



Fakultät für Ingenieurwesen
Facoltà di Ingegneria
Faculty of Engineering

Master in Computing for Data Science

2024/25



At a glance

Degree class: LM-18
ECTS credits: 120
Duration of the course: 2 years
Courses will be taught in English
Places available: 40 EU + 20 non-EU
Campus: Bozen-Bolzano
Tuition fees: ca. € 1350 per year

Course description

We live in a digital society. Human and automated activities continuously generate data, storing them in digital format. These data come from everywhere: enterprise information systems, social media, wearable equipment, and many more.

Data are like crude oil: unrefined, they are useless.

In our programme, we teach you how to become a computational data scientist, i.e. a computer scientist specialised in the development of next-generation information systems.

Data science sits at the interface between computer science, mathematics, and application domains. Our study programme covers all these areas: computer science and IT methods for managing and engineering big and complex data, mathematical tools for data interpretation and analysis, artificial intelligence techniques to extract insights from data and support decision makers, and aspects of human-computer interaction. You will participate in cutting-edge research, and apply your skills to real data from actual application domains, such as business information systems, travel and tourism, bioinformatics, healthcare, internet of things, industry 4.0, agriculture, and many more.

For your final thesis you will collaborate on research projects with major industries - such as IBM, Oracle, Siemens, and with leading research institutions, such as TU Wien, TU München and Politecnico di Milano.

Online Info Sessions

We offer online information sessions in the coming months during which the master programme will be presented and where interested students can address their questions to professors and students. The Info Sessions take place on the following days:

- Wednesday, 13 March 2024, 17:00 (CET): [register here](#)
- Wednesday, 10 April 2024, 17:00 (CET): [register here](#)

Structure of the course

Students can choose between two curricula:

- **Data Analytics** focuses on data interpretation and analysis using techniques from mathematics, statistics, and machine learning, and on the development of IT applications to retrieve and explore data, extract insights from data, and visualise the obtained results.
- **Data Management** deals with computer science and artificial intelligence methods for the development of IT architectures and information systems supporting data modeling, access, integration, and processing, as well as the corresponding decision making and business processes.

Students who prefer not to follow one of the proposed curricula can customise their studies by selecting from the curriculum-specific courses of the two curricula.

Study Plan - Curriculum Data Analytics

1st Year

- 6 CP Data Management Technologies
- 6 CP Mathematics and Statistics for Data Science
- 12 CP Programming and Visualisation for Data Science
 - 6 CP Data Visualisation and Exploration
 - 6 CP Programming for Data Science
- 6 CP Information Systems Design
- 6 CP Artificial Intelligence
- 6 CP Machine Learning
- 6 CP Semantic Technologies
- 6 CP Curriculum-specific course*
- 6 CP Curriculum-specific course*

2nd Year

- 12 CP Data Curation
 - 6 CP Data Preparation and Integration
 - 6 CP Data Profiling
- 6 CP Capstone Project
- 6 CP Curriculum-specific course*
- 12 CP Free Choice**
- 4 CP Advanced English for Scientific Communication
- 20 CP Thesis

*Curriculum-specific lectures

- 6 CP Advanced Statistics
- 6 CP Recommender Systems
- 6 CP Deep Learning

** Students can advance or postpone Free Choice exams freely.
Free Choice suggestion: Information Retrieval

Study Plan - Curriculum Data Management

1st Year

- 6 CP Data Management Technologies
- 6 CP Mathematics and Statistics for Data Science
- 12 CP Programming and Visualisation for Data Science
 - 6 CP Data Visualisation and Exploration
 - 6 CP Programming for Data Science
- 6 CP Information Systems Design
- 6 CP Artificial Intelligence
- 6 CP Machine Learning
- 6 CP Semantic Technologies
- 6 CP Curriculum-specific course
- 6 CP Curriculum-specific course

2nd Year

- 12 CP Data Curation
 - 6 CP Data Preparation and Integration
 - 6 CP Data Profiling
- 6 CP Capstone Project
- 6 CP Curriculum-specific course*
- 12 CP Free Choice**
- 4 CP Advanced English for Scientific Communication
- 6 CP Thesis

*Curriculum-specific lectures

- 6 CP Data and Process Modelling
- 6 CP Human Computer Interaction
- 6 CP Algorithms for Data Science

** Students can advance or postpone Free Choice exams freely.

Free Choice suggestion: Enterprise Digital Transformation

Exchange programmes and internships

Currently we offer exchange programmes with partner universities all over the world and we are part of a large network of collaboration with employers in Italy and abroad where you can undertake an **optional internship** with a maximum of 300 hours.

Career opportunities

Graduates enter the labour market as Machine Learning Engineers and Data Architects, key roles in the development of IT solutions for data science.

