MiM Program Tracks

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Develop leaders who want
to have a deep, positive and
lasting impact on people,
firms and society through
Professional Excellence,
Integrity and a Spirit of
Service .

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Data & Analytics

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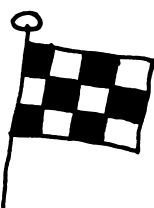
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1. Data Science for Business

The expression "data scientist" is trending these days in job descriptions, referred to a mix of data analysis skills and a background of programming languages and data bases.
It is, partially, a new name for an old job, since most of the methodology has been available for years. But **data science** is getting hot, owing to the explosion in the amount of data at hand (big data) and the technology for processing these data (cloud computing).

Data scientist is a broad job title coming in many forms, with the specific demands depending on the industry, the business and the role. So, certain skillsets suit certain positions better than others. Data scientists do not do anything essentially new. We have long had statisticians, analysts, and programmers. What is new is the way different skills are combined in a single profession.

The core competencies of the data scientist are the capture, analysis and presentation of the data, plus the development of data products, typically based on machine learning algorithms. This course focuses on the **capture and analysis of the data,** leaving the presentation for the Data Visualization course (DATAVIZ) and the data products for the Machine Learning course (ML).

A close relative of data science is data mining, born in the computer science field. This generic expression applies to a heterogeneous set of methods, used to extract information from large data sets. It is understood as "mining knowledge from data". The typical applications in management are usually related to Customer Relationship Management (CRM): market basket analysis, churn modeling, credit scoring, etc.

This course uses the **Python** language, which is, currently, the leading choice of data scientists, in fierce competition with R, a statistical language. Python is a programming language, introduced in 1991. About 2008, three packages were added to the Python portfolio; Pandas, for managing data sets, Matplotlib, for plotting, and scikit-learn, for machine learning. This trio put Python in the data analytics arena. Since then, its popularity has been growing steadily.

2. Introduction to Databases

A database is a set of related information. In the old times, that information was stored on paper. Nowadays, computer database systems have replaced the paper databases. Since they store data electronically rather than on paper, they are able to retrieve the information faster, and to index the data in multiple ways.

There are different ways to store and represent the data, but one of them, the **relational database** management system, has dominated the world of databases since the 1980's. For most users, database is a synonym of relational database. In relational databases, the data are organized in tables, with fields (columns) and records (rows). All the data in the same column are of the same type (numeric, text, etc.). The queries are operations which extract information from or several tables, typically by filtering and summarizing.

To build databases and interact with them, we use a language called **SQL.** Many people query databases using SQL unconsciously, since they communicate with a database server through a graphical interface, with drop down menus and mouse clicks. But SQL is still worth to know, because using in a direct way allows us to query databases in a more efficient way and it provides us with a better understanding of how information systems are structured. So, familiarity with SQL is a typical requisite in job descriptions.

What makes SQL so popular? First, that it can cope with practically any question you can write about your data, as far as they can be stored in a single server and fit in the relational format. Second, it is fast, compared to the alternatives at hand. It seemed, a few years ago, that the preeminence of SQL was over, as the big data wave, which brought the 3V challenge (volume, variety and velocity) gave birth to the so called NoSQL databases. But most of these new approaches to database management provide SQL-like interfaces, to make users comfortable.

Among the many possibilities, this course uses **PostgreSQL** for the specifics, but most of it can be translated to other database systems, either free or commercial, such as MySQL, SQL Server or Oracle.

3. Machine Learning

This course is a continuation of the Data Science course (DATA). It is focused on the creation of data products by means of **machine learning algorithms**, and it uses mainly the **Python library scikit-learn.**

Machine learning (ML) is a branch of **artificial intelligence** (AI). You may have heard about other branches, such as robotics, or speech recognition. The objective of machine learning is the development and implementation of algorithms which learn from data how to accomplish difficult or tiring tasks.

Nowadays, machine learning and artificial intelligence are no longer arcane subjects, and they are getting popular in the business world. Algorithms are regarded as something common in many organizations, and the ability of developing, maintaining and optimizing them is frequently included in job requests.

