

24 октября, 2020

Опыт разработки и реализации  
онлайн-магистратуры ФКН



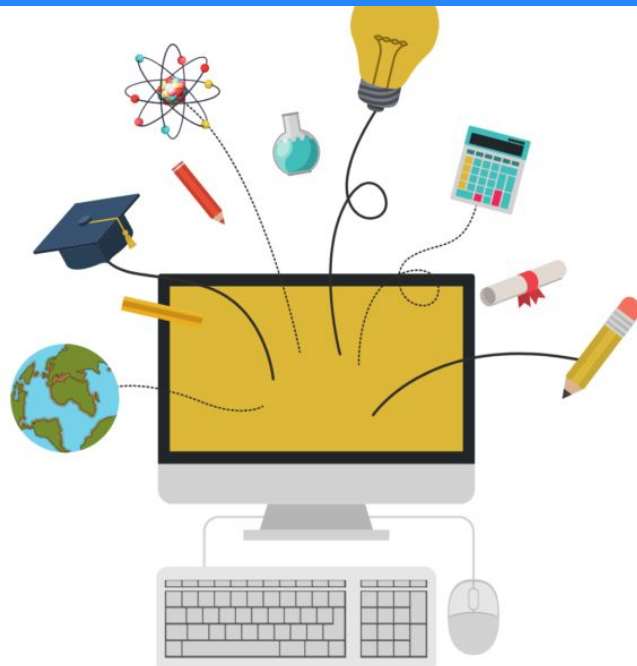
# “Master of Data Science”

Абашидзе Хатуна  
Менеджер программы



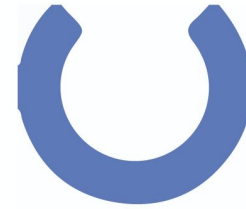
coursera

# Про онлайн



# Про онлайн в НИУ ВШЭ

**coursera**



открытое  
образование

# Coursera

**71**  
MILLION

LEARNERS

**4,400+**

COURSES

**470+**

SPECIALIZATIONS

**30+**

CERTIFICATES

**570+**

PROJECTS

**20**

DEGREES

# Coursera | MOOK

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# Coursera | Проекты

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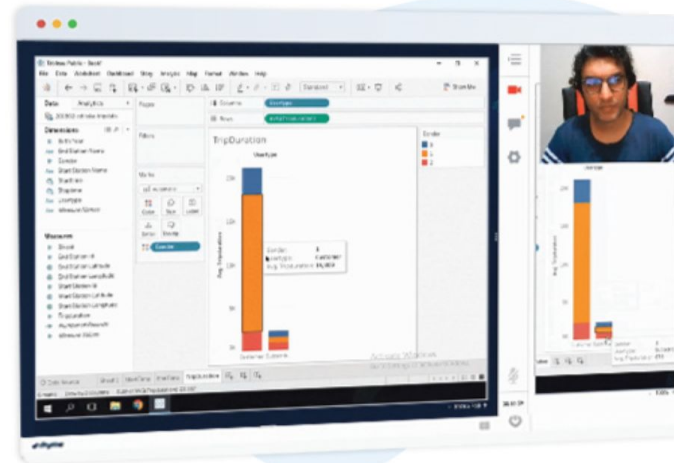
CERTIFICATES

570+

PROJECTS

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DEGREES



# Coursera | Специализации

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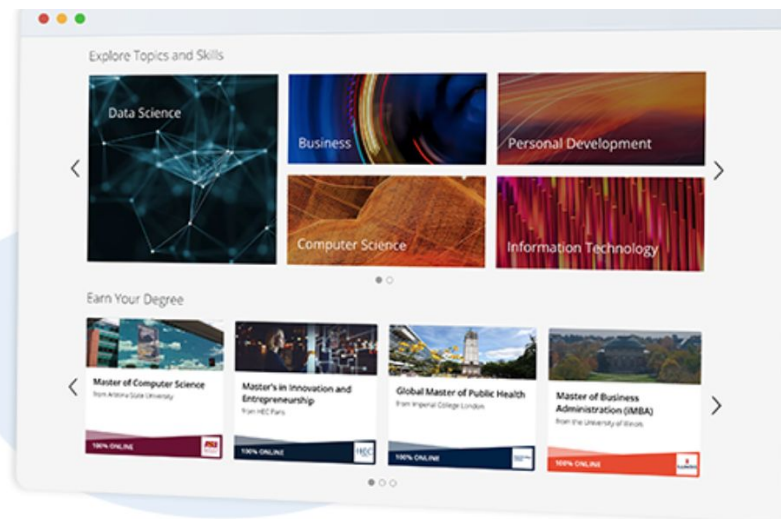
CERTIFICATES

