

Student Handbook

Master's in Business Analytics degree program

2021/2022



In partnership with



NOVA SCHOOL OF
SCIENCE & TECHNOLOGY





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Welcome to the Nova School of Business & Economics, in our campus in Carcavelos!

Nova School of Business and Economics is an open community of insight and enterprise, dedicated to the creation of inspiring talent and meaningful solutions to improve and transform the World.

Our programs will help you discover where you can excel and have a meaningful impact; obtain the know-how and the attitude that breeds achievement and, ultimately, foster your individual and collective potential. We believe that it is our duty to stay at the forefront of innovation, sustaining excellence and rigor while preparing the leaders of tomorrow.

Congratulations! Thanks to your effort and hard work, you have entered one of the best ranked and also the most demanding schools, where you will have space, time and resources to support you to reach your goals.

Our mission is to be a community dedicated to the development of talent and knowledge that impacts the world.

Take advantage of all the services and events offered by the school. At Nova SBE you will benefit from rigorous teaching, focused on helping you to acquire scientific and technical knowledge, as well as developing your soft skills to ensure a complete education.

During the program, you will face many challenges. Don't forget that we are here to support you in many different ways.

You will also be surrounded by an international environment, so make the most of it and immerse yourself in the Nova way of life.

In this handbook, you will find academic information about your program, such as: calendars, procedures and rules & regulations. We have tried to make the information as clear as possible and request that whenever you have a question, start by consulting this manual.

As always, and more than ever, we are open to hear your insights and proposals to continue to improve Nova SBE.

Learn, grow and be happy here at Nova SBE!



**Professor
Daniel Traça,**
Dean



**Professor
Miguel Ferreira,**
President of the
Scientific Council



**Professora Ana
Balcão Reis,**
Bachelor's Director,
President of the
Pedagogical Council

I.

10 Things to Keep in Mind

1.

Read this guide carefully! It contains vital information for a successful Master. Ignorance of the rules and regulations enclosed cannot be used as an excuse for any action or conduct.

2.

Check your institutional e-mail and Student Hub regularly for announcements made by the Program Managers. Also keep your contact info, including mobile phone, up to date on Netpa, in case we need to contact you urgently.

3.

Be active in your job search! The Career Services will give you support and counselling, but it is entirely your responsibility to find a job.

4.

Commit to community life by engaging in the social activities proposed and leading your own activities. The Master's programs at Nova SBE are a communal endeavour by the class. You will have much to learn from your peers and from your teachers.

5.

Uphold the highest standards of integrity and honesty. Respect your colleagues and teachers. Enforcement of the code of conduct is extremely strict at the Nova SBE Masters. Severe penalties will be applied to any misconduct towards the Honor Code and class decorum.

6.

Do not quit a course! If you quit a course in the middle of the term you will get a "fail" on the course roster and Transcript.

7.

Check regularly your academic records through the online platform in order to avoid attendance of additional semesters.

8.

Live up to your financial obligations! Any late payment will imply payment of interests and delay fees.

9.

Bring your Student Card with you to Campus every day! You will need it to access facilities.

10.

Help us help you! All the procedures of your Master are handled by the Academic Services. You are entitled to a diligent and considerate service by the Team. Please be courteous and respectful: respect the Student Central hours and check for the information you need before contacting the Team.

Bridging Courses

Bridging courses are short intensive courses to help students with limited background in Mathematics, Programming, Economics, and/or Business. These courses help prepare students admitted into the Master’s Program by covering the essential skills and knowledge to help meet courses pre-requisites. The Programming course is particularly important, since day 1. The courses offered are as follow:

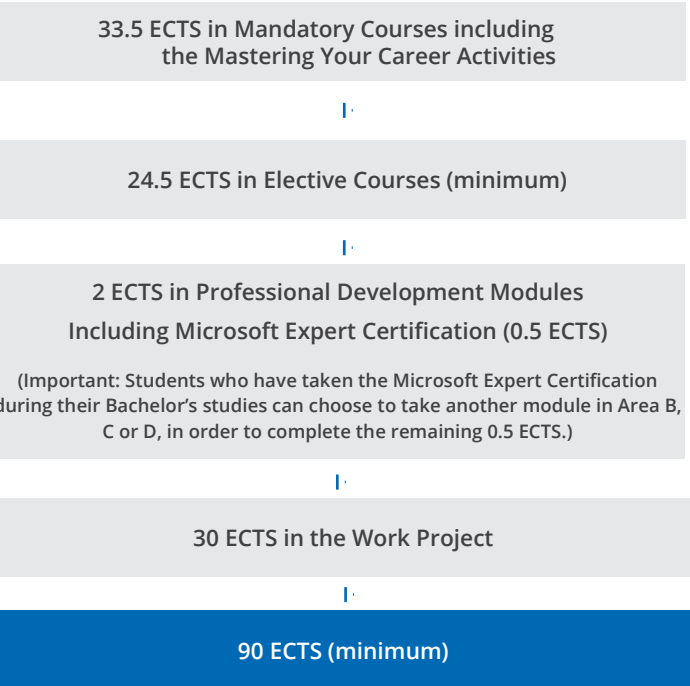
- **Maths & Stats**
- **Advanced Math & Stats for Economics**
- **Basics in Programming**
- **Introduction to Management**
- **Basic Microeconomics**

Master’ Structure

RECOMMENDED STRUCTURE

ENTRY IN	SEP-DEC	JAN	FEB-MAY	MAY-JUN	SEP-DEC
Fall 2021	Academic Semester 1	Professional Development Modules	Academic Semester 2	Professional Development Modules	Work Project Term (WP defense Jan 2023)

THE STANDARD ECTS CURRICULUM SHOULD UNFOLD AS FOLLOWS:



Requirements to Graduate

IN ORDER TO GRADUATE, STUDENTS MUST SATISFY ALL OF THE REQUIREMENTS BELOW:

- Pass all mandatory courses and Mastering Your Career Activities (33,5 ECTS).
- Approve 2 ECTS in Modules – each module is worth 0.5 ECTS (attendance of 1 module in each Area).
- Complete a minimum of 24,5 ECTS (max 52,5 ECTS) in elective course,. Only a maximum of 7 ECTS in courses outside this Program can be credited for the total amount of ECTS.
- Pass the Work Project - 30 ECTS.
- Complete a minimum of 90 ECTS (33,5 + 2 + 24,5 + 30).

International Track

For more information to have the International track mention, please **check the Student Handbook General Information Chapter X, page 27.**



How to calculate the Final Grade

The final classification of the Master's is calculated by the final classification of the Academic Curricular Average and the final classification of the Master's Work Project.

For the calculation, the Academic Curricular Average has **two unrounded decimal places**.

The final grade will be rounded to the nearest whole number, when the grade is equal or above XX.50 (e.g.: 14.50 will be rounded up to 15).

FORMULA FOR THE CALCULATION OF THE FINAL GRADE POINT AVERAGE:

GPA = Grade Point Average (final grade of the program)

WP = Work Project

CG = Course Grade

ACA = Academic Curricular Average

$$ACA = \sum_{\text{courses}} \frac{CG * \text{course ECTS}}{\text{Total number of courses ECTS}}$$

$$GPA = (ACA * .65) + (WP * .35)$$

Mastering Your Career and Development Modules do not count for final GPA.

Tuition Fees

REGULAR MASTERS STUDENT

- 11.900€ for the intake 2021/2022.
- The fee is charged in 4 instalments.

An additional fee will be charged per additional semester, for example, for students going on an Exchange program. The tuition fee for the additional semester is published annually and students must refer to the academic services for this information.

- **Deadlines:**
 - 1st instalment** – paid by the student during the application period
 - 2nd instalment** – by July 7th, 2021
 - 3rd instalment** – by February 15th, 2022
 - 4th instalment** – by September 15th, 2022

If you are unable to make timely payment on your student account balance in full by the billing due date, the School provides an optional Payment Plan. Such Plan allows students to spread payment of anticipated tuition over an increased number of instalments for the entire academic year or for one semester only. Please, consult Moodle for additional information.

CEMS MIM STUDENT

Students enrolled in the CEMS MIM program will be subject to a different payment schedule in the MIM Year 2 (intake 2022/2023). Please contact the CEMS Office for more details.





