

Data Science

Track 1: AI & Machine Learning
 Track 2: Data Science and Business Analytics
 Language: English
 Admission year: 2022
 Graduation year: 2025

**3 years
after school**

Degree:

Bachelor in Information and Communication Technology in the program
 "6B06104 - Data Science"



Year 1

1 semester	ECTS
IT Startup 1 (Ideation/Validation)	5
Principles of Programming and Algorithms	5
Applied Linear Algebra	3
Introduction to Web Development with HTML,CSS,Javascript	3
Kazakh(Russian)Language 1	5
Foreign Language 1	5
Human Rights and Civil Society/Sustainability: Principles and Practice/Data Analysis in Excel	5
Physical Training 1	4
Total	35

2 semester	ECTS
IT Startup 2 (Project Launch,MVP,Web Project)	5
Object -Oriented Programming and Data Structures	3
Discrete Mathematical Structures	3
Introduction to Back-End Development and Databases	5
Kazakh(Russian) Language 2	5
Foreign Language 2	5
Introduction to Entrepreneurship	3
Physical Training 2	4
Total	33

Year 2

3 semester	ECTS
IT Startup 3 (Business Models,CustDev,Iteration)	5
Python for Data Analysis and Visualization	5
Advanced Back-End Development 2 and DevOps	5
Applied Data Science and Machine Learning with Python/Machine Learning for Data Science	5
Leadership/Critical Thinking	3
Foreign Language 3	5
Entrepreneurship in Action 1	3
Minor course 1	5
Total	36

4 semester	ECTS
IT Startup 4 (Mobile App Project)	5
Front-End and Mobile Development(JS)	5
Advanced Machine learning/Business Data Warehouses and Dimensional Modeling	5
Deep Learning with Tensorflow and Keras/Business Database Systems Development	5
Service Learning	3
Information Communication Technologies	5
Entrepreneurship in Action 2	3
Minor course 2	5
Total	36

Year 3

5 semester	ECTS
Advanced Deep Learning and Computer Vision/Business Data Mining	5
Natural Language Processing and Speech Recognition/Big Data Analytics in Business	5
Design of Life	3
Research Design	3
Economics	3
Marketing	3
Management	3
Minor course 3	5
Total	30

6 semester	ECTS
IT Startup Capstone Project (DS/ML Startup)	20
Writing and defence of diploma project / thesis	12
Total	32

Total credits for 3 years of study

240

Track

AI & Machine Learning	ECTS
Applied Data Science and Machine Learning with Python	5
Advanced Machine learning	5
Deep Learning with Tensorflow and Keras	5
Advanced Deep Learning and Computer Vision	5
Natural Language Processing and Speech Recognition	5
Total	25

Data Science and Business Analytics	ECTS
Machine Learning for Data Science	5
Business Data Warehouses and Dimensional Modeling	5
Business Database Systems Development	5
Business Data Mining	5
Big Data Analytics in Business	5
Total	25

Summer semester	ECTS
Practice 1-Creation of internal corporate projects(Dual)	10
Philosophy	5
Culturology/Psychology	4
Total	19

Summer semester	ECTS
Practice 2-Creation of internal corporate projects (dual)	10
Modern History of Kazakhstan	5
Sociology/Political Science	4
Total	19

General module	26
AlmaU module	65
Minor	15
Profile module	102
Internship, Thesis-Project	32
Total	240