NAZARBAYEV UNIVERSITY

Nazarbayev University (NU) was founded by the first President of the Republic of Kazakhstan Nursultan Nazarbayev. The University aims to develop into a research university of international renown combining education, research and innovation. Nazarbayev University will educate the future generations of leaders of the Republic of Kazakhstan and other countries in science, public administration and various professions, thus contributing to the future development of the country.

Core features of Nazarbayev University include: academic freedom and institutional autonomy, both legally enshrined in a special law for Nazarbayev University, emphasis on academic integrity, entirely merit-based admission and progression system, English as the language of instruction and research, integrated teaching and research starting at the undergraduate level, internationally recruited faculty.

VISION
To give Kazakhstan and the world the scientists, academics, managers and entrepreneurs they need to prosper and develop.

MISSION
To be a model for higher education reform and modern research in Kazakhstan and to contribute to the establishment of Astana as an international innovation and knowledge hub.

STRATEGIC GOALS

Educational Reform Leadership
To ensure that the lessons of NU’s experience are transferred to and understood by other universities, schools and research centers in Kazakhstan.

Academic Excellence
To achieve NU’s mission by developing and maintaining academic excellence.

Research Excellence
To develop a faculty-led program of world-class research and partner with the world’s best researchers and research institutions.

Creating an Integrated Academic Healthcare System
To establish a healthcare system that will provide a model for healthcare services throughout Kazakhstan.

Innovation and Translating Research into Production
To become Kazakhstan’s main driver of innovation, leading the way for Astana to become a regional innovation hub.

STRATEGIC PARTNERS

Supporting NU’s institutional and academic development:

- Cambridge University (UK)
- Colorado School of Mines (USA)
- Duke University (USA)
- National University of Singapore (Singapore)
- University College London (UK)
- University of Pennsylvania (USA)
- University of Pittsburgh (USA)
- University of Pittsburgh Medical Center (USA)
- University of Warwick (UK)
- University of Wisconsin-Madison (USA)
- Lawrence Berkeley National Laboratory (USA)
NU has been a part of Kazakhstan’s larger education reform agenda. NU is a testing site for innovative educational and research projects, the successful results of which are to be transmitted to the country’s higher education system.

**NAZARBAYEV UNIVERSITY GRADUATE SCHOOL OF EDUCATION (NUGSE)**

NUGSE with support from Cambridge University and University of Pennsylvania aims to become a world-class center for teaching and research on education, with a focus on educational reform in Kazakhstan and Central Asia while retaining a broad international approach.

**Graduate Degree Programs:**

Master’s Program in Education Leadership with 3 areas of specialization:
- School Leadership, Higher Education, Inclusive Education
- Master’s Program in Multilingual Education,
- PhD Program in Education.

The first cohort of 9 PhD students graduated in summer 2017.

**HIGHER EDUCATION REFORM**

NUGSE takes the lead in disseminating the NU model and experience to other universities in Kazakhstan. It contributes to the capacity building of education leaders through professional development programs. During 2013-2016 NUGSE provided training for more than 300 executives from national and regional universities to help them manage the complex process of transformation in higher education. Training audience:

- University Management
- University Governing Boards
- Faculty and researchers of national universities
- Ministry of Education and Science officials.

**Training for regional universities**

NUGSE provides training and conducts seminars and workshops for faculty of regional universities on following topics: interactive teaching methods, research methods, critical pedagogy, publication of research articles, academic English. Seminars have been conducted for more than 1200 participants in 13 cities.

**PRIMARY AND SECONDARY SCHOOL REFORM – PARTNERSHIP WITH NAZARBAYEV INTELLECTUAL SCHOOLS**

Nazarbayev University naturally maintains strong ties with the Nazarbayev Intellectual Schools system (NIS) which is also covered by the Nazarbayev University law. NIS leads secondary education reform in Kazakhstan. Starting from Fall 2016 the Ministry of Education and Science of the Republic of Kazakhstan (MES) has rolled out NIS’ primary education curriculum to mainstream schools, thus scaling up NIS’ reform impact. NUGSE works with NIS in the area of educational research, teachers’ professional development and supports NIS in the implementation of curriculum reform.