Machine Learning Engineers are sought after in all those business and organisational contexts, by no means limited to IT, where it is crucial to analyse, interpret and extract knowledge from big data and complex, heterogeneous datasets.

Data Architects hold technical and coordinating roles for data management within companies and organisations operating in the IT sector, or with a complex network of IT systems dependent on heterogeneous data sources.

Possible fields of employment include the sectors of finance, retail, e-commerce, marketing, Industry 4.0, public administration, but also applied sciences such as physics, biology, medicine, life sciences and environmental sciences. This also extends to scientific institutes, laboratories and universities.

On the website of **AlmaLaurea** you can check our outstanding statistical **data about the satisfaction of our graduates**, and their employability.



Master in Computing for Data Science

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Application and Admission

You can find all you need to know in order to apply and gain admission to this study programme by browsing through the information below.

Deadlines and important dates

Early Bird Application

Application: 01/03 - 07/05/2024 (by noon local time)

Language exams (online): 18/03/2024 (registration: 01 - 10/03/2024) and 17 - 18 - 19 and 22 - 23/04/2024 (registration: 25/03 - 09/04/2024)

Publication of ranking lists: by 28/05/2024

Payment of the 1st instalment of the tuition fees: by 06/06/2024 (by noon local time)

Enrolment: from 12/07 - 15/10/2024 (by noon local time)

Late Application (only for EU citizens)

Application: 29/05 - 10/07/2024 (by noon local time)

Language exams (online): 24 - 29/06/2024 (registration: 29/05 - 16/06/2024)

Publication of ranking lists: by 30/07/2024

Payment of the 1st instalment of the tuition fees: by 06/08/2024 (by noon local time)

Enrolment: from publication of the ranking list until 15/10/2024 (by noon local time)

Additional Application Session (only for EU citizens)

The Faculty can open additional application sessions for single study programmes in September if there are available spaces. More information on additional sessions will be published in due course.

Preparatory courses and Freshers Days

Freshers Days: 30/09 - 01/10/2024

1st semester

Classes: 30/09 - 23/12/2024

Holidays: 24/12/2024 - 06/01/2025

Classes: 07/01 - 25/01/2025

Exams: 27/01 - 15/02/2025

2nd semester

Classes: 03/03 - 17/04/2025

Holidays: 18- 21/04/2025

Classes: 22/04 - 14/06/2025

Exams: 16/06 - 12/07/2025

Autumn session

Exams: 25/08 - 27/09/2025

Available places

EU citizens and citizens given parity of treatment

Early Bird Application: 30

Late Application: 10

Non-EU citizens (living abroad)

Early Bird Application: 20

The programme will only be offered if a minimum of 12 newly enrolled students is reached.

Entry requirements

In order to gain admission you need:

1. one of the following admission titles:
 - a bachelor degree or an equivalent qualification according to the previous regulations obtained in Italy;
 - an equivalent qualification obtained abroad.
2. the following curricular requirements obtained through bachelor degrees, master degrees, or single subject courses:
 - at least 12 ECTS credits in Computer Science = scientific-disciplinary sectors INF/01 or ING-INF/05 in Italian universities;
 - at least 6 ECTS credits in mathematics or statistics = scientific-disciplinary sectors MAT/01 or MAT/05 or MAT/08 or SECS-S/01 or SECS-S/02 in Italian universities;
 - at least a further 12 ECTS credits in the above-mentioned areas, or in physics and mathematical physics = scientific-disciplinary sectors MAT/07 or FIS/01 or FIS/02 in Italian universities.

For candidates with a qualification obtained abroad the verification of the curricular requirements is based on the specific contents of the educational activities.

If you have not yet graduated at the time of application:

You can apply if you have acquired at least 120 credit points (ECTS). In this case you will be admitted conditionally submitting your diploma by the enrolment deadline.

If you graduate after the enrolment deadline:

You cannot enrol and you will lose your place, which will be offered to the subsequent applicant in the ranking list. In this case you should not pay the tuition fees to secure your admission. You will be able to submit a late enrolment request and, only if there still are

available places, you can enrol by 13 December 2024.

To be admitted you must fulfil the language requirements indicated in the section “Language requirements”.

According to national regulations, simultaneous enrolment in a maximum of 2 programmes is possible (however, the two programmes must not belong to the same class, e.g., LM-18/LM-18 and must differ for at least 2/3 of the course contents).

Language requirements

The official teaching language is English. Therefore, the following language requirements apply, otherwise you will be excluded from the admission procedure:

Entry level (to gain admission)

English: B2

The levels of the Common European Framework of Reference apply.

You can demonstrate your language proficiency in the application portal (in the section “upload language certificates” and/or “enrol for language exams”) after you have created an application in the section “create/manage applications”.

- In case your final certificate has been awarded by an **Italian** public institution, you need to submit a self-declaration.
- In case your final certificate has been awarded by a **foreign** public institution, you need to upload diploma scanned copy of the original.