The ML approach to data analysis is not, as in statistics, based on the assumption that the data follow a model such as linear equation, and focused on estimating and testing the coefficients of the equation. Although we may consider a linear equation as a potential model (in practice we try more complex approaches), such assumptions are rarely made in machine learning.

The ML focus is put on how to learn from examples and how to generalize what learned, rather than on how to discover or estimate explicitly the true data generation process. The process of deriving an algorithm from the data is called training. An algorithm derived from a set of **training data** is typically tested on data that have not been involved on the obtaining the algorithm, referred to as **testing data.**

4. Data Visualization

In today's world, managers are expected to be proficient with their data visualizations. Hence, we have created a hands-on course that will help improve the substance and the design of your data-driven deliverables. The objectives for this course are to learn:

- How to create effective data-driven visuals.

- How to create interactive **dashboards** for business intelligence.

- The best practices for preparing data-driven live presentations.

- How to use **Tableau,** which is a leading software in the DataViz field.

5. Digital Strategy

In recent years, a wide range of digital technologies has disrupted many industries and organizations. This course is aimed as an introduction to digital strategy, and more specifically, platform strategy. There has been increasing interest in platforms and their strategic implications. Some of the most valued companies, such as Alibaba, Amazon, Facebook, and Google are at their core platform businesses. At the same time, long-lived companies such as General Electric realize they need to embrace platform thinking. We will explore, through case discussion, basic platform concepts and their **competitive, strategic,** and **regulatory** implications for **startups** and incumbent firms

By the end of this course, participants will be able:

- Critically understand the nature of **platform strategy** and the specific challenges of both (a) launching a new platform business and (b) developing platform thinking in a traditional business.

- Master the main **platform frameworks** and **concepts** that underpin platform strategy.

- Be able to analyze key **challenges** and **risks** associated with the formation and implementation of digital platform strategy.

This course is organized around the theme of **platform strategy**. We will discuss the emergence, strategic opportunities and challenges of platform business models. **Digital platforms** create opportunities to coordinate with a wide range of parties, helping to anticipate customer needs and meet them in more efficient and personalized ways. While digital platforms support new ways of interactions both within and across organizational boundaries, they also create new challenges for strategy making. On the one hand, digital platforms leverage new ways of value creation. On the other hand, there are multiple ways to capture and lose value.

The course employs active learning methods, using a combination of case discussions, workshops, as well as interactive lectures. In this course, case-based class discussions are supplemented with outside readings, articles, and student research on emerging technologies. Since the content of the course deals with a rapidly changing environment, we encourage you to stay up-to-date by reading specialized business press as well as technology websites and blogs.

The course requires no prior technical knowledge.

Strategy & Marketing

TRACK JOURNEY STARTS HERE!

1. Managing Small & Medium Size Companies

The MASME course addresses the problems of managing these kinds of firms. It uses all the concepts that you have been incorporating throughout the program in solving the issues that you find more frequently found in these firms.

From the most raveling issues regarding managing **working capital** to the management of **people** and **governance.** We will deal from the **start up** stage to **growth** and to **crisis** and business **transformation** through different cases, emphasizing at the end corporate **governance** issues.

2. Family Business: Next Generation

This course is designed to help students understand the specifics of family businesses and is particularly geared toward participants who, belonging to an **entrepreneurial family,** want to learn how to effectively manage their professional expectations. Many of the corporation giants whose contributions are now unquestioned began as family businesses. These companies often spanned beyond a century because their time unit is the **family generation,** not other time units set to provide information to financial analysts with different goals than the company owners, whose objective is often to pass the legacy on to the next generation.

This course is oriented precisely to that generation. It provides a solid conceptual foundation for those members of the **following generations** who seek the tools to reflect thoughtfully and orderly about their future role in the family business to which they belong.

Students who have grown up in a business family have the opportunity, but also the challenge to decide whether or not to join the family firm, and often have the choice of joining immediately or after acquiring external experience. Even if they decide not to join the firm, they may still remain involved as future **shareholders** or board **members.** And they will always be part of a business family.