Since 2013 NUGSE has enrolled 111 NIS teachers in Education Leadership and Multilingual Education Master’s programs and 100 NIS teachers participated in professional development programs for pedagogical theory and practical teaching strategies.

In 2017 NU’s School of Science and Technology provided 2 weeks training courses and lab works to 140 subject teachers from NIS Schools.

**STRATEGIC PARTNERSHIP WITH MEDICAL UNIVERSITIES**

Upon request from the Ministry of Healthcare of the Republic of Kazakhstan, in 2016 the Nazarbayev University School of Medicine (NUSOM) together with NUGSE established a strategic partnership with the 6 medical universities in Kazakhstan for the purpose of modernizing medical education, sharing best practice and translating NUSOM’s experience.

Within the framework of this partnership, 72 top managers of the 6 medical universities have been trained. Further, the 6 medical universities have also adopted NUSOM’s model of partnering with an international university. NUSOM serves as a strategic advisor to the Ministry of Healthcare and the medical universities (see page 19).
SHARING NU’S EXPERIENCE

Disseminating NU’s experience is one of the priority institutional tasks. Translation of NU experience is carried out on a regular basis through training, seminars, workshops, including at the annual Eurasian Higher Education Leaders Forum. In 2017 NU created a special office to disseminate its experience.

EURASIAN HIGHER EDUCATION LEADERS’ FORUM (EHELF)

Since 2012 the annual EHELF has served as a platform for international debate on higher education, and to disseminate NU’s experience to the public. Typically, the Forum attracts about 500 participants both nationally and internationally.

Following topics have been addressed at EHELF:

- 2017 Governance, management and leadership in higher education
- 2016 Higher education and modernization of the economy: innovative and entrepreneurial universities
- 2015 Graduate employability in the 21st century
- 2014 Successful universities: what are they and how to build one?
- 2013 Educational policy achievements in Kazakhstan
- 2012 Global trends in higher education and their impact on the region.

SPECIAL WORKSHOPS

NU Library
The NU Library has developed into a reference training center for professional development and capacity building of librarians of Kazakhstani universities. NU librarians actively publish on library operational work.

NU Registrar
The NU Registrar’s Office is at the core of the initiative to modernize academic Registrar’s Offices at Kazakhstani universities. NU Registrar’s Office is heading the creation of the Kazakhstan Association of Academic Registrars.

Other Workshops
Special workshops on sharing experience are conducted by the Office of the Provost, Admissions Department, Department of Student Affairs, Career Advising Center, among others.

Professional National Associations
NU promoted the creation of professional national associations to foster exchange of ideas and best practices in various areas of higher education: Kazakhstan Educational Research Association, Association of Kazakh Language Teachers.
BUILDING BLOCKS OF NU ACADEMIC EXCELLENCE

- Academic integrity: zero tolerance for disciplinary and academic misconduct;
- Merit based admission and progression reflecting high international standards;
- English as a language of instruction and research exposing students to academic and research frontiers;
- Student-centered learning environment to liberate students’ talents;
- Integration of education and research: student participation in faculty-led research and participation in conferences (whenever possible);
- Pastoral care: faculty and advisers provide extensive tutoring support to students;
- Study abroad opportunities for as many undergraduate students as possible;
- Internship opportunities for all students;
- Strategic partnerships.

MERIT-BASED, COMPETITIVE AND TRANSPARENT ADMISSION PROCESS

At all levels students are admitted to NU solely based on merit. Applicants have to pass a set of rigorous examinations or meet certain criteria to be enrolled in the foundation, undergraduate and graduate academic programs of the University, such as IELTS, APTIS (administered by British Council), SAT, ACT, GRE, MCAT and others. Once admitted, students must sustain academic excellence in order to progress and retain academic eligibility.

GRADUATE ATTRIBUTES

- Possess an in-depth and sophisticated understanding of their domain of study;
- Intellectually agile, curious, creative, and open-minded;
- Thoughtful decision-makers who know how to involve others;
- Entrepreneurial, self-propelling and able to create new opportunities;
- Fluent and nuanced communicators across languages and cultures;
- Cultured citizens of the world while being good citizens of their respective countries;
- Possess high personal integrity;
- Prepared to take a leading role in the development of their country.

