

# **Data Science in Business Bachelor program**

## **training program description**

**For students who start in the fall semester of 2023/2024**

## Data Science in Business Bachelor program

Valid: For students starting their studies in the 2023/2024/1 semester

Update: 2025-11-26

General information:

**Person responsible for the major:** Borbásné Szabó Ildikó

**Place of the training:** Budapest

**Training schedule:** full-time

**Language of the training:** English

**Is it offered as dual training:** no

Specialisations:

There is no specialisation.

Program and outcome requirements:

1. **Name of the Bachelor's program in Hungarian:** üzleti adattudomány  
**Name of the Bachelor's program in English:** Data Science in Business
2. **The level of qualification to be acquired in the Bachelor's study program and the specification of the professional qualification in the diploma:**
  - level of qualification: baccalaureus, bachelor (abbreviated: BSc-) degree
  - Hungarian specification of the professional qualification: üzleti adattudós
  - English specification of the professional qualification: Data Scientist in Business
3. **Field of study:** economics
4. **Duration of the program in semesters:** 8 semesters
5. **Number of credits to be collected to acquire the BA degree:** 210+30 credits
  - orientation of the study program: practically oriented (60-70%)
  - minimal credit value of continuous practical training outside the university: 30 credits, of which the credit value assigned to the preparation of the thesis: 10 credits,
  - minimum credit value to be assigned to free elective subjects: 12 credits.
6. **Classification of the professional qualification according to the unified classification system of fields of study:** 34/0488
7. **The training purpose and professional competences**

The aim of the program is to train professionals with the methodological, IT and business skills required for data analysis and modelling, who are able to combine and apply these skills in independent problem solving and, after acquiring the necessary knowledge and practical experience, to map problems in new business areas into data analysis problems, and who are ready to continue their studies in a master programme.

  - 7.1. **Professional competences to be acquired**
    - 7.1.1. **Data scientists in business can be described as follows in terms of their**
      - a) **knowledge**
        - Knowledge and understanding of the principles and methods of organising, managing and analysing of business processes, including the processes of the supply chain, sales, marketing, finance, accounting and human resources, and the problems encountered in these processes and to be typically examined by data analysis.
        - Knowledge of problem identification and management, awareness of the methodological foundations of decision preparation and decision support, and the role of data analysis in decision support.
        - Understanding of the main antecedent variables determining the decision, and its main consequences, risks, professional and behavioural aspects.

- Understanding of the operational logic of IT systems supporting business process automation as a data source for data analysis tasks.
- Familiarity with the key principles and methods of project management, the structure, phases and specificities of the implementation of data analysis and data modelling projects.
- Possession of the following knowledge elements necessary to carry out data analysis and modelling projects:
  - programming, software development and technology, agile software project management, software lifecycle, software quality assurance
  - database design and management, data warehouse development and management,
  - knowledge of the analysis, application and development of mathematical, statistical, machine learning models,
  - knowledge of non-structured data processing methods,
  - network theory underlying the description of social and economic systems,
  - knowledge of methods and tools for data visualisation,
  - knowledge of legal, privacy and ethical aspects of data analysis and modelling projects.
- Knowledge of methods for creating business rules based on the results of data analysis and modelling.
- Knowledge of methods for writing business specifications and integrating them into processes and parameterising the related transactions.

**b) skills**

- Ability to understand the conceptual framework of different business processes and to identify and interpret business process problems that can be solved by data analysis, based on organisational objectives.
- Ability to define the scope of data required to solve a data analysis problem mapped from a business problem, to explore, analyse and understand the architecture of different data sources, operational systems, database types, data storage languages, data file formats and web data sources.
- Ability to identify and implement the range of data manipulations required for data analysis and to unify the different data structures of data derived from different sources.
- Ability to apply mathematical and algorithmic methods, methodologies and thinking to the execution of data analysis processes and data-driven business problem solving and decision making.
- Ability to explore which models or families of models of statistics and machine learning can or need to be applied for the identified data analysis problem.
- Ability to apply and develop programming languages and software for data analysis, data modelling and data visualisation according to business needs.
- Ability to identify facts, patterns and relationships, make predictions and draw business conclusions from the results generated by models and, where necessary, add new analytical aspects, and to examine the problem from multiple perspectives simultaneously. Ability to integrate parts of knowledge into a coherent, holistic framework.
- Ability to produce clear and understandable decision preparation documentation based on the results of the analysis, and to propose business process optimisation based on the results of the modelling.
- Ability to communicate the results of their work, or their proposals or positions in a professional manner, both orally and in writing.