You can demonstrate language proficiency through:

1. **the main teaching language in your final high school year**, if English (recognised as C1)
Foreign qualifications: If the main teaching language is not clearly stated on your high school diploma, please also upload a letter/document issued by your high school stating the medium of instruction.
2. **a bachelor or master degree** in English (recognised as C1). unibz graduates must upload the language certificates obtained and/or declare that they have passed language exams at the unibz Language Centre (B2, B2+ or C1). **Foreign qualifications:** If the teaching language is not clearly stated on your University degree, please also upload a letter/document issued by your University stating the medium of instruction during your studies.
3. **a recognised language certificate** (see the list of recognised certificates) If you cannot upload the certificates, you can send them by e-mail as PDF files or deliver them in person to the Language Centre by the application deadline (see “Deadlines” section).
4. **language exams organised by the unibz Language Centre.** You can register for these exams online through the application portal (in the section “enrol for language exams”) after you have filled out your application in the section “create/manage applications”. The registration periods are indicated in the “Deadlines” section. If you start your application outside a language exams registration period, you must return to the portal during one of the periods indicated above in order to register for an exam. Information regarding the structure of the language proficiency exams, their duration, their administration, and typical processing time for the publication of the results can be found on the following

webpage.

For information on studying in three languages also visit the following page.

Online application

Your application must be submitted online through the Application Portal. The deadlines are indicated in the “Deadlines” section.

- You need to create an account and upload a valid ID card or passport (front/back). Please note: if your document is invalid, incomplete or unreadable, you will be excluded from the admission procedure;
- Fill in the online form and upload the attachments listed under “Admission procedure”;
- If you gained your qualification abroad, you must also upload the diploma of your qualification: if you are not yet in possession of the diploma, you’ll need to upload it upon enrolment;
- Complete and submit the online application by the deadline. Once the application has been sent, it cannot be modified. Filled-in forms which have not been sent correctly will not be taken into consideration.

Please note: Mendacious declarations will be criminally prosecuted and will result in the automatic exclusion from the ranking list.

EU-Citizens and equivalent

You might apply for more than one study programme. If you are excluded in the first session, you might apply again in the second one.

Considered as equivalent are:

1. Citizens from Norway, Iceland, Liechtenstein, Switzerland, San Marino and the Vatican City State;
2. Non-EU citizens with a valid permit to stay in Italy (see article 39, paragraph 5 of decree no. 286 of 25.07.1998: “**permesso di soggiorno**” (residence permit) for work, family reasons, political or humanitarian asylum, religious reasons). In this case, you apply directly to the University as described above and must submit a copy of your valid permit to stay. A permit to stay for study reasons or a visa for tourism is **not**. If the permit has expired, you must attach a renewal request. **Please note** that if you do not upload the permit in the application portal, you will be automatically considered a non-EU citizen living abroad and therefore subject to the admission procedure through the Italian authorities in your country of origin.

Non-EU-Citizens (living outside of Italy)

Only one application period is offered. After the deadline it is not possible to apply anymore. Application fee: € 50.

Once the ranking list has been published, if you have gained admission, secure it by paying the first instalment and then start your visa application on the University portal. The application on University is mandatory, otherwise you will not be allowed to enrol. On University you can apply for one study programme only.

Admission procedure

The admission procedure is based on the evaluation of your study career.

Information on your study career:

- **Please download the excel file and the PDF** with the example of a filled in file from the application portal. Fill in both worksheets (tab “Admission title” and tab “Other university courses”) and upload it in the portal as an excel file.
- **If you graduated in Italy**, you must self-declare the exams passed, otherwise you will be excluded.
If you graduated abroad, you must upload your academic transcript, otherwise you will be excluded.
- **To be admitted** you must also certify **adequate language skills in English** (see section “Language requirements”).

Please note: mendacious declarations will be sanctioned by criminal law and will result in your automatic exclusion.

The evaluation criteria are:

- the admission title is scored up to 10 points based on the grade average obtained at the time of application;
- the score awarded for the study curriculum is weighed on the basis of the “Webometrics Ranking of World Universities”, proceeding as follows: **3 points** for universities in position **from 1 to 1000 in the ranking**; **2 points** for universities in position **from 1001 to 2000**; **1 point** for universities in position **from 2001 to 3000** in the ranking; **0 points** for universities in position **from 3001 onwards**;
- the possession of the curricular requirements does not give a score but is an admission prerequisite;
- the certificate of English language proficiency does not give a score but is an admission prerequisite.

Ranking lists

The Admission Committee will only evaluate the documents uploaded in the portal by the application deadline. The ranking lists will be published here and are only valid for the respective academic year.