Curriculum

FALL		SPRING	
1st Half	2nd Half	1st Half	2nd Half
2597 Advanced Data Analysis* (7 ECTS)		2487 Machine Learning (7 ECTS)	
2489 Data Curation (3,5 ECTS)	2489 Data Visualization for Business Analytics* (3,5 ECTS)	Elective	Elective
2606 Data Ecosystems and Governance in Organizations (3,5 ECTS)	2346 Modeling Business Decisions (3,5 ECTS)	Elective	Elective
Elective	2607 Digital Markets (3,5 ECTS)	Elective or WP	Elective or WP
2578 Mastering your Career (2 ECTS)			
Modules (2 ECTS)			

* Mandatory courses offered by the FCT
NOTE – Solid knowledge of Programming is required



Project Based Learning

The PBL is a unique learning experience. It allows students to work on a real-world data challenge from the very beginning of the program (supported by a team of professional mentors) where they can apply their knowledge and tools, as they learn it in class.

Students are also expected to learn and grow with their partner organizations, bridging the gap between the business challenge and the data science solution.

Students will be part of an interdisciplinary team which will be assigned a single data science project, that will last 12 months (2 semesters). After this, **students will be invited to present their main findings and methodology used in their Master thesis (optional).**

SELECTION CRITERIA

STEP 1 – Grade on the Technical Quiz: A Quiz, during T1, to evaluate students' skills in statistics and programming;

STEP 2 – If you want to apply for Project-Based Learning (PBL) you must enroll in the **'Project Scoping' course** (elective, T1). Intermediate/ Final grade in this course will be considered.

STEP 3 – Soft Skills & Interview (if needed)

For each candidate (that passes the 1st and 2nd phases of the selection process) we will ask their T1 instructors to help us filling a table evaluating these skills. In case more information is needed, an interview will be scheduled with the candidate.

ADVANTAGES FOR STUDENTS

- Get 12-18 months of work experience with a data-driven organization;
- Improve your skills with a real-world data challenge;
- Learn with your peers and Data Science Professionals;
- Understand how to use data to solve world and organizational pressing challenges;
- Improve your chances to get hired and to connect with business professionals.

NOTE: Available Data Challenges for 2021/ 2022 will be shared with Students at the beginning of the program.

HOW IT WORKS

- Each project will be developed by a team of **4-5 Master students** from diverse backgrounds, for **12 months**;
- Each team will be supported by a **Data Science Mentor**, a senior professional with a strong technical background that will uphold the team's major decisions;
- Each team will also be supported by a **Project Manager (PM)/ Translator**, a senior professional with a strong experience managing technical projects. The PM will contribute to the team's understanding of the partner's needs, facilitate interactions between all the parties and make sure the project is performed according to the timeline;
- Data Science Projects will be developed together with a **Project Partner** (Company/ NGO/ Government Agency), that will share a data challenge to be scoped and developed by the team;
- Selected students will be automatically enrolled in the 'Business Analytics Special Project' course.

EXAMPLES OF POTENTIAL DATA CHALLENGES

- Identifying children at risk of not being vaccinated to improve vaccination rates (**Health**);
- Defining a data-driven approach to sustainable tourism management (**Tourism**);
- Predicting the new mobility patterns in the post-covid19 period (**Mobility**);
- Predicting credit default risk in the banking sector (**Banking**);
- Reducing corruption in public procurement processes (**Government Transparency**);
- Creating a product to segment donors and predict donor churn (**Non-Profit Sector**).

CONSEQUENCES IN CASE OF WITHDRAWAL

You can drop PBL until the end of T1. Because quitting has a significant impact in the size of the teams and its members, some penalties apply for students who quit after this period:

- Fail in Business Analytics Special Project course;
- Less points, corresponding to 7 ECTS, for the Spring semester bidding period, but that can be partially recovered in the following Add/ Drop period;
- Lose merit scholarship;
- The failed course will show on the final transcript of records.