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# Coursera | Сертификаты

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# Coursera | Степени

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COURSES

470+

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CERTIFICATES







570+

PROJECTS







20

DEGREES

## Business Degrees >

-  **MSc in Innovation and Entrepreneurship**  
HEC Paris
-  **Master of Science in Management (IMSM)**  
University of Illinois at Urbana-Champaign
-  **Bachelor of Applied Arts and Sciences**  
University of North Texas
-  **Master of Science in Accountancy (iMSA)**  
University of Illinois at Urbana-Champaign
-  **Master of Business Administration (iMBA)**  
University of Illinois at Urbana-Champaign
-  **Global Master of Business Administration (Global MBA)**  
Macquarie University

## Computer Science and Engineering Degrees >

-  **Master of Computer Science**  
Arizona State University
-  **Maestría en Ingeniería de Software**  
Universidad de los Andes
-  **Master of Computer Science**  
University of Illinois at Urbana-Champaign
-  **Master of Science in Electrical Engineering**  
University of Colorado Boulder
-  **Master of Computer and Information Technology**  
Penn Engineering
-  **Bachelor of Science in Computer Science**  
University of London

## Data Science Degrees >







-  **Maestría en Inteligencia Analítica de Datos**  
Universidad de los Andes
-  **Master of Data Science**  
National Research University Higher School of Economics
-  **Master of Applied Data Science**  
University of Michigan
-  **Master of Science in Data Science**  
University of Colorado Boulder
-  **Master of Computer Science in Data Science**  
University of Illinois at Urbana-Champaign
-  **MSc in Machine Learning**  
Imperial College London

## Public Health Degrees >

-  **Master of Science in Population and Health Sciences**  
University of Michigan
-  **Global Master of Public Health**  
Imperial College London
-  **Master of Public Health**  
University of Michigan

# Онлайн степени на Coursera




## Business Degrees >

-  **MSc in Innovation and Entrepreneurship**  
HEC Paris
-  **Master of Science in Management (iMSM)**  
University of Illinois at Urbana-Champaign
-  **Bachelor of Applied Arts and Sciences**  
University of North Texas
-  **Master of Science in Management (iMSM)**  
University of Illinois at Urbana-Champaign
-  **Master of Business Administration (iMBA)**  
University of Illinois at Urbana-Champaign
-  **Global Master of Business Administration (iMBA)**  
Macquarie University

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University of Illinois at Urbana-Champaign

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University of Michigan

## Public Health Degrees >

-  **Master of Science in Population and Health Sciences**  
University of Michigan
-  **Global Master of Public Health**  
Imperial College London
-  **Master of Public Health**  
University of Michigan


Apply by June 19 for an opportunity to join the Fall 2020 cohort. | [Apply now](#)

Online Degrees > Data Science > Master of Data Science > Overview

 **HIGHER SCHOOL OF ECONOMICS**  
NATIONAL RESEARCH UNIVERSITY

## Master of Data Science

HSE University



[Overview](#) | [Admissions](#) | [Academics](#) | [Student Experience](#) | [Careers](#) | [About the University](#)

The first fully online Master of Data Science from a top-10 Russian university, featuring applied projects with industry partners like Yandex.