The Family Business course relies on a combination of cases, interactive lectures, simulations, group work and application to one's own family and family business context. This approach aims to provide students with a balance of state-of-the-art frameworks and practical knowledge, with the tools to contribute to their family firms' future in different roles as family, owners, board members and/or executives.

MANAGING SMALL & MEDIUM SIZE COMPANIES
1

FAMILY BUSINESS: NEXT GENERATION
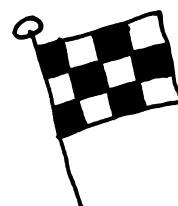2

SUSTAINABILITY: LEADERSHIP FOR A BETTER WORLD
3

EXECUTE! IMPLEMENT STRATEGY AND GET THINGS DONE
4

5
MARTECH: DATA, TECHNOLOGY & BUSINESS

FINISH HERE!!

3. Sustainability: Leadership for a Better World

The societal and environmental challenges that the world is facing are materializing at an unprecedented rate and degree. Climate change is causing the devastation of natural ecosystems around the planet and is becoming a more urgent issue than ever. The human environmental footprint is severely affecting human health, with a significant portion of the population breathing polluted air, which was responsible for over four million premature deaths every year. Child labor and poor work conditions are still present in many countries, wrecking human dignity. Cities are struggling to accommodate the urban population's rapid growth, creating deep pockets of poverty and fueling inequality.

Firms play a significant role in contributing to these societal problems. At the same time, organizations can play a major role in attempting to create a more sustainable planet earth.

Historically, environmental and social issues have been seen as peripheral concerns to businesses. "Social responsibility" and "environmental management" have been considered as "involuntary" costs primarily driven by regulation. At best, companies have felt compelled to "compensate" society through philanthropy or other good deeds, which are often narrow in scope and limited in impact.

However, as we advance in the 21st century, the historical separation between firm performance and social contribution is blurring. Increasingly, innovative companies are learning to fuse social purpose with competitive strategy instead of treating social and environmental issues as luxuries. Indeed, for some companies, competitive advantage is rooted in new capabilities such as **eco-efficiency**, stakeholder dialogue, **clean technology,** and **poverty alleviation**. Yet, for the most part, managers struggle to integrate sustainability – social, environmental, and governance issues – into organizational **strategy** formulation and implementation.

This course will take a general management approach to understand sustainability, applying novel concepts and recent research to analyzing the critical strategic and managerial issues involved in developing, adapting, and implementing strategies to integrate *environmental, social, and economic value*.