**c) attitude**

- Readiness to accept new information and learn new professional skills and methodologies.
- Flexible adaption to new situations and changes.
- Readiness to use new IT tools and to learn about them.
- Readiness to integrate the knowledge acquired in the performance of their tasks.
- Striving for precision in their analyses.
- Holistic approach to work with a systems perspective.
- Representation of the importance of an interdisciplinary approach and thinking.
- Knowledge-sharing attitude and acceptance of the need to apply a communication strategy appropriate for a diverse group of stakeholders.
- Acceptance of the importance of compliance with legal and ethical rules.
- Openness and receptiveness to feedback and critical comments.

**d) autonomy and responsibility**

- Independent performance of the analytical work under general professional supervision.
- Seeking information on the economic, social and legal context of the organisation or phenomenon in question with the support of an expert, experienced colleague.
- Seeking possible ways to solve a problem in a creative manner.
- Proposing data analysis and data modelling solutions that best meet business needs.
- Formulation of independent proposals based on own findings and the ability of self-monitoring.
- Acceptance of the responsibility for their own analyses and conclusions.
- Independent documentation of the findings of the analysis and the understanding of documentation methodology.

**8. The characteristics of the bachelor program****8.1. Professional characteristics****8.1.1. Branches of science leading to the professional qualification, fields of expertise comprising the study program:**

- Business studies: 58–70 credits
  - Business studies (business economics, activity management, accounting analysis, finance, marketing management, human resource management, process management, project management, electronic business management, specialised business areas),
  - decision theory (problem solving, decision techniques, decision making).
- Mathematics, statistics: 56–62 credits
  - mathematics, statistics (calculus, linear algebra, probability theory, descriptive statistics, inferential statistics, time series analysis, optimisation, data visualisation),
  - statistics for the analysis of unstructured data,
  - application, evaluation and interpretation of machine learning algorithms (tree-based algorithms, neural networks, cluster analysis, dimensionality reduction),
  - network science.
- IT studies 45-60 credits

- programming (programming languages, software technology, software development),
- databases (data modelling, database design, SQL programming),
- knowledge of operational systems,
- machine learning technologies (self-service analytics, big data architectures).
- Inter- and transdisciplinary knowledge in business methodology and informatics: 15-35 credits
  - business studies (7-15 credits);
  - mathematics, statistical methodology (4-12 credits)
  - IT studies (4-8 credits).

**8.2. Requirements for the practice**

A minimum of 480 hours (12 weeks) of related work placement outside the institution, which can be completed after six active semesters or 170 credits.

**9. Thesis**

The aim of writing a thesis is to demonstrate the student's knowledge and expertise on a topic of his/her choice, in the collection, systematisation, analysis and processing of scientific data related to the chosen topic, in the discussion of the phenomenon or problem chosen as a topic, in creating hypotheses, in problem-solving, in the analysis of alternative hypotheses, in arguing and disproving counter-arguments, and in expressing one's ideas, views, positions and messages in a coherent, consistent and linguistically sound written form.

**10. The type of the thesis**

Project thesis,  
Research thesis,  
Artistic thesis.

**11. Foreign language competence: -****12. Requirements for the issue of the final certificate**

The University shall issue a final certificate to a student who has

- met the academic and examination requirements determined in the curriculum and
- completed the required practice period and
- obtained the required number of credits.

**13. Conditions for admission to the final exam**

Joint conditions for admission to the final exam:

- a) the student has obtained the final certificate,
- b) the student has submitted the thesis by the deadline,
- c) the thesis has been assessed and awarded a mark other than insufficient by the deadline,
- d) the student has applied for the final exam by the deadline,
- e) the student owes no overdue debt owed to the University in the given programme,
- f) the student has accounted for the assets of the University (e.g. books, sports equipment, etc. borrowed).

A student who has not fulfilled any of the conditions in paragraphs a) - f) may not be admitted to the final exam.

**14. The parts of the final exam**

The final exam consists of a defence of the thesis. In the final examination, the student defends the thesis in an oral examination before a final examination board

**14. Determining the result of the final exam**

The arithmetic mean of the following two digits, rounded to two decimal places:

- a) the grade given to the dissertation by the reviewer (s) - determined with a five-point qualification - in case of several reviewers the average of the marks of the reviews is rounded to two decimal places, and

- b) the grade obtained for the defense of the dissertation, for the answers to the questions related to the dissertation - established with a five-level qualification.