NU SCHOOLS (as of 2017)

- School of Engineering*
- School of Humanities and Social Sciences*
- School of Mining and Geosciences
- School of Science and Technology*

*undergraduate and graduate programs

NU ACADEMIC PROGRAMS (as of September 2017)

- Foundation Program (NUFYP)**
- 17 Undergraduate programs
- 23 Master Programs
- 3 PhD Programs
- 1 Doctor of Medicine Program

** one year foundation program

Details of the programs can be accessed on the website www.nu.edu.kz

STUDENTS

- Total 4269
- Foundation students 708
- Undergraduate students 2586
- Master’s students 806
- PhD students 99
- Doctor of Medicine students 70

BY SECONDARY SCHOOLS

- Nazarbayev Intellectual Schools 32%
- Bilim-Innovation High Schools 27%
- Gymnasiums, lyceums 18%
- Fizmat School after Zhautykov 9%
- Others 2%

Internationalization of the student body is of high priority.

INTERNATIONAL STUDENTS AT NU

- International students 26

Source: NU Registrar’s Office as of 05 September 2017
**NU GRADUATES**

NU has sent out graduates since 2015. The President of the Republic of Kazakhstan Nursultan Nazarbayev presided over all three ceremonies.

<table>
<thead>
<tr>
<th></th>
<th>Employed</th>
<th>Pursuing graduate studies</th>
<th>Job hunting</th>
<th>Other (gap year, career break, maternity leave etc.)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduates</td>
<td>449 (34 %)</td>
<td>576 (44 %)</td>
<td>141 (11 %)</td>
<td>142 (11 %)</td>
<td>1308 (100 %)</td>
</tr>
<tr>
<td>Graduates</td>
<td>392 (79 %)</td>
<td>21 (4 %)</td>
<td>40 (8 %)</td>
<td>44 (9 %)</td>
<td>497 (100 %)</td>
</tr>
<tr>
<td>Total</td>
<td>841 (47 %)</td>
<td>597 (33 %)</td>
<td>181 (10 %)</td>
<td>186 (10 %)</td>
<td>1805 (100 %)</td>
</tr>
</tbody>
</table>

**Examples of international destinations:** Carnegie Mellon University, Columbia University, Duke University, ETH Zurich, Imperial College London, King Abdullah University of Science and Technology, London School of Economics, Massachusetts Institute of Technology, National University of Singapore, Oxford University, Stanford University, Seoul National University, Tokyo Institute of Technology, Tsinghua University, University of California Berkeley, University College London, University of Pittsburgh, University of Wisconsin-Madison, Warwick University and others.

**EMPLOYMENT ABROAD**

- Booking.com (Amsterdam, Netherlands)
- Cisco Systems (Czech Republic-Praque, Netherlands-Amsterdam)
- Continental Kaluga (Kaluga, Russia)
- International Civil Aviation Organization (Montreal, Canada)
- Procter and Gamble (Poland - Warsaw, Russia - Moscow)
- Schlumberger (Accra, Ghana)
- SKC film and chemical materials company (South Korea, Seoul)

**STARTUPS BY NU GRADUATES**

- AE-lab - predictive maintenance for dry-type transformers
- Aqua point - production of devices for high quality drinking water
- BioTerra - cultivation of vegetables, seeds and seedlings
- Black Rainbow - animation studio
- Ecoprot - production of sports nutrition
- Genotest - services of individual genetic testing
- Remonteka.kz - IT repair services
- Sanat Jewelry - production of handmade jewelry
- Skills Pro - robotics courses for kids
- Social Cafe - cafe for training and employment of adults with special needs
- Vzaperti – quest room

*Source: NU Career and Advising Center as of June 2017*
FACULTY AND ADMINISTRATION

In addition to talented students, university success is driven by the quality of faculty. Due to a rigorous selection and hiring process NU is building an internationally competitive and research-active faculty. Our faculty comes from over 55 countries. Top 10 countries of origin are the USA, UK, Canada, Greece, Italy, South Korea, Russia, Australia, Turkey and India. NU faculty consists of 391 full time faculty and instructors. In addition there are 84 teaching assistants and 5 postdoc fellows.

ADMINISTRATION

A world class university must also have a world class administration with an understanding of global standards. NU provides various professional and career development support activities for its staff, including pathways to move to academic programs (e.g. Talap scholarship). 54 employees have completed graduate degree programs at NU.

