internship;
- * **training from the best experts in their field:** courses are taught by Russian and foreign **experts** with many years of experience in the field of data analysis, distinguished professors and holders of scientific degrees;
- * **practical orientation:** practice-oriented courses and use of real data as examples during training;
- * **entry into the professional community:** the opportunity to undergo internships and work as research assistants at the International Laboratory for Applied Network Research, as well as internships in partner organizations;
- * **access to expertise in data analysis:** consultations with supervisors and members of the International Laboratory for Applied Network Research;
- * **contact and feedback from teachers,** regular meetings with the academic supervisor of the programme at the «Mentor Seminar».

WHAT WE TEACH

The programme will be useful to sociologists, economists, mathematicians, chemists, biologists, political scientists, lawyers, managers, specialists in the field of information science, computer science and statistics, and all those

for whom data analysis is part of their work.

Students with a background in the social sciences and humanities will be able to gain knowledge in big data and advanced analysis, and students with a background in the sciences will be able to gain the skills needed for research in sociology, psychology, political science, economics, linguistics and other social sciences.

After completing your master's degree you will be able to:

- * integrate data analysis into the research cycle: from posing a research question to interpreting the results obtained;
- * use modern approaches and methods;
- * work with Big Data;
- * work with different packages and databases for data analysis,

generating reports: *R, Python, SAS, STATA, Orange, Pajek, Gephi* and others;

- * speak mathematical English;
- * present the results of your scientific research or business project.



DURING YOUR STUDIES



Individual study plan

Before the start of training, there is an interview, based on which masters are helped to construct an individual plan and select courses that they consider necessary in the future; find a balance between the main blocks: applied statistics and data sciences, data analytics, computational social sciences, network sciences and network analysis methods.



Adaptive courses

At the beginning of the training, adaptation courses are implemented on introduction to statistics and programming in R and Python. This helps students without a specialized mathematical or statistical education to obtain the basic necessary knowledge and fully master all further courses.



Basic courses in data analysis

In our programme, students will be able to master the most popular and modern approaches and methods for data processing and analysis.

- * Methods of exploratory and in-depth data analysis
 - o Exploratory Data Analysis
 - o Data Mining

- * Advanced statistical data analysis
 - o Contemporary Methods of Data Analysis
 - o Bayesian Statistics
 - o Stochastic Models
 - o Time Series
 - o Applied Linear Models
 - o Multivariate Data Analysis
 - o Structural Equation Modelling
- * Descriptive and inferential network analysis
 - o Introduction to SNA
 - o Advanced SNA in Pajek
 - o Statistical methods in Network analysis
 - o Social network analysis with R
- * Computational social sciences and computational linguistics for processing unstructured data, networks and texts
 - o Unstructured Data Analysis
 - o Text Mining
 - o WebScrapping
- * Machine Learning
- * Data Science



Study tracks

Within the programme, students can choose one of two trajectories:



01

Computational Social and Network Sciences

(dedicated to the study of actively developing quantitative methods in the social sciences, including network analysis)



02

Applied Statistics and Data Sciences

(dedicated to the study of advanced methods of mathematical statistics and modern advances in the field of data sciences).

Students can engage in *academic research* at the International Laboratory for Applied Network Research of the National Research University Higher School of Economics, as well as participate in *applied projects*, implemented by the Laboratory's research members and programme teachers.

Through programme faculty and laboratory members, the programme partners with businesses, non-profit organizations, and applied research companies.

During their studies, students take part in real-life projects and can choose an internship location offered by the programme or find an internship location on their own.



AFTER GRADUATION



The programme has been implemented since 2018, and we see that the knowledge and competencies acquired by graduates of the master's programme allow them to become **highly qualified practitioners**, capable of applying advanced complex data analysis techniques in their daily work in organizations of various types:

- * In commercial companies specializing in various industries (banking, insurance, consulting, IT, medicine, pharmaceuticals) and
- * and in research organizations (sociology, marketing).

Graduates of the programme can work as consultants in government and corporate think tanks, engage in research in international companies, as well as continue their education in graduate school in Russia or enroll in a PhD abroad.

The university organizes career events for students and graduates, advises on resume writing, publishes direct vacancies from employers interested in HSE graduates, and **assists in the employment** of young professionals.

[More about your future profession](#)



ALL YOU HAVE TO KNOW BEFORE APPLYING

In 2024, the programme opens

- * **25** paid places for citizens of the Russian Federation and
- * **3** paid places for foreigners.

Upon completion of your studies, you will receive a master's degree in the field of study 01.04.02 «Applied Mathematics and Computer Science».

For admission, it is enough to know a high school mathematics course and understand English. Certificates confirming knowledge of mathematics are not required, and knowledge of the English language must be confirmed by documents for the portfolio and taking part in the interview in English.

ENROLLMENT PATHWAY

To become a student in the programme, you have to pass a competitive portfolio selection process. To do this, applicants have to provide

- * a diploma with a specialist, bachelor's or master's degree,
- * a CV (resume),
- * a letter of motivation and
- * a letter of recommendation.

Certificates, diplomas and other documents indicating the level of knowledge or achievements of the applicant are also taken into account.

Enrollment takes place at the end of September 2024. Training begins on October 1, 2024.

[More information about admission](#)

TUITION FEE AND DISCOUNTS IN 2024

Tuition cost per study year is 400 thousand rubles.

Payment for tuition is made in installments (semesters) or in full (per year). There is also the option of more detailed installments / payment from maternity capital funds.

[More information about the discount system](#)

DASS
2024

