Never stop learning

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28 Sept/14 Dec 2018
15 Mar/07 Jun 2019

DATA SCIENCE BOOTCAMPs

www.ie.edu/bootcamps
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DATA SCIENCE BOOTCAMS

IE BUSINESS SCHOOL IS RENOWNED INTERNATIONALLY AS ONE OF THE WORLD’S TOP BUSINESS SCHOOLS.

“Every day is a new challenge. We are exposed to new situations, encouraged to push our limits and thus get the chance to see how our learning curve gets steeper and steeper.”

Paula (Spain) | hired by EY
OVERVIEW

By 2020, there will be an estimated 1 million new digital and tech jobs in Europe. However, traditional higher education is unlikely to produce enough graduates to fill even a third of these vacancies.

It is for this reason that the Data Science Bootcamp aims to foster curiosity and interest about data and its decision-making possibilities.

The goal of the Data Science Bootcamp is to learn how to acquire, clean, structure, store, manipulate, analyze, and visualize data from diverse sources to answer complex business questions.

The Bootcamp will teach you how to find patterns, use machine learning and other analytical tools that you will be able to implement in various fields such as marketing, product development, project management, or general business administration.

YOU WILL GET THE TOOLS AND RESOURCES TO ENHANCE YOUR SKILLS AND ACCELERATE YOUR CAREER BY OBTAINING PRACTICAL KNOWLEDGE IN DATA SCIENCE.

To set you apart from the competition, the Data Science Bootcamp has an inclusive approach: it provides theoretical and practical knowledge acquired through working with real data sets and industry leaders as well as educators and data experts. It also promotes teamwork and aims to foster data visualization skills for you to learn how to give engaging and insightful presentations to show the impact of data.

"It was a great learning experience and a very intensive time"
Sven (Germany)
PARTICIPANT PROFILE

THE DATA SCIENCE BOOTCAMP IS IDEAL FOR:

1. Professionals seeking to learn how to use data across industries more efficiently.
2. Professionals wanting to quickly gain essential skills in Data Science to kick-start their career in this field, using R and Python.
3. Professionals that have a Bachelor’s Degree and an average of between two and five years of work experience.
4. Strong candidates are expected to have a maths and stats background. We encourage candidates with an analytical background to apply.

"Due to our small class size, we became very close during the 11 weeks. We are taking home friendships that will last forever!"

(Ignacio (Spain))

TAKEAWAYS

MODULE 1
R & PYTHON PROGRAMMING

This module is designed to give you an in-depth understanding of both the R & Python programming languages from their syntaxes to coding tips and techniques for script optimization.

You will understand the different programming structures in both languages as this module provides the core coding foundation for you to shine in the rest of the Bootcamp.

You will learn to code from scratch in intensive practice-only sessions using exercises and individual programming assignments.

KEY TOPICS:

- Data types and variable assigning
- Mathematical and logical operators
- Loops and conditional code execution
- Advanced data structures (lists, dictionaries, data frames, etc...)
- Functions
- Loading external modules and packages for data analysis (Pandas, Numpy, dplyr, data.table)
- Working with files
- Calculating basic summaries and data transformations
This module provides the statistical foundation for the machine learning module as it covers the concepts that support data science and machine learning projects. The sessions in this module provide the background knowledge of quantitative methods and statistical models in a down-to-earth but formal way that will complement the R & Python machine learning workshops. You will learn the statistical models to extract insights from data and the statistical tests to support your findings.

**KEY TOPICS:**
- Introduction to data. Observational vs. Experimental studies.
- Distributions and basic metrics.
- Introduction to Probability. Conditional probabilities.
- Random Variables and Sampling. The Central Limit Theorem.
- Inferential Statistics and Hypothesis Testing.
- Regression and Classification linear models

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**MODULE III**

**DATA ACQUISITION AND VISUALIZATION**

This module will enable you to complement your data analysis skills with the ability to acquire the data from different sources (from text files to SQL databases) using R and Python scripts. Additionally, you will learn how to produce robust and compelling visualizations using both R and Python packages. In this module, you will learn how to represent data to communicate your work.

**KEY TOPICS:**
- Working XML, CSV and JSON files in R & Python.
- SQL queries to import into R & Python scripts.
- Exploratory data analysis.
- Creating data visualizations in ggplot2.
- Creating data visualizations in seaborn and matplotlib.

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**MODULE IV**

**MACHINE LEARNING IN R & PYTHON**

This module is designed to enhance your understanding of the practical knowledge in implementing the quantitative and statistical models that comprise the machine learning landscape in R and Python. Furthermore, this module will provide you with the hands-on training based on analyzing multiple data sets to take your data science and machine learning output to the next level.