BOLASHAK GRADUATES

Overall NU employs about 300 Bolashak graduates, making it the single largest employer of “Bolahakers”. Additionally a considerable number of staff have graduated from international universities financed by other means.
RESEARCH AT NU:
- Faculty led research increasingly involves students.
- NLA: The National Laboratory Astana conducts mostly applied research funded by the state. It consists of the Center for Life Sciences and Center for Energy Research and Advanced Materials Sciences.
- NAC: The National Analytical Center provides consulting and analytical services to the state and private sector through research projects on public policy and economic issues.

413 researchers
(NU faculty and NLA staff)

Growth in publications (45 publications in 2012, 382 publications in 2016)

65 publications by students (individual and co-authored)

1306 international publications during 2011-2017

934 (72%) co-authored international publications during 2011-2017

11% of publications in the top 10% most cited publications worldwide

64 research and teaching laboratories

NU is recognized by Thomson Reuters as the most cited research institution in Kazakhstan in 2016

EXTERNAL PEER REVIEW
NU research proposals are internationally peer-reviewed by academic experts in the relevant fields of study. Allocation of all research funding beyond seed funding is carried out competitively, reflecting external review results to ensure its quality.

INTERCONNECTIONS FROM PRODUCTION TO ADVANCEMENT

4 Other (10.2 %)
Social Sciences (7.2 %)
Art and Humanities (2.1 %)
Medicine (7.6 %)
Biochemistry, Genetics and Molecular Biology (6.0 %)
Environmental Science (2.4 %)
Energy (2.7 %)
Engineering (16.2 %)

Computer Science (11.8 %)
Mathematics (6.4 %)
Physics and Astronomy (10.4 %)
Chemistry (5.5 %)
Chemical Engineering (3.9 %)
Materials Science (7.7 %)

*Source: Scopus database via SciVal as of 19 September 2017

NU faculty and researchers collaborate with more than 500 international institutions including Columbia, Harvard, Princeton, Cambridge, Oxford, Seoul National University, Tokyo University, Hong Kong University, INSEAD, Max Planck Institute and others.

KEY EMERGING RESEARCH DIRECTIONS

1) Technology Frontiers:
- Computing and Big Data
- Artificial Intelligence
- Biomedicine, Bioinformatics, Bioengineering
- Advanced Materials Science

2) Mitigating and adapting to climate changes:
- Energy, water resources, agriculture and infrastructure.

3) Eurasian history, culture, languages and socio-economic development

CONFERENCES AND OTHER RESEARCH EVENTS AT NU (2011–2017)

- Regenerative Medicine and Longevity Conference
- Personalized Medicine and Global Health Conference
- The Eurasian Higher Education Leaders Forum
- Kazakh Language Symposium “Mangilik Eldin Mangilik Tili”
- Emerging Markets Forum
- NU - University of California, Berkeley/Lawrence National Lab workshop
- Heavy-Ion Inertial Fusion Conference
- Future Energy Forum
- Kazakhstan National Geographic Society Congress
- International Project Management Association Forum
INTEGRATION OF TEACHING, RESEARCH AND CLINICAL SERVICES

NU is building an integrated academic healthcare system comprising of hospitals of the University Medical Center (UMC), Center for Life Sciences (CLS) and the School of Medicine. Its objective is to:

• Educate and form world-class professionals: the next generation of clinicians, health care professionals, as well as translational and clinical physician-scientists;
• Create breakthroughs in clinical diagnosis and treatment;
• Improve quality of care and propel advances in cost-effective care;
• Draw on and analyze clinical information to improve care;
• To provide an economic engine for growth locally, nationally and regionally;
• Collaborate with medical schools and medical centers in Kazakhstan to share NU’s experience in order to reform medical education programs and develop new patient pathways and protocols.

CORE PRINCIPLES

• Evidence-based medicine
• Patient-centered care.

TEACHING AND RESEARCH: SCHOOL OF MEDICINE

The School of Medicine aspires to be a world-class institution and to generate and sustain excellence in health profession education, biomedical research and patient care by creating a supportive and stimulating academic environment where creativity, life-long learning and discoveries are supported and encouraged.

