Odessa I. I. Mechnikov
National University
Faculty of Mathematics, Physics
and Information Technologies

SPECIALTY
APPLIED MATHEMATICS

Entrance tests

- profile subject
- Ukrainian or Russian language
- confirmation of the motivation to acquire a specialty

What is Applied Mathematics?

*There is no branch of mathematics,
however abstract, which may not some day
be applied to phenomena of the real world.*

Nikolai Lobachevsky

Applied Mathematics—it is a branch of mathematics that deals with mathematical methods that find use in science, engineering, business, computer science, industry and so on (that is, "in applications"). Thus, applied mathematics is a combination of mathematical science and specialized knowledge.

Nowadays, solving a variety of complicated problems is not just about knowledge and understanding of modern technologies. You can not construct a qualitative mathematical model, choose a rational algorithm to solve it, or make computer implementation of a model without profound mathematical knowledge, abstract and non-standard thinking.

Advantages of education in applied mathematics

- solid mathematical background
- ability to use mathematical methods in various applied fields (economics, finance, business, technology, biology, medicine, ecology)
- mastery of modern programming languages
- knowledge and **understanding** of information technology
- ability to find a rational solution to any practical problem
- ability to learn new things quickly, navigate the information flow
- ability to "see further than others"
- opportunity to change our world for the better

Main courses

Fundamental training

- Calculus (Mathematical analysis)
- Algebra and Geometry
- Discrete mathematics
- Mathematical logic and Theory of algorithms
- Differential equations
- Probability theory and Mathematical statistics
- Functional analysis
- Mathematical physics equations

Professional training

- Programming
- Functional programming
- Software development
- Fundamentals of Internet technologies
- Databases and Information systems
- Computer systems and networks
- Computational geometry and Computer graphics
- Scientific computing
- Methods of artificial intelligence
- Machine learning
- Data analysis
- Multivariate statistical analysis
- Numerical methods
- Optimization methods and Operations research
- System analysis and Mathematical modeling
- Financial mathematics
- Mathematical methods in investment
- Risk management
- Systems and methods of decision-making
- Control theory
- Cryptology
- Project management

Career opportunities

- software developer, software architect
- data scientist
- machine learning engineer
- QA engineer
- project manager
- database administrator
- system administrator
- analyst, business analyst, financial analyst, quantitative analyst, marketing analyst, consulting analyst, management analyst
- actuary
- operations research analyst
- career in academia
- researcher

International programs for students

- Erasmus +

International connections

- Universität Würzburg (Germany)
- Universität Passau (Germany)
- Aston University (UK)
- Keele University (UK)
- Technical University of Koszalin (Poland)
- South-West University of Blagoevgrad (Bulgaria)

Useful links

- **Institute of International Education**
  Lane Mayakovsky 7, office 5,
  tel.:+38-048-723-84-77
  fax: +38-048-734-80-15
  e-mail: interstud@onu.edu.ua
  web-site: http://imo.onu.edu.ua
- **Find us on facebook:**
  @AppMathONU