II. Master’s in Business Analytics

Electives Master’s in Business Analytics

PERIOD	CODE	COURSE	SECTION	ECTS	FACULTY	PERIOD	CODE	COURSE	SECTION	ECTS	FACULTY
T3	2612	Advanced Programming for Data Science	TA/TB	3.5	Luís Guimarães	T2/T4	2493	Marketing Analytics	TA	3.5	Carlos Santos
T1/T2	2621	Algorithmic governance	TA	3.5	Leid Zejnilovic	T1	2641	Modeling Business decisions for Operations	TA/TB	3.5	Sreyaa Guha
T4	2440	Big Data Analysis	TA/TB	3.5	Carlos Santos	T3	2623	Network Analytics	TA/TB	3.5	Rodrigo Belo
T3/T4	2622	Blockchain fundamentals	TA	3.5	Leid Zejnilovic	T2	2736	Numerical Methods for Economics and Finance	TA	3.5	André de Castro Silva
S2	2610	Business Analytics Special Project	TA	7	Patrícia Xufre	T2/T4	2465	Open Innovation	TA	3.5	João Castro
T2/T4	2448	Business Model Innovation	TA	3.5	João Castro	T1	2359	Operations Management	TA	3.5	Utku Serhatli
T2	2452	Business Strategy and Practice	TA	3.5	Luís Rodrigues	T4	2359	Operations Management	TA/TB	3.5	Utku Serhatli
T4	2452	Business Strategy and Practice	TA/TB	3.5	Luís Rodrigues	T4	2451	Operations Strategy	TA	3.5	Utku Serhatli
T3	2371	CIRCULAR ECONOMY: Eliminate, Circulate and Regenerate*	TA	3.5	Luis Veiga Martins	T1/T3	2481	Product Design and Development	TA	3.5	João Castro
T1	2128	Competition Policy	TA	3.5	Pedro Pita Barros	T1	2599	Project scoping	TA	3.5	Lénia Mestrinho
T3	2494	Computational Thinking and Data Science (includes Applied Statistics)	TA	3.5	Patrícia Xufre	T3	2614	Revenue Management	TA	3.5	Duarte Pimentel
T3	2329	Consumer and Managerial Decision Making	TA/TB	3.5	Luis Martinez	T2/T4	2588	Science-Based Entrepreneurship and Innovation	TA	3.5	Nuno Arantes e Oliveira
T3/T4	2616	Cracking the Sales Code	TA	3.5	Filipe Simões de Almeida	T1/T3	2643	Social Media Marketing	TA	3.5	António Marinho Torres
T1/T3	2389	Customer Relationship Management	TA	3.5	Elizabete Cardoso	T1	2496	Strategic Foresight and Scenario Planning	TA/TB	3.5	António Alvarenga
S2	2280	Data Analytics for Finance	TA/TB	7	Nicholas Hersey	T3	2496	Strategic Foresight and Scenario Planning	TA/TB	3.5	António Alvarenga
T2/T3	2218	Derivatives	TA	3.5	João Amaro de Matos	T4	2592	Strategy Implementation	TA/TB	3.5	João Silveira Lobo
S2	2638	Design Thinking for Social Innovation	TA	7	Anne- Laure Fayard	T2/T4	2644	Sustainable Operations	TA	3.5	Utku Serhatli
T4	2442	Design and Construction of Data Centric Apps*	TA	3.5	Luís Caires	T3/T4	2468	Technology Strategy	TA	3.5	João Castro
T2/T4	2441	Digital Marketing	TA	3.5	António Marinho Torres	T1	2364	Venture Simulation	TA	3.5	António Marinho Torres
T2	2492	Doing Business in Emerging Markets	TA	3.5	Pedro Vargas David	T3	2615	Web and Cloud Computing	TA	3.5	Luís Caires / João Seco
T3	2467	E-Commerce	TA	3.5	David Bernardo	*These courses are considered as Outside program this academic year					
T1/T2	2269	Empirical Methods for Finance	TA/TB/TC	3.5	Virginia Gianinazzi						
S1	2220	Entrepreneurial Finance & Venture Capital	TA	7	Paulo Pinho						
S2	2220	Entrepreneurial Finance & Venture Capital	TA/TB	7	Francisco Queiro						
T1/T3	2332	Entrepreneurship	TA	3.5	Nadim Habib						
T4	2332	Entrepreneurship	TA/TB	3.5	Nadim Habib						
T3	2272	Financial Econometrics	TA	3.5	Paulo M. M. Rodrigues						
T1/T2	2270	Financial Modeling	TA/TB/TC	3.5	Afonso Eça						
T3/T4	2273	Fintech Ventures	TA	3.5	Afonso Eça						
T4	2397	Innovation Management	TA	3.5	António Marinho Torres						
S1	2477	Introduction to Programming	TA - TD	7	Ricardo Pereira						
S2	2477	Introduction to Programming	TA	7	Ricardo Pereira						



Professional Development Modules

The Modules are divided into 4 areas and the students must pass 1 module of each area according to their Master's Program. Each Module is worth 0.5 ECTS and is evaluated as Pass / Fail.