Strategic Partner – University of Pittsburgh

• Medical Doctor program (August 2015);
• Master in Public Health (Fall 2016);
• Nursing Program PDP (summer 2016), Bachelor in Applied Nursing (Fall 2017);
• Master of Molecular Medicine (August 2017).

The School also serves as a national strategic partner for Kazakhstan’s other medical universities as they strive to modernize (see page 5).

RESEARCH: CENTER FOR LIFE SCIENCES

In addition to research at the School of Medicine and UMC, research at the Center for Life Sciences under the NLA endeavors to contribute to a better quality of life, health and longevity through practical application of cutting-edge research achievements in four priority research areas

• Genomics and personalized medicine
• Regenerative medicine and artificial organs
• Biomedical engineering, innovative cell technologies and cell therapies
• Translational medicine, healthy aging and global health.

CLINICAL SERVICES: UNIVERSITY MEDICAL CENTER

The University Medical Center (UMC) aims to create a cutting-edge patient-oriented system that provides high-quality, effective, and safe medical care while anchoring a medical school that will produce Kazakhstan’s future medical leadership, researchers and clinicians. UMC operates 4 hospitals, three of which are internationally accredited (JCI) so that they can serve as modern teaching hospitals:

• National Research Center for Maternal and Child Health – JCI reaccredited in 2015;
• Republican Children’s Rehabilitation Center – JCI accreditation in 2014;
• Republican Diagnostic Center – JCI accreditation in 2014;
• National Research Center for Oncology and Transplantation - existing, to be added to UMC. A future National Research Center for Oncology and Transplantation is to be constructed.

Strategic partner – University of Pittsburgh Medical Center.
INNOVATION CLUSTER

The goal of the Innovation Cluster is to build a vibrant eco-system that translates research outputs and interesting ideas hatched in classrooms into innovative commercial products. This eco-system starts with:

• Turning NU into an entrepreneurial university that encourages entrepreneurship and innovation in classrooms and laboratories
• Providing active business guidance and specialized professional support (e.g. legal services) to inventors and would-be entrepreneurs
• Identifying and, where possible, providing startup financial support

Infrastructure plays an important role as NU also intends to attract large numbers of international and national firms to NU’s science park - Astana Business Campus (ABC) for research and development activities. ABC has been tagged as a National Project.

TURNING NU INTO AN ENTREPRENEURIAL UNIVERSITY

Leadership and Governance
Organizational Capacity
Entrepreneurship Development in Teaching and Learning
Pathway for Entrepreneurs
NU – Business Community Knowledge Exchange
Internationalized Institution

Note: green color - in place; orange color - in progress.

NU’S INVESTMENT IN NEW COMPANIES

HeartStitch is an innovative suture-based system for remotely providing suture repair of structural heart defects and other vascular structures. Its unique technology allows to suture cardiac structures without the need for open heart surgery and without implanting foreign objects.

FINANCING SUPPORT

Seed Funding and Angel Financing facilities are under preparation. Successful projects will be presented to international venture capital networks.

ASTANA BUSINESS CAMPUS

A key feature of ABC is to facilitate and promote for daily interaction between entrepreneurs, established firms, R&D teams, startups, as well as faculty, students, and professional business service providers for creating a “buzzing” innovation hub.

The commercialization office, business incubator, technopark, Nazarbayev University schools and research centers are working together to create a vibrant research and innovation environment at ABC.

In 2016 NU launched a number of specialized services for the external community including: laboratory services for startups in biotechnology and biomedicine; analytical lab services for business sector that specialize in chemistry, food and light industries; prototyping services.
YOUTH STARTUP SUPPORT COMPETITION

In October 2016 NU launched the ABC Quick Start Acceleration to support startups created by young entrepreneurs in Astana including NU and other students. In cooperation with Shell Kazakhstan and other donors this program provides seed funding, access to technology, business guidance and specialized professional support. ABC Quick Start program supports businesses at an early stage of development to intensify project development within short spin of time. ABC Quick Start participants competed in the areas of biomedicine, IT&mobile, fintech, infrastructure and cleantech, educational technologies and social innovation.