4. EXECUTE! Implement Strategy and Get Things Done

An effective business strategy is not just a simple, rational economic plan. Strategic plans also must be carefully executed; ultimately, the only strategies that matter are the ones that end up being implemented. Carefully crafted strategies too often fail miserably in the field, because of poor execution and a lack of understanding of the political and organizational dynamics of the firm.
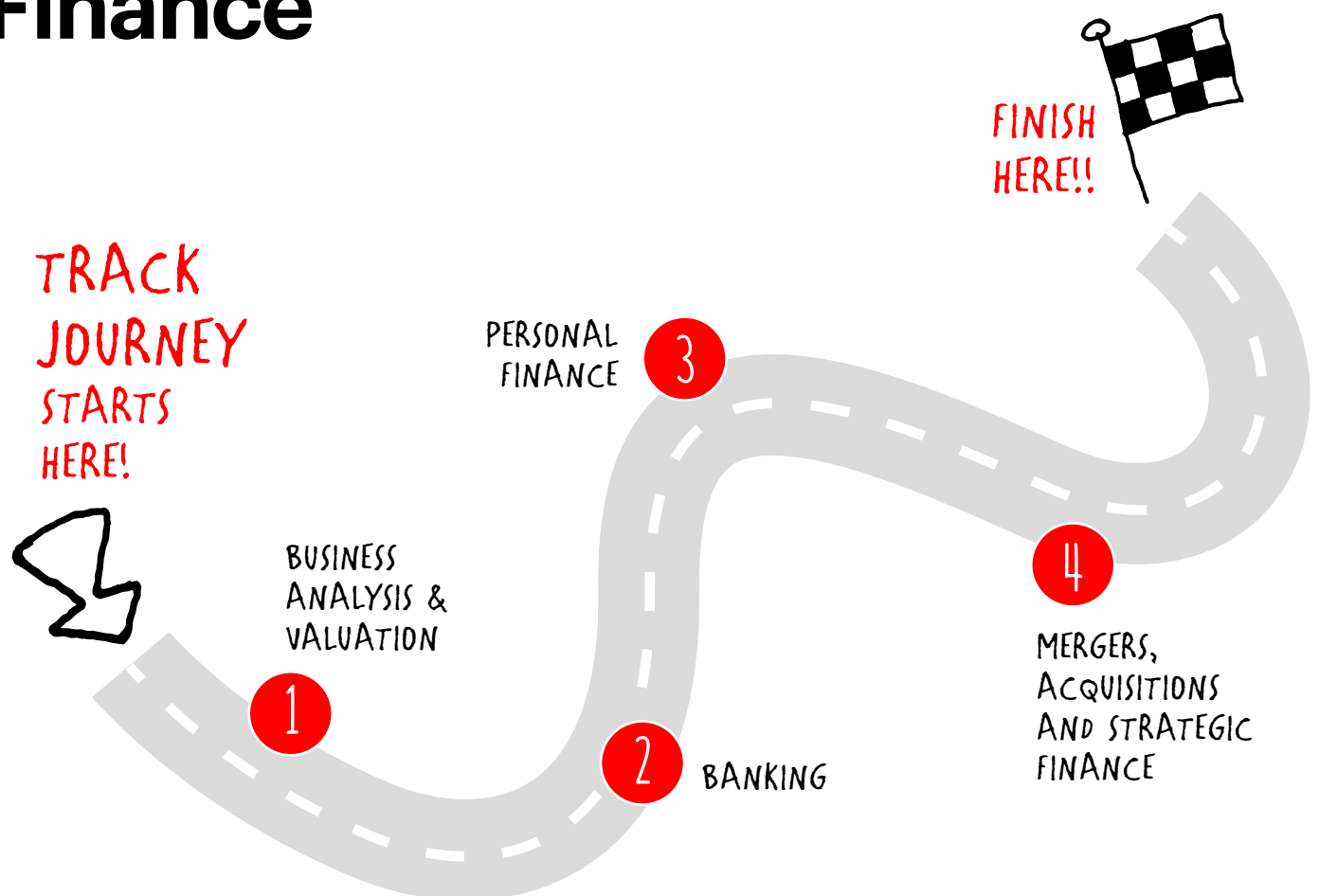
The goal of EXECUTE! is thus to help you to learn how to "get things done" in organizations. As strategic execution often requires **implementing changes** within the firm, we will stress the decisions, actions, and conditions that facilitate or impede the positive attainment of organizational change. Moreover, we will discuss how to successfully **"take charge"** of your next role in your new job, to facilitate your entry into your next organization and make it successful.

5. MarTech: Data, Technology & Business

Over recent years, the commercial function has undergone the digitization of all its processes and, especially, customer management in all its facets of relationship with companies, from acquitition to loyalty management. During these sessions, we will delve into current **digital marketing,** understanding its fundamentals, its **technologies** (DSP, DMP, Search Bid Management, CRO, etc.) and, of course, the impact of all this on the **management** of the different phases of the commercial **funnel**.

Finance

TRACK JOURNEY STARTS HERE!

FINISH HERE!!

PERSONAL FINANCE 3

BUSINESS ANALYSIS & VALUATION 1

4 MERGERS, ACQUISITIONS AND STRATEGIC FINANCE

2 BANKING

1. Business Analysis & Valuation

This course will teach the fundamentals of the value approach to investments originally developed by **Graham and Dodd**. The sessions will be eminently practical, covering all the stages of the investment process, from the search for potential stocks to the execution of the trade. We will explore publicly available data sources, assess the quality of financial information, implement valuation models, and analyze all the relevant dimensions of an investment decision. At the end of the course, you will be required to present your own stock recommendation.