**KEY TOPICS:**
- Data cleaning and wrangling techniques in R and Python.
- Basic models for regression and classification.
- Feature selection in machine learning algorithms.
- Machine learning packages in R & Python. (scikit-learn, caret).
- Clustering algorithms.
- Advanced machine learning models (Tree based models, ensemble models, neural networks).
- Model fine-tuning in R & Python.
- Assessing statistical models (cross-validation, ROC analysis) in R & Python.

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**MODULE V**

**COMMUNICATION AND DATA STORYTELLING**

In today’s competitive world, having the technical proficiency to achieve success in the data science industry is not enough to mobilize an organization towards change. That is why this module aims to complement your technical knowledge with the storytelling and communication skills required to maximize the impact of your data analysis.

**KEY TOPICS:**
- Narrative structures in data storytelling.
- Selecting audience-specific topics.
- Public speaking workshop.
- Giving winning presentations.
- Influence & persuasion.

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**TAKEAWAYS**

- **MODULES**

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**DATA SCIENCE BOOTCAMP**
10 REASONS FOR YOU TO JOIN THE IE DATA SCIENCE BOOTCAMP

01 JOB OPPORTUNITIES
Data Science is one of the most demanded skills in today’s job market as companies need to strengthen their data analysis capabilities and their ability to extract insights from data.

02 INTENSIVE, FOCUSED TRAINING
The Bootcamp focuses on teaching you Data Science in R & Python, without anything else interfering with the learning experience.

03 RECOGNITION
LEVERAGE IE’S BRAND AS ONE OF THE MOST-RECOGNIZED HIGHER EDUCATION INSTITUTIONS WORLDWIDE.

04 COMPREHENSIVE COVERAGE OF THE DATA SCIENCE VALUE CHAIN
You’ll get a full view of the necessary steps, from data acquisition to communication skills.

05 SKILLS ACCELERATOR
The Data Science Bootcamp is an 11-week investment to boost your career in Data Science.

06 EXERCISE-ONLY, AS WELL AS DATA LAB SESSIONS:
Learning how to code is challenging. With that in mind, we include the necessary exercise sessions for you to practice daily.

07 PRAGMATIC, PRACTITIONER FACULTY
All Bootcamp faculty members have worked in Data Science at top firms like McKinsey and Stratio.

08 REAL-LIFE DATASETS
Our partner companies will provide you with actual data sets from their real-life operations as the basis for your projects.

09 NETWORKING
Access to IE’s growing data science and Big Data-related network in a variety of contexts ranging from datathons to encounters with companies actively looking for data scientists.

10 MADRID
AN EMERGING TECH SCENE AND A GREAT LIFESTYLE. TAPAS, ANYONE?

“I learned a lot and enjoyed the experience! I am glad to have met the other Bootcampers, the instructors, and organizers. It has been a real pleasure to learn from them and with them!”
Azadeh (Iran)
# A Typical Week at the Data Science Bootcamp

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
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</thead>
<tbody>
<tr>
<td>Math and Stats</td>
<td>Math and Stats</td>
<td>Math and Stats</td>
<td>Math and Stats</td>
<td>Math and Stats</td>
<td>Group Work</td>
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<td>Math and Stats</td>
<td>Math and Stats</td>
<td>Math and Stats</td>
<td>Math and Stats</td>
<td>Math and Stats</td>
<td>Data Lab</td>
</tr>
<tr>
<td>Coffee Break</td>
<td>Coffee Break</td>
<td>Mindful Break</td>
<td>Coffee Break</td>
<td>Coffee Break</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>R Coding</td>
<td>Python Coding</td>
<td>Machine Learning in R</td>
<td>Machine Learning in Python</td>
<td>Machine Learning in R</td>
<td>Data Lab</td>
</tr>
<tr>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch and Learn</td>
<td>Lunch and Learn</td>
</tr>
<tr>
<td>R Coding Exercise</td>
<td>Python Coding Exercise</td>
<td>Machine Learning in R Exercise</td>
<td>Machine Learning in Python Exercise</td>
<td>Machine Learning in R Exercise</td>
<td>Data Lab</td>
</tr>
<tr>
<td>Data Acquisition in R</td>
<td>Data Acquisition in Python</td>
<td>Data Visualization in R</td>
<td>Data Visualization in Python</td>
<td>Data Visualization in Python</td>
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</tr>
<tr>
<td>Break</td>
<td>Break</td>
<td>Break</td>
<td>Break</td>
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</tr>
<tr>
<td>Resilience</td>
<td>Client Touchpoint / Mentor