**16. Components of the diploma grade, method of calculation**

The grade of the diploma is the arithmetic mean of the following two grades, rounded to two decimal places:

- a) the credit-weighted average of the marks of the compulsory and compulsory elective subjects (if the student has taken more than the compulsory elective subjects, then all the subjects taken) in the amount of credits prescribed in the curriculum, and
- b) a final examination result (grade).

**17. Conditions for issuing a diploma**

The issuing of a diploma attesting to the completion of higher education studies is subject to the successful completion of the final exam.

## BNÜZAD22ABP - Data Science in Business bachelor programme in Budapest, in English, full time training Curriculum for 2023/2024. (1.) fall semester for beginning students

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|--------------|----------------------------------------------|------|--------------------------|-----------------|--------|------------|-------------------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|------|--------|----------------------|-----------------------------------------------------|----------------|-----------------------------------------------|-------------|----|-----|
|              |                                              |      | 1                        | 2               |        |            |                         | 3                     | 4               | 5                     | 6               | 7                     | 8               | Code                  | Name |        |                      |                                                     | Code           | Name                                          |             |    |     |
|              |                                              |      | Fall semester            | Spring semester |        |            |                         | Fall semester         | Spring semester | Fall semester         | Spring semester | Fall semester         | Spring semester |                       |      |        |                      |                                                     |                |                                               |             |    |     |
| Core courses |                                              |      |                          |                 |        |            |                         | 30                    | 30              | 30                    | 30              | 30                    | 18              | 12                    | 0    | 180    |                      |                                                     |                |                                               |             |    |     |
| 293NBUSK276B | Business Economics                           | C    | 2                        | 2               | 6      | ex         | fall                    | 6                     |                 |                       |                 |                       |                 |                       |      |        | Attila Kajos         | Institute of Entrepreneurship and Innovation        |                |                                               |             |    |     |
| ADIN001NABB  | Mathematics I.                               | C    | 4                        | 4               | 12     | ex         | fall                    | 12                    |                 |                       |                 |                       |                 |                       |      |        | Miklós Pálfia        | Institute of Data Analytics and Information Systems |                |                                               |             | no |     |
| ADIN002NABB  | Introduction to Data Science and Programming | C    | 1                        | 3               | 6      | pg         | fall                    | 6                     |                 |                       |                 |                       |                 |                       |      |        | Géza Molnár          | Institute of Data Analytics and Information Systems |                |                                               |             | no |     |
| ADIN003NABB  | Advanced Programming                         | C    | 1                        | 3               | 6      | pg         | spring                  |                       | 6               |                       |                 |                       |                 |                       |      |        | Johannes Wachs       | Institute of Data Analytics and Information Systems | ADIN002NABB    | Introduction to Data Science and Programmin g |             | no |     |
| ADIN004NABB  | Database Systems                             | C    | 0                        | 4               | 6      | pg         | fall                    | 6                     |                 |                       |                 |                       |                 |                       |      |        | Melinda Magyar       | Institute of Data Analytics and Information Systems |                |                                               |             | no |     |
| ADIN005NABB  | Advanced Database Systems                    | C    | 1                        | 3               | 6      | pg         | fall                    |                       |                 | 6                     |                 |                       |                 |                       |      |        | Melinda Magyar       | Institute of Data Analytics and Information Systems | ADIN004NABB    | Database Systems                              |             | no |     |
| ADIN006NABB  | Project Management in Data Science           | C    | 2                        | 2               | 6      | pg         | spring                  |                       | 6               |                       |                 |                       |                 |                       |      |        | Gábor György Klimkó  | Institute of Data Analytics and Information Systems | 293NBUSK276B   | Business Economics                            |             | no |     |
| SZAM010NABB  | Foundations of Accounting                    | C    | 2                        | 2               | 6      | ex         | spring                  |                       | 6               |                       |                 |                       |                 |                       |      |        | László Péter Lakatos | Institute of Accounting and Law                     | -              | -                                             |             | no |     |
| SZAM011NABB  | Managerial Accounting                        | C    | 1                        | 3               | 6      | ex         | fall                    |                       |                 | 6                     |                 |                       |                 |                       |      |        | László Péter Lakatos | Institute of Accounting and Law                     | SZAM010NABB    | Foundations of Accounting                     |             | no |     |
| ADIN007NABB  | Mathematics II.                              | C    | 4                        | 4               | 12     | ex         | spring                  |                       | 12              |                       |                 |                       |                 |                       |      |        | Attila Tasnádi       | Institute of Data Analytics and Information Systems | ADIN001NABB    | Mathematics I.                                |             | no |     |

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|--------------|---------------------------------------------------|------|--------------------------|-----------------|--------|------------|-------------------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|------|--------|-----------------------|-----------------------------------------------------|----------------------------|----------------------------------------------------------------------------|-------------|--|-----|
|              |                                                   |      | 1                        | 2               |        |            |                         | 3                     | 4               | 5                     | 6               | 7                     | 8               | Code                  | Name |        |                       |                                                     | Code                       | Name                                                                       |             |  |     |
|              |                                                   |      | Fall semester            | Spring semester |        |            |                         | Fall semester         | Spring semester | Fall semester         | Spring semester | Fall semester         | Spring semester |                       |      |        |                       |                                                     |                            |                                                                            |             |  |     |
| OPDOo02NABB  | Management of Processes and Operations            | C    | 1                        | 3               | 6      | pg         | fall                    |                       |                 | 6                     |                 |                       |                 |                       |      |        | Zsolt Matyusz         | Institute of Operations and Decision Sciences       | 293NBUSK276B               | Business Economics                                                         |             |  | yes |
| ADINoo8NABB  | Fundamentals of Statistics and Data Visualization | C    | 0                        | 4               | 6      | pg         | fall                    |                       |                 | 6                     |                 |                       |                 |                       |      |        | László Kovács         | Institute of Data Analytics and Information Systems | ADINoo7NABB<br>ADINoo4NABB | Mathematics II. Database systems                                           |             |  | yes |
| ADINoo9NABB  | Enterprise Data Analysis                          | C    | 0                        | 4               | 6      | pg         | fall                    |                       |                 | 6                     |                 |                       |                 |                       |      |        | Ildikó Borbásné Szabó | Institute of Data Analytics and Information Systems | SZAMo10NABB                | Foundations of Accounting                                                  |             |  | no  |
| MARKoo5NABB  | Marketing                                         | C    | 2                        | 2               | 6      | pg         | spring                  |                       |                 |                       | 6               |                       |                 |                       |      |        | József Hubert         | Institute of Marketing and Communication Sciences   | 293NBUSK276B               | Business Economics                                                         |             |  | yes |
| ADINo10NABB  | Statistical Modelling                             | C    | 2                        | 6               | 12     | pg         | spring                  |                       |                 |                       | 12              |                       |                 |                       |      |        | László Kovács         | Institute of Data Analytics and Information Systems | ADINoo8NABB<br>ADINoo3NABB | Fundamentals of Statistics and Data Visualization<br>Advanced Programmin g |             |  | no  |
| ADINo11NABB  | Software Engineering                              | C    | 1                        | 3               | 6      | pg         | spring                  |                       |                 |                       | 6               |                       |                 |                       |      |        | László Mohácsi        | Institute of Data Analytics and Information Systems | ADINoo5NABB                | Advanced Database Systems                                                  |             |  | yes |
| ADINo12NABB  | Large-Scale Data Architectures                    | C    | 2                        | 2               | 6      | ex         | fall                    |                       |                 |                       |                 | 6                     |                 |                       |      |        | Ildikó Borbásné Szabó | Institute of Data Analytics and Information Systems | ADINoo5NABB                | Advanced Database Systems                                                  |             |  | yes |
| ADINo13NABB  | Self-Service Data Mining                          | C    | 0                        | 2               | 3      | pg         | spring                  |                       |                 |                       | 3               |                       |                 |                       |      |        | Réka Franciska Vas    | Institute of Data Analytics and Information Systems | ADINoo6NABB                | Project Management in Data Science                                         |             |  | no  |

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|--------------|-------------------------------------------------|------|--------------------------|-----------------|--------|------------|-------------------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|------|--------|---------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------------------|--|-----|-----|
|              |                                                 |      | 1                        | 2               |        |            |                         | 3                     | 4               | 5                     | 6               | 7                     | 8               | Code                  | Name |        |               |                                                     | Code                                                | Name                                      |                                                                                                         |  |     |     |
|              |                                                 |      | Fall semester            | Spring semester |        |            |                         | Fall semester         | Spring semester | Fall semester         | Spring semester | Fall semester         | Spring semester |                       |      |        |               |                                                     |                                                     |                                           |                                                                                                         |  |     |     |
| ADINo14NABB  | Data Warehousing and Business Analytics         | C    | 1                        | 3               | 6      | pg         | fall                    |                       |                 |                       |                 | 6                     |                 |                       |      |        | Tibor Kovács  | Institute of Data Analytics and Information Systems | ADINo09NABB                                         | Enterprise Data Analysis                  |                                                                                                         |  | yes |     |
| ADINo15NABB  | Data Wrangling – Project Course                 | C    | 0                        | 2               | 3      | pg         | spring                  |                       |                 |                       |                 | 3                     |                 |                       |      |        |               | Ildikó Borbásné Szabó                               | Institute of Data Analytics and Information Systems | ADINo05NABBA<br>DINo08NABB                | Advanced Database SystemsFundamentals of Statistics and Data Visualization                              |  |     | yes |
| ADINo16NABB  | Data-Driven Business Decisions – Project Course | C    | 0                        | 1               | 6      | pg         | fall                    |                       |                 |                       |                 |                       |                 | 6                     |      |        |               | Réka Franciska Vas                                  | Institute of Data Analytics and Information Systems | OPDOo03NABB<br>ADINo14NABB<br>ADINo12NABB | Machine Learning in Practice II. Data Warehousing and Business Analytics Large-Scale Data Architectures |  |     | yes |
| PENZo02NABB  | Corporate Finance                               | C    | 2                        | 2               | 6      | ex         | fall                    |                       |                 |                       |                 | 6                     |                 |                       |      |        |               | Nóra Ágota Felföldi-Szűcs                           | Institute of Finance                                | ADINo08NABB<br>SZAMo10NABB                | Fundamentals of Statistics and Data Visualization Foundations of Accounting                             |  |     | yes |
| PENZo03NABB  | Financial Market Data Analysis – Project Course | C    | 2                        | 2               | 6      | pg         | spring                  |                       |                 |                       |                 |                       | 6               |                       |      |        |               | Samet Günay                                         | Institute of Finance                                | ADINo10NABB<br>PENZo02NABB                | Statistical Modelling Corporate Finance                                                                 |  |     | no  |
| ADINo17NABB  | Statistical Methods for Time Series             | C    | 0                        | 4               | 6      | pg         | fall                    |                       |                 |                       |                 | 6                     |                 |                       |      |        |               | Tibor Keresztély                                    | Institute of Data Analytics and                     | ADINo10NABB                               | Statistical Modelling                                                                                   |  |     | no  |

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|-------------------------------------------------|--------------------------------------------|------|--------------------------|-----------------|--------|------------|-------------------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|------|--------|-----------------------|-----------------------------------------------------|----------------------------|-------------------------------------------------------------------------|-------------|--|-----|
|                                                 |                                            |      | 1                        | 2               |        |            |                         | 3                     | 4               | 5                     | 6               | 7                     | 8               | Code                  | Name |        |                       |                                                     | Code                       | Name                                                                    |             |  |     |
|                                                 |                                            |      | Fall semester            | Spring semester |        |            |                         | Fall semester         | Spring semester | Fall semester         | Spring semester | Fall semester         | Spring semester |                       |      |        |                       |                                                     |                            |                                                                         |             |  |     |
|                                                 |                                            |      |                          |                 |        |            |                         |                       |                 |                       |                 |                       |                 |                       |      |        |                       | Information Systems                                 |                            |                                                                         |             |  |     |
| ADINo18NABB                                     | Machine Learning in Practice I.            | C    | 2                        | 2               | 6      | ex         | fall                    |                       |                 |                       |                 | 6                     |                 |                       |      |        | Szabina Eszter Fodor  | Institute of Data Analytics and Information Systems | ADINo10NABB                | Statistical Modelling                                                   |             |  | no  |
| OPDOo03NABB                                     | Machine Learning in Practice II.           | C    | 2                        | 2               | 6      | ex         | spring                  |                       |                 |                       |                 |                       | 6               |                       |      |        | Ádám Balázs Csapó     | Institute of Data Analytics and Information Systems | ADINo18NABB<br>ADINo17NABB | Machine Learning in Practice I. Statistical Methods for Time Series     |             |  | yes |
| ADINo19NABB                                     | Text Mining and Analysis                   | C    | 2                        | 2               | 6      | pg         | spring                  |                       |                 |                       |                 |                       | 6               |                       |      |        | Andrea Kő             | Institute of Data Analytics and Information Systems |                            |                                                                         |             |  | yes |
| OPDOo04NABB                                     | Network Analysis                           | C    | 2                        | 2               | 6      | ex         | fall                    |                       |                 |                       |                 |                       |                 | 6                     |      |        | Balázs Róbert Sziklai | Institute of Operations and Decision Sciences       | ADINoo8NABB<br>ADINoo3NABB | Fundamentals of Statistics and Data Visualization Advanced Programmin g |             |  | no  |
| Compulsory elective subjects                    |                                            |      |                          |                 |        |            |                         | 0                     | 0               | 0                     | 0               | 0                     | 9               | 9                     | 0    | 18     |                       |                                                     |                            |                                                                         |             |  |     |
| Business Administration (minimum of 15 credits) |                                            |      |                          |                 |        |            |                         | 0                     | 0               | 0                     | 0               | 0                     | 6               | 9                     | 0    | 15     |                       |                                                     |                            |                                                                         |             |  |     |
| FENTO17NABB                                     | Methods for Economic Geographical Analyses | CE   | 0                        | 2               | 3      | pg         | spring                  |                       |                 |                       |                 |                       | 3               |                       |      |        | Ágnes Jeneyné Varga   | Institute of Sustainable Development                |                            |                                                                         |             |  | no  |
| ADINo21NABB                                     | Data Science in Supply Chain Management    | CE   | 0                        | 2               | 3      | pg         | spring                  |                       |                 |                       |                 |                       | 3               |                       |      |        | Tibor Kovács          | Institute of Data Analytics and Information Systems | ADINo17NABB                | Statistical Methods for Time Series                                     |             |  | yes |

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|--------------|---------------------------------------------|------|--------------------------|-----------------|--------|------------|-------------------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|------|--------|----------------------|-----------------------------------------------------|----------------|-----------------------|-------------|--|-----|
|              |                                             |      | 1                        | 2               |        |            |                         | 3                     | 4               | 5                     | 6               | 7                     | 8               | Code                  | Name |        |                      |                                                     | Code           | Name                  |             |  |     |
|              |                                             |      | Fall semester            | Spring semester |        |            |                         | Fall semester         | Spring semester | Fall semester         | Spring semester | Fall semester         | Spring semester |                       |      |        |                      |                                                     |                |                       |             |  |     |
| VGDE034NABB  | Decision Techniques                         | CE   | 1                        | 3               | 6      | pg         | spring                  |                       |                 |                       |                 |                       | 6               |                       |      |        | Julianna Kiss        | Institute of Operations and Decision Sciences       | 293NBUSK276B   | Business Economics    |             |  | no  |
| NPGG046NABB  | Global Sustainability Challenges            | CE   | 2                        | 2               | 6      | ex         | spring                  |                       |                 |                       |                 |                       | 6               |                       |      |        | Zsófia Vetőné Móznér | Institute of Sustainable Development                |                |                       |             |  |     |
| ADIN022NABB  | Cases on Business IT management             | CE   | 0                        | 4               | 6      | pg         | fall                    |                       |                 |                       |                 |                       |                 | 6                     |      |        | Péter Fehér          | Institute of Data Analytics and Information Systems | 293NBUSK276B   | Business Economics    |             |  | no  |
| VALL002NABB  | Analysis of Sports Economy Data             | CE   | 1                        | 1               | 3      | pg         | fall                    |                       |                 |                       |                 |                       |                 | 3                     |      |        | Attila Kajos         | Institute of Entrepreneurship and Innovation        |                |                       |             |  | yes |
| OPDO006NABB  | Data Science in Health Economics            | CE   | 1                        | 1               | 3      | pg         | fall                    |                       |                 |                       |                 |                       |                 | 3                     |      |        | László Mohácsi       | Institute of Data Analytics and Information Systems | ADIN010NABB    | Statistical Modelling |             |  | no  |
| OM00001NMBB  | Erasmus semester abroad subject - 3 credits | CE   |                          |                 | 3      |            | fall, spring            |                       |                 |                       |                 |                       |                 |                       |      |        |                      | Education Management                                |                |                       |             |  |     |

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| Subject code                                      | Subject name                                | Type | Number of hours per week |                 | credit | evaluation | fall or spring semester | 2023/24 Academic year |                 | 2024/25 Academic year |                 | 2025/26 Academic year |                 | 2026/27 Academic year |      | Credit | course leader         | Institute                                           | Pre-requisites |                                     | Equivalents |  | PSO |
|---------------------------------------------------|---------------------------------------------|------|--------------------------|-----------------|--------|------------|-------------------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|-----------------|-----------------------|------|--------|-----------------------|-----------------------------------------------------|----------------|-------------------------------------|-------------|--|-----|
|                                                   |                                             |      | 1                        | 2               |        |            |                         | 3                     | 4               | 5                     | 6               | 7                     | 8               | Code                  | Name |        |                       |                                                     | Code           | Name                                |             |  |     |
|                                                   |                                             |      | Fall semester            | Spring semester |        |            |                         | Fall semester         | Spring semester | Fall semester         | Spring semester | Fall semester         | Spring semester |                       |      |        |                       |                                                     |                |                                     |             |  |     |
| OM00004NMBB                                       | Erasmus semester abroad subject - 6 credits | CE   |                          |                 | 6      |            | fall, spring            |                       |                 |                       |                 |                       |                 |                       |      |        |                       | Education Management                                |                |                                     |             |  |     |
| OM00008NMBB                                       | Erasmus semester abroad subject - 6 credits | CE   |                          |                 | 6      |            | fall, spring            |                       |                 |                       |                 |                       |                 |                       |      |        |                       | Education Management                                |                |                                     |             |  |     |
| Mathematics and Statistics (minimum of 3 credits) |                                             |      |                          |                 |        |            |                         | 0                     | 0               | 0                     | 0               | 0                     | 3               | 0                     | 0    | 3      |                       |                                                     |                |                                     |             |  |     |
| ADIN023NABB                                       | Statistical Methods for Panel Data          | CE   | 0                        | 2               | 3      | pg         | spring                  |                       |                 |                       |                 |                       | 3               |                       |      |        | Tibor Keresztély      | Institute of Data Analytics and Information Systems | ADIN017NABB    | Statistical Methods for Time Series |             |  | yes |
| OPDO007NABB                                       | Operational Research                        | CE   | 0                        | 2               | 3      | pg         | fall                    |                       |                 |                       |                 |                       |                 | 3                     |      |        | Kolos Csaba Ágoston   | Institute of Operations and Decision Sciences       |                |                                     |             |  | no  |
| OM00005NMBB                                       | Erasmus semester abroad subject - 3 credits | CE   |                          |                 | 3      |            | fall, spring            |                       |                 |                       |                 |                       |                 |                       |      |        |                       | Education Management                                |                |                                     |             |  |     |
| Thesis                                            |                                             |      |                          |                 |        |            |                         | 0                     | 0               | 0                     | 0               | 0                     | 0               | 3                     | 7    | 10     |                       |                                                     |                |                                     |             |  |     |
| ADIN024NABB                                       | Thesis work I.                              | C    |                          |                 | 3      | pg         | fall                    |                       |                 |                       |                 |                       |                 | 3                     |      |        | Ildikó Borbásné Szabó | Institute of Data Analytics and Information Systems |                |                                     |             |  | yes |
| ADIN025NABB                                       | Thesis work II.                             | C    |                          |                 | 7      | pg         | spring                  |                       |                 |                       |                 |                       |                 |                       | 7    |        | Ildikó Borbásné Szabó | Institute of Data Analytics and Information Systems | ADIN024NABB    | Thesis work I.                      |             |  | yes |
| Elective courses                                  |                                             |      |                          |                 |        |            |                         | 0                     | 0               | 0                     | 0               | 0                     | 6               | 6                     | 0    | 12     |                       |                                                     |                |                                     |             |  |     |

**BNÜZAD22ABP - Data Science in Business bachelor programme in Budapest, in English, full time training Curriculum for 2023/2024. (1.) fall semester for beginning students**

| Subject code      | Subject name                                                                                 | Type | Number of hours per week |   | credit | evaluation | fall or spring semester | 2023/24 Academic year |    | 2024/25 Academic year |    | 2025/26 Academic year |    | 2026/27 Academic year |      | Credit | course leader         | Institute                                           | Pre-requisites |      | Equivalents   |                 | PSO |
|-------------------|----------------------------------------------------------------------------------------------|------|--------------------------|---|--------|------------|-------------------------|-----------------------|----|-----------------------|----|-----------------------|----|-----------------------|------|--------|-----------------------|-----------------------------------------------------|----------------|------|---------------|-----------------|-----|
|                   |                                                                                              |      | 1                        | 2 |        |            |                         | 3                     | 4  | 5                     | 6  | 7                     | 8  | Code                  | Name |        |                       |                                                     | Code           | Name |               |                 |     |
|                   |                                                                                              |      |                          |   |        |            |                         |                       |    |                       |    |                       |    |                       |      |        |                       |                                                     |                |      | Fall semester | Spring semester |     |
|                   | Foreign language                                                                             | E    |                          |   | 3      |            | fall, spring            | 3                     | 3  |                       |    |                       |    |                       |      |        |                       | Centre of Foreign Language Education and Research   |                |      |               |                 | yes |
|                   | the full list of elective courses for bachelor students (in English) are available in Neptun | E    |                          |   |        |            | fall, spring            |                       |    |                       |    |                       | 6  | 6                     |      |        |                       |                                                     |                |      |               |                 |     |
| Criterion courses |                                                                                              |      |                          |   |        |            |                         | 0                     | 0  | 0                     | 0  | 0                     | 0  | 0                     | 0    | 0      |                       |                                                     |                |      |               |                 |     |
|                   | Sports/Physical Education                                                                    | CR   | 0                        | 2 | 0      | a          |                         | 0                     | 0  |                       |    |                       |    |                       |      |        |                       |                                                     |                |      |               |                 |     |
| IOK0001NABB       | Hungarian Language SHI I.*                                                                   | E/C  | 0                        | 4 | 3      | pg         | fall                    | 3                     |    |                       |    |                       |    |                       |      |        | Judit Magyar          | Centre of Foreign Language Education and Research   |                |      |               |                 | no  |
| IOK0004NABB       | Hungarian Language SHI II.*                                                                  | E/C  | 0                        | 4 | 3      | ex         | spring                  |                       | 3  |                       |    |                       |    |                       |      |        | Judit Magyar          | Centre of Foreign Language Education and Research   |                |      |               |                 | no  |
| Internship        |                                                                                              |      |                          |   |        |            |                         | 0                     | 0  | 0                     | 0  | 0                     | 0  | 0                     | 20   | 20     |                       |                                                     |                |      |               |                 |     |
| ADIN026NABB       | Internship                                                                                   | C    |                          |   | 20     | pg         |                         |                       |    |                       |    |                       |    |                       | 20   |        | Ildikó Borbásné Szabó | Institute of Data Analytics and Information Systems |                |      |               |                 |     |
| Credits overall   |                                                                                              |      |                          |   |        |            |                         | 30                    | 30 | 30                    | 30 | 30                    | 33 | 30                    | 27   | 240    |                       |                                                     |                |      |               |                 |     |

**Remarks**

Type: C-compulsory courses, CE-core elective courses, E-elective (optional) courses CR-Criterion courses

Methods of assessment: ex-exam (exam at the end of the semester, but other forms of assessment are possible during the semester), pg- grade based on the practical assignments given during the course of the semester, a=signature, ce- Comprehensive examination

A subject that can be completed in a preferential study order (PSO) on the basis of Section 92 of the Study and Examination Regulation (TVSZ).

**Physical education**

Physical education is a criterion subject, the condition for obtaining a diploma is the completion of two semesters. The two semesters of physical education can be completed at any time during the program. Students who have fulfilled the criterion can only take the subject in the form of reimbursement for a fee.

**Foreign language**

During their studies, students can study a foreign language free of charge for two semesters, including a specific language, within the framework of the elective subjects.

Students who have completed two semesters of language subjects may take additional language subjects only upon payment of a specified fee.

**Curriculum**

It is recommended to include the subjects in the schedule according to the sample curriculum. The student may deviate from this, taking into account:

1. the pre-study order,
2. semester of announcing subjects
3. completion of an average of 30 credits per semester
4. in addition to the compulsory subjects, students may take elective subjects from the offer of elective subjects (see Neptun) as well as foreign languages.
5. a minimum of 2/3 of the required amount of credit must be completed at Corvinus University.

\*: Hungarian Language is a compulsory subject for the students participating in the Stipendium Hungaricum scholarship program in the first two semesters.

The detailed rules related to the admission of the subjects and the completion of the subjects are included in the Study and Examination Regulations!

Please note that curriculum changes are possible!