The course does not only target those students intending to work in asset management, but also those interested in managing their own **portfolio of stocks** –no matter the size– with a value approach. Investing in stocks based on fundamental analysis provides you with a rich set of investment decisions of your choice and the long-run relentless feedback from the market.

2. Banking

The course deals with the current challenges faced by the banking sector and other financial intermediaries like, e.g., mutual or hedge funds. Moreover, the course discusses how trends like digitalization and the rise of fintechs affect the banking business and how they shape the future of financial intermediation.

The main objective of this course is that the participants:

- gain a thorough understanding of the **financial system** and its **players**;

- learn about the relationships between regulators, supervisors, central banks, **financial institutions,** and non-bank financial **intermediaries,** as well as;

- discuss and develop business strategies for different financial intermediaries, both incumbent and new players.

3. Personal Finance

The ultimate goal of this course is to provide you with a general, integral, simple, practical, and effective framework to successfully manage your savings. Contrary to what some people would have you believe, it does not take a PhD in Quantum Physics to sensibly manage your money. The approach discussed in this course follows from the strategies endorsed by investment legends such as **Warren Buffett** (CEO of *Berkshire Hathaway*), **John Bogle** (founder of *Vanguard*), and **David Swensen** (CIO of the *Yale University* endowment).

The course will provide you with the necessary and essential tools to build and maintain your portfolio. You will learn about asset classes, financial products, absolute and relative performance, active and passive management, the costs of investing, portfolio choice and rebalancing, the pillars of security selection, behavioral insights, and useful resources online, among many other issues.

4. Mergers, Acquisitions and Strategic Finance

The goal of this course is to develop the toolkit of managers in order to be able to develop, evaluate, and use different strategic finance choices. With a focus on long-term value creation. The key focus will be on the links between **Finance and Strategy.**

We will talk about many strategic finance aspects, including Mergers and Acquisitions (M&As). Many companies' strategic growth plans involve expansion. Regardless of whether it is domestic or overseas expansion, M&As are usually an important part of the implementation of that strategy. And they are usually a very important event in the life of any manager. In this course, we will also talk about other key strategic decisions, including:

- M&As and corporate growth

- Conglomerates of different businesses, and corporate diversification

- Company valuation in different environments

- Linking capital raising activities and firm's strategy

- From family firms to listed corporations

- Corporate governance and opening up capital – unicorns, IPOs / SEOs

- Spin-offs, divestitures, and corporate focus

- Activist investors and shareholder value

Overview

TRACK	Code	Name of Course	Professor	Sessions	Total Sessions	ECTS
DATA & ANALYTICS	DATA-MIM	Data Science for Business	Prof. Miguel Ángel Canela	61 sesiones, 6 ECTS	10	1
	DB-MIM	Introduction to Databases	Prof. Miguel Ángel Canela		10	1
	ML-MIM	Machine Learning	Prof. Miguel Ángel Canela		20	2
	DATAVIZ-MIM	Data Visualization	Prof. Alberto Ibarra		10	1
	DIGSTRAT-MIM	Digital Strategy	Prof. Manos Gkeredakis		11	1
STRATEGY & MARKETING	MASME-MIM	Managing Small & Medium Size Companies	Prof. Carlos García Pont	54 sesiones, 6 ECTS	14	2
	FLYB-MIM	Family Business: Next Generation	Prof. Marta Elvira		8	1
	SUST-MIM	Sustainability: Leadership for a Better World	Prof. Pascual Berrone		10	1
	STRTIMP-MIM	EXECUTE! Implement Strategy and Get Things Done	Prof. Massimo Maoret		10	1
	MARTECH-MIM	MarTech: Data, Technology & Business	Prof. Luis Ferrándiz Prof. Íñigo Gallo		12	1
FINANCE	VALUE-MIM	Business Analysis & Valuation	Prof. Marc Badia	51 sesiones, 6 ECTS	11	2
	BANK-MIM	Banking	Prof. Christian Eufinger		10	1
	WEMA-MIM	Personal Finance	Prof. Javier Estrada		12	1
	M&A-MIM	Mergers, Acquisitions and Strategic Finance	Prof. Nuno Fernandes		18	2

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