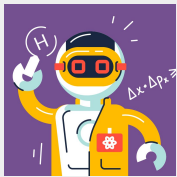
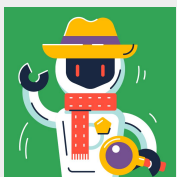
In just over two decades since its founding, National Research University Higher School of Economics (HSE University) has emerged as a leading university for multidisciplinary research, international cooperation, and

💰 **577,500 - 1,155,000 RUB**  
Depending upon geographic location | Subject to change with currency exchange rate | Any currency exchange commissions charged shall be borne by students

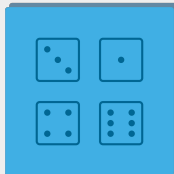
🕒 **20 - 24 months**

# Онлайн-курсы ФКН на Coursera

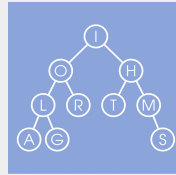
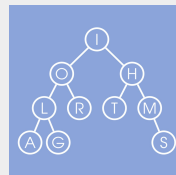
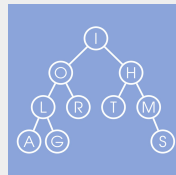
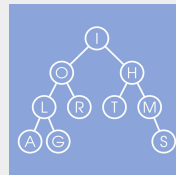
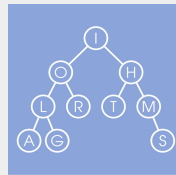
Advanced  
Machine  
Learning



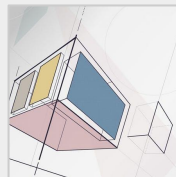
Introduction  
to Discrete  
Mathematics  
for Computer  
Science



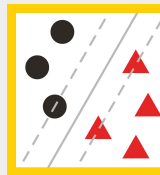
Data  
Structures  
and  
Algorithms



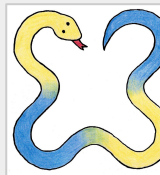
Mathematics  
for Data  
Science



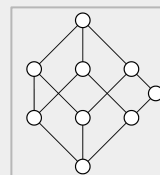
Mobile  
Interaction  
Design: How to  
Design Usable  
Mobile Products  
and Services



Введение в  
машинное  
обучение



Основы  
программирова  
ния на Python



Introduction to  
Formal Concept  
Analysis



# О программе MDS

**32 курса**

**4 блока:**

Математика

Программирование

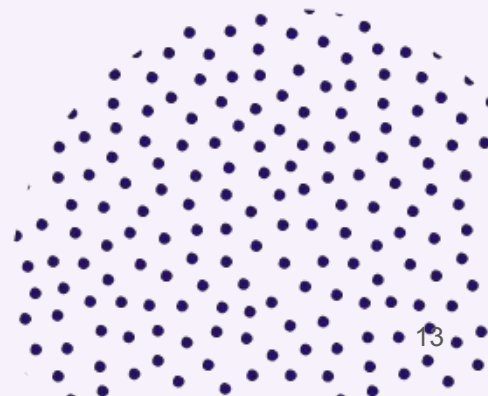
Профессиональный  
блок\*

Проекты\*

\* Курсы в зависимости от выбранного трека

**3 трека:**

1. Data Scientist
2. Machine Learning Engineer
3. Researcher in DS



# Семестр 1

Course 1

**Python - Basic**

**Python - Advanced**

**Algorithms and Data Structures - Part I**

**Algorithms and Data Structures - Part II**

Course 2

**Discrete Mathematics**

**Calculus**

**Linear Algebra**

**Probability Theory**

# Семестр 2

Track ML Engineer

Track Data Scientist

Track Researcher in DS



Course 1

**Statistics Basic**

**SQL**

**Machine Learning**

**Applied Machine Learning**

Track ML Engineer

Track Data Scientist

Track Researcher in DS



Course 2

**Data Scraping Project**

Applied  
Statistics

Applied  
Statistics

Computational  
Complexity

Introduction  
to Deep  
Learning

Introduction  
to Deep  
Learning

Computational  
Learning Theory

# Семестр 3

Track ML Engineer

Track Data Scientist

Track Researcher in DS

Track ML Engineer

Track Data Scientist

Track Researcher in DS

Course 1

Course 2

**Machine Learning Project**

LSML 1

LSML 1

Optimization  
for ML

DevOps

Computer  
Vision

Bayesian  
Methods for  
ML

C++

LSML 2

Advanced  
Algorithms

OOP and  
Software  
Architecture

NLP

Deep  
Generative  
Models

**Final Project**



# Команда. Коммуникация

## Онлайн-курсы

Высокий уровень поддержки:

**Преподаватели**

**Ассистенты**

**Научные руководители**

**Учебный блок**

**Академические руководители**

## Форумы курсов



**ПОЧТА** (Zendesk)

**24/7 Coursera Support**

# Структура курсов

Видео

Тренировочные  
(неоцениваемые) задания

Оцениваемые задания

Staff graded assignments

Проект

Форумы

Live-сессии/вебинары

Дедлайны / Штрафы / Попытки

Calculus  
National Research University  
Higher School of Economics

Overview

- Week 1
- Week 2
- Week 3
- Week 4
- Week 5
- Week 6

Grades

Notes

Discussion Forums

Live Events

Messages

Classmate

## Calculus

by National Research University Higher School of Economics

Week 3 WEEK 4 WEEK 5 WEEK 6 +1 END 09/27

**WEEK 6 | GRADED ASSIGNMENT - 5 MIN**  
**Final Project: SUBMIT**  
It's not too late! You can still get full credit, so give it a try. [Start](#)

**Instructor's Note**

Anton Savostianov

Welcome to Calculus! You're joining thousands of learners currently enrolled in the course. I'm excited to have you in the class and look forward to your contributions to the learning community.

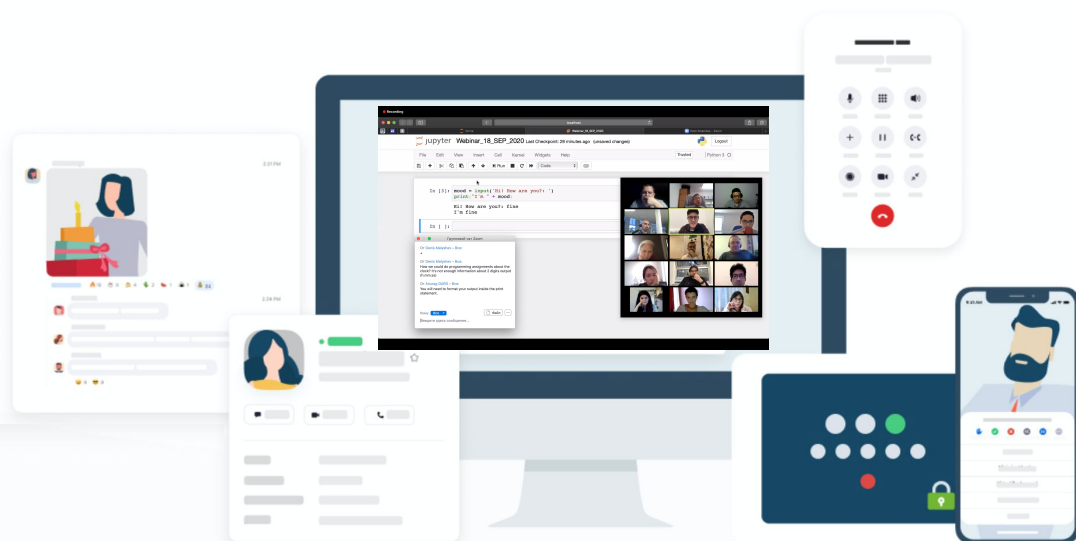


# Live-сессии

Ветки на форумах

2 раза в день

Записи



Data Scraping  
National Research University  
Higher School of Economics

Overview  
Grades  
Notes  
**Discussion Forums**  
Live Events  
Messages  
Classmates  
Course Management  
Staff & Mentors Only

Discussion Forums

Week 5

Discuss the topic here. [Subscribe](#)

SORT BY: Latest  [New Thread](#)

**Questions for the live event: "Regex and HTML&CSS review. Q&A Session"** 23 views 2 replies  
Staff Created Last post by [Ilya Golubev](#) · 5 days ago

**Computer Networking Tutorial for Beginners... may no longer be available.** 24 views 3 replies  
Staff Created Last post by [Ilya Golubev](#) · 16 days ago

**17** 1 views replies  
Staff Created Last post by [Ilya Golubev](#) · 16 days ago

SUBFORUMS

All  
Assignment: Give request

**Илья В. Шуров** · 19 days ago · instructor

A question not related to any problems we had so far:

To me an assumption that time spent on a web site is normally distributed is far from either obvious or safe, especially given discussed values (mean relatively close to 0 with relatively big variance), as time can not be negative.

How do we treat situations when we:

1. Believe distribution is not normal
2. Can't tell (from our believes or statistics) the distribution (maybe have a shortlist of candidates)

0 Upvotes

Sometimes it is not so important. For example, central limit theorem assures us that the average value of large sample is distributed approximately normal provided that the initial distribution has finite expected value and variance. This allows to apply some statistical analysis without imposing much assumptions on the initial distribution. (However, if we have small amount of data, these assumptions became more important.) Sometimes we just have "default options". For example, values like wages are usually supposed to be log-normally distributed (they can be different with the order of magnitude, so it is reasonable to assume that their logarithms is distributed approximately normal). For count data without natural upper bound (like "number of goals during one match in soccer"), Poisson distribution is usually used, etc. Sometimes we need more sophisticated model. For example, instead of using of normal distribution, use mixture of several normal distributions. Of course, we understand that every time we replace our actual process with some simple model that involves distributions, we make some assumptions, that are more or less arbitrary. It is were domain knowledge should be used as the basis of these distributions as to

Messages  
Classmates  
Resources  
Course Manager  
Staff & Mentors Only

SORT BY: Latest  [New Thread](#)

**Questions for 10/03 live session** 151 views 18 replies  
Staff Created Last post by [Vahe Yepremyan](#) · 10 days ago

**Magical alternative hypothesis Q6** 45 views 2 replies  
Instructor Replied Last post by [Денисов Илья Олегович](#) · 12 days ago

**On what basis a hypothesis is made?** 31 views 2 replies  
Staff Replied Last post by [Денисов Илья Олегович](#) · 15 days ago

**Binomial test practice Q5** 56 views 4 replies  
Instructor Replied Last post by [Nikolay Khranov](#) · 19 days ago

**cdf()/sf() usage for "z-score and t-score" tasks** 43 views 5 replies  
Instructor Replied Last post by [Ershov Mikhail Vasilievich](#) · 19 days ago

**z-score and t-score Q5: Grader does not accept correct answer (precision problem).** 33 views 2 replies  
Instructor Replied Last post by [Ilya V. Schurov](#) · 19 days ago

**z-score and t-score Q8: grader does not accept correct answer?** 34 views 2 replies  
Instructor Replied Last post by [Ilya V. Schurov](#) · 19 days ago

The screenshot shows a Slack interface with a sidebar on the left containing a list of channels. The main area displays a message from Yana Mazenara at 4:35 PM. The message text reads: "Dear students! If you're reading this message, it means that you've successfully activated your corporate email. Well done:) We are so happy to see you here and once again want to congratulate you on the beginning of the academic year! Here, in Slack, you can get to know your course mates and chat on different topics. Also, a few words about the beginning of the courses. This week we'll send you invitations to the Onboarding course. For-credit courses will start next week. Besides, we're going to have a Welcome Webinar on September, 4th. The webinar will be organized 2 times a day: at 10 am MSK (morning) - <https://zoom.us/j/95622307728> at 7 pm MSK (evening)- <https://zoom.us/j/96800636328> So you can choose the most convenient time for attending it. Don't worry if you are unable to join the webinar: it will be recorded and shared in the Onboarding Course later. But we're looking forward to seeing you in our Onboarding Welcome Webinar! Best regards, MDS Program Office". Below the text is a dark rectangular image containing the code "<Hello World/>". The message has 9 thumbs up, 7 thumbs down, and 2 reactions. Below this are two more messages: one from Muhammad Aglukko at 4:38 PM saying "Hi everyone! How it's going?" with 8 thumbs up, 4 thumbs down, and 1 reaction; and one from Hamid Saravani at 4:46 PM saying "Hi Everyone, Good morning from Canada" with 14 thumbs up and 1 thumbs down.

Channels

- appreciations
- f20\_1\_discrete\_mathematics
- f20\_1\_python\_basic
- f20\_mds
- f20\_study\_office
- # general
- # learning-resources
- w20\_1\_discrete\_mathematics
- w20\_1\_python\_basic
- w20\_2\_calculus
- w20\_2\_python\_advanced
- w20\_3\_algorithms\_and\_ds\_1
- w20\_3\_linear\_algebra
- w20\_4\_algorithms\_and\_ds\_2
- w20\_4\_probability
- w20\_5\_data\_scraping
- w20\_5\_statistics\_basics
- w20\_mds
- w20\_random
- w20\_study\_office

Yana Mazenara 4:35 PM  
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Best regards,  
MDS Program Office  
photo\_2020-09-01\_16-25-26.jpg

<Hello World/>

Muhammad Aglukko 4:38 PM  
Hi everyone! How it's going?

Hamid Saravani 4:46 PM  
Hi Everyone, Good morning from Canada

“

Study office certainly has been **one of the best aspect** of this program. I remember admins in my college who always ghosted when put with queries. Here it has been exact opposite. **Never delayed on any response from study office.**

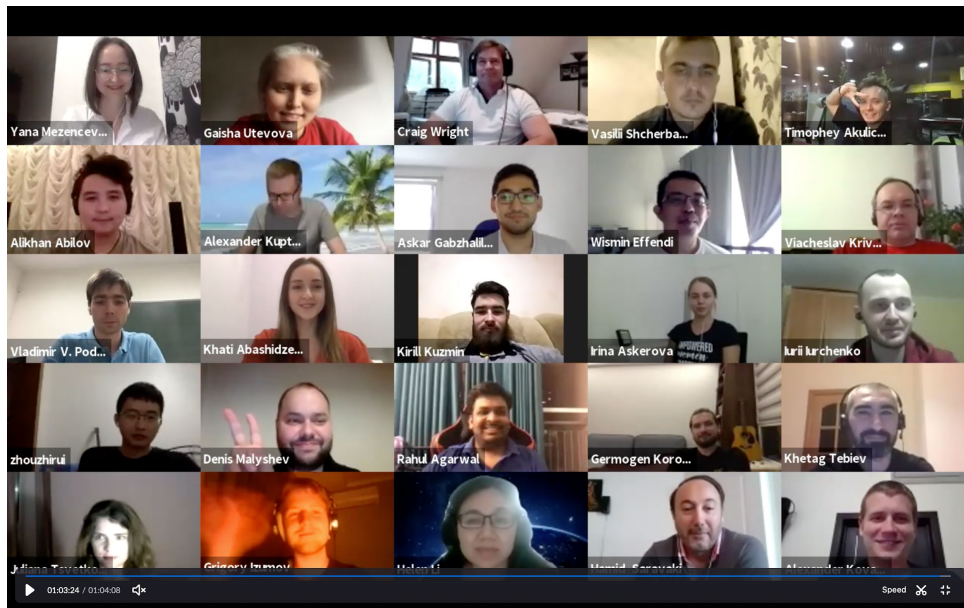
Experiencing online education for the first time, there are always many queries and doubt and **feels great someone is always available to help.** Kudos to the team!

PS: Not a parting post, I will be here to trouble till the end of the program! :)

”

# Поддержка

- **работа с командами курсов**
  - курс для Staff / встречи
  - еженедельная сводка (по форумам/почте/отзывам)
- **работа со студентами**
  - еженедельный мониторинг успеваемости студентов
  - автоматические письма/индивидуальные письма/звонки
  - **регулярные ежемесячные встречи в zoom**
  - почта/Slack



**Спасибо за внимание!**