Secure your admission and enrolment

If you have been admitted to more than one study programme, you can secure your admission for a maximum of 2 programmes by paying the designated rate twice. By confirming your place, you renounce admission to the other programmes.

1. Choose the study programme and pay the fees (to secure your admission) in the application portal.

The deadlines are indicated in the “Deadlines” section.

If you do not meet this deadline, you will automatically be excluded and the next applicant in the ranking list will be admitted.

For EU citizens and citizens given parity of treatment only: any remaining places of the early bird application, will be offered in the late application.

Please note that you do not gain full student status by only paying the tuition fees. This status will only be acquired upon enrolment. If you have secured your admission, there will be no refund of the tuition fees unless you do not pass your secondary school final exam or, in the event of non-EU applicants living abroad, you do not receive the documents necessary for enrolment from the Italian authorities in your country.

2. Enrol online in the application portal.

The deadlines are indicated in the “Deadlines” section.

Enrolment is recommended as early as possible, so you have the possibility to upload incomplete documents before the deadline.

If you do not meet the enrolment deadline, you will be excluded and the next applicant in the ranking list will be admitted.

Admission with reservation:

If you do not have the required academic qualification, you will be given a conditional offer for a study place and you must submit your qualification upon enrolment. If you achieve your qualification after the enrolment deadline, you cannot enrol, and you will lose your place which will be offered to the subsequent applicant in the ranking list. **Advice:** If you achieve your qualification after the enrolment deadline, you should not pay the tuition fees to confirm the study place. You will be able to submit a late enrolment request and, only if there are study places still available, you can enrol by 13 December 2024.

If you have gained your qualification abroad, you must upload:

- the diploma of your qualification
- the official translation of your diploma into Italian (not necessary if the diploma has been issued in German or English)
- the Diploma supplement, where it must be indicated: that you have achieved at least 180 credit points (ECTS) and that the qualification gives access to a master programme

In case the Diploma supplement is missing, you must upload the documents indicated below.

If you have gained your qualification abroad in one of the Countries that are signatory to the Lisbon Convention you must upload:

- the Statement of **Correspondence** of your qualification, to be downloaded from the ARDI - Automatic Recognition Database – Italy

If you have gained your qualification abroad in a country that is not a signatory to the Lisbon Convention, you must upload:

- the Statement of **Comparability** of your qualification, issued by the Italian Information Centre on Academic Mobility and Equivalence (CIMEA)
- the Statement of **Verification** of your qualification, issued by the Italian Information Centre on Academic Mobility and Equivalence (CIMEA)

unibz performs the necessary checks on your foreign qualification and in case of doubt reserves the right to request additional documents.

Please note that if you do not possess a valid admission qualification, you can be excluded with Rector's decree even after enrolment.

If you are a non-EU citizen living abroad:

If you are eligible for admission (check the ranking lists) and have also applied on University, the Italian Authorities in your own country will issue you the entry visa for studies/university.

This will allow you to arrive in Italy to enrol for the study programme that you have applied for, after passing the admission procedure.

According to Italian law, within 8 working days of your arrival in Italy, you must have applied for the residence permit: as soon as you arrive, get in touch with the Advisory Service and you will be given the necessary information for starting the procedure.

Once you will obtain your residence permit (permesso di soggiorno), you have to hand it in at the Student Secretariat personally or via e-mail.

Students intending to transfer from another Italian University to unibz must submit to the Student Secretariat - at the beginning of the academic year - a copy of the transfer application presented at the university of provenance.

Tuition fees

Fees amount to **€ 1373**

- **1st instalment (€ 773):** includes the provincial tax for the right to study of € 173 and a revenue stamp of € 16.
- **2nd instalment (€ 600):** must be paid by March of the following year.

Delayed payment of the second instalment will result in a fine being levied. If you have not paid the tuition fees, you will be unable to take exams and will not be able to transfer to other universities or other study programmes.

If you drop out of a programme, interrupt your studies or are excluded from studies, you are not entitled to reimbursement of the fees.

Exemption from the tuition fees (and the provincial tax) is granted to:

- Students with a disability recognized under article 3, paragraph 1, of Law No 104/1992, or with a disability up to or exceeding 66%: the disability certificate, issued by the health authorities, must be handed in at the beginning of the academic year.
- Foreign students who have been granted a scholarship from the Italian government.

Students who benefit from a scholarship granted by the Autonomous Province of Bozen-Bolzano are entitled to receive a refund of the tuition fees.

Recognition of credit points from previous studies

Credit points from previous university studies can only be recognised after enrolment if the

exams taken at the university of provenance are equivalent in content to those offered at unbz. You can fill out the application after enrolment.

The Advisory Service provides support regarding your choice of study. In many cases a simple call or a short request is enough to get the relevant information (Tel. +39 0471 012100).

Advisory Service

Opening Hours

Subject to change.
Latest update: 16.02.2024