MODULE AREAS:

A – Quantitative Skills – 0.5 ECTS. Students can choose between:

MO Excel Expert Certification – 0.5 ECTS Important: Students who have taken the Microsoft Expert Certification during their Bachelor's studies can choose to take another module in Area B, C or D, in order to complete the remaining 0.5 ECTS.

Or

Celonis Certification – 0.5 ECTS

B – Ethics – 0.5 ECTS;

C – Corporate Links / Internationalization – 0.5 ECTS;

D – Communication and New Trends – 0.5 ECTS.

The list of modules will be available at the start of each semester. Enrollment in modules will be done through the bidding platform. The Modules are offered in January and end of May / June.

NOVA SBE OFFERS THE FOLLOWING LANGUAGE COURSES:

- Spanish Language Course
- Portuguese Language Course
- French Language Course

Attendance is mandatory. Depending on availability, students will attend the language course during one of the semesters at Nova SBE.

CEMS Master's in International Management (CEMS MIM) Students

Students in the CEMS MIM year one are students enrolled in one of the pre-experience Master's programs (in Economics, Finance, Management, Business Analytics, Impact Entrepreneurship & Innovation or International Development and Public Policy). During this first year you are expected to complete the curricular part of your Master's program including all mandatory requirements, but not the regular Work Project.

Instead, you will do a Business Project in the spring of your year two and complete a separate individual assignment. Guidelines on the articulation of the Business Project with this individual assignment are published in the beginning of the Spring Semester.

CEMS MIM students cannot apply to the PBL g. This component also contributes to the Work Project, which means it is designed for regular students only.

REQUIREMENTS

In order to start the MIM Year-Two, students should pass all mandatory courses of their Master's program and 60 ECTS at the end of the first year, including modules. **No elements of the pre-experience Master's program can be left behind.**

MIM Year-Two students must complete a total of 45 ECTS in MIM academic courses, 15 ECTS in the Business Project, 3 ECTS in the Block Seminar, 1 ECTS in the Global Citizenship, and 2 ECTS in other skills seminars.

The 8-week international internship can be done during the MIM Year-One or MIM Year-Two.

CREDIT TRANSFERS BETWEEN MSc AND MIM

By the end of the CEMS MIM program a maximum number of 15 ECTS is allowed to be transferred from the MSc to the MIM or from the MIM to the MSc. Only MIM elective courses can be double counted. Students transferring credits from the MIM to the MSc must respect all the requirements of their master's program. For example, MIM electives cannot be used to replace mandatory courses or required modules of the MSc.

Credits obtained at another CEMS School in Year-Two can only be converted to your Year-One Master's upon submission and acceptance of the Transfer of Exchange Credits form.

After application of all flexibility rules, a student must still successfully pass a minimum of 24 ECTS per term and will be able to credit a maximum 37.5 ECTS per term.

This includes courses, the Block Seminar, Global Strategy and Organization, Skill Seminars and the Business Project.

The CEMS Team can be contacted through mim@novasbe.pt.

All matters related with Year-One are to be addressed to the Masters Team; Matters related with Year-Two and generic CEMS MIM issues are dealt with by the CEMS Academic Director or CEMS Program Manager.

Nova SBE would like to thank Nian Canard, Francisco Nogueira and all students that contributed to the photos in this brochure.



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Disclaimer: the rules in this guide may be subject to change. Updated versions will be posted on Moodle.

Important Notes: students who have started their Master Program before Fall 2021 **MUST** follow the academic rules that were in place when they entered the Nova SBE Masters, unless they reapply for a change of Masters.

Notice: we strongly recommend students to read the General Information guide.