**ABC QUICK START RESULTS IN 2016**

- **3D Metal Printer** – 3D high precision printer
- **Social Cafe** – café for training and employment of disabled people
- **Bionics** – production of individual prostheses via 3D printers for children
- **Giftsensor** – gift selection service based on visual analysis of a user’s profile in social networks
- **Smart Monkey** – set of entertainment toys by subscription

**ABC QUICK START RESULTS IN 2017**

- **3D MAP** – laboratory 3D digitizing service of buildings
- **DOC K2** – telemedicine services (information technology to provide clinical health care from distance)
- **ELECTRIC DRIVE** – electric drive for automation of mechanical wheelchairs
- **KOMPRA** – verification service of contract parties data
- **MOBIGARDEN** – autonomous mobile “green” installations
- **3D Metal Printer** – 3D high precision printer
- **Social Cafe** – café for training and employment of disabled people
- **Bionics** – production of individual prostheses via 3D printers for children
- **Giftsensor** – gift selection service based on visual analysis of a user’s profile in social networks
- **Smart Monkey** – set of entertainment toys by subscription

**TECHNOPARK RESIDENTS**

- **Anymatic** – software for toll collection systems, parking automation systems, processing centers for fines and traffic violations
- **Basire Design Group** – 3D-design and modeling in architecture
- **Digi Based** – develops digital solutions in broad range of areas
- **Educated Medical Solutions** – production of medical devices for minimal heart invasive surgeries (Heartstitch)
- **Institute of Batteries** – 2 laboratories to develop new types of batteries
- **Kazakhstan Information Technologies** – system that automatically collects, structures and analyzes the entire information flow generated by the media, social networks, websites
- **New Service Art** – ITC development
- **Optimization of Technological Processes** – IT solutions for optimization of technological processes, assessment of energy efficiency of production, process modeling
- **Philips** – service center for medical equipment

**INNOVATION AND COMMERCIALIZATION OF RESEARCH**

ABC Technopark houses facilities to carry out corporate research, prototyping work and solve everyday tasks. The total area of Technopark is 2 328 m².
KEY MILESTONES

2006
MARCH
Announcement by the President of the intent to create a world class university (annual address to the nation)

FALL
Appointment of project team to establish the university. Creation of JSC “New University of Astana”

2009
SEPTEMBER
Start of the Foundation program

JUNE
Opening ceremony of Nazarbayev University

2010
FALL
Opening of Research Centers – Center for Energy Research and Center for Life Sciences

JUNE
Signing of the Law “On the status of Nazarbayev University, Nazarbayev Intellectual schools” and “Nazarbayev Fund”

2011
AUGUST
Opening of undergraduate schools

FALL
First research publication under Nazarbayev University name
First medical research conference at Nazarbayev University

2012
MARCH
First JCI accreditation of a National Medical Holding hospital

SPRING
First Oxford University Press publication by NU “Kazakhstan – 2050”

JUNE
Opening of the Graduate School of Public Policy and the Graduate School of Education
First cohort of direct admits to bachelor programs

2013
SEPTEMBER
Launch of Executive MBA program at the Graduate School of Business

MARCH
Approval of Nazarbayev University Strategy for 2013-2020 by the Supreme Board of Trustees

2014
MAY
First Oxford University Press publication by NU “Kazakhstan – 2050”

JULY
Opening of the Pilot Technopark

AUGUST
Launch of the School of Medicine

FALL
Launch of Nazarbayev University’s own Foundation Program
Establishment of the University Medical Center with three of the former National Medical Holding hospitals

2015
JUNE
Second Graduation Ceremony with participation of the President of the Republic of Kazakhstan

SEPTEMBER
Launch of the ABC Quick Start Acceleration Program

2016
OCTOBER
First PhD Defense (GSE)
Launch of the institutional self-evaluation exercise

2017
APRIL
Launch of the Asian University Alliance

AUGUST
Completion of the EUA’s independent external evaluation of NU and publication of the evaluation report.

SEPTEMBER
Opening of School of Mining and Geosciences
Opening of GSPP’s PhD program in Public Policy
Recipient of IPMA’s silver prize for its contribution to Kazakhstan’s education reform under the category of Social Development Projects

EUA - European University Association
IPMA - International Project Management Association
Country name: Kazakhstan
Total area: 2.7 million square km
Population: 18 million people

Capital city: Astana
Total area: 722 square km
Population: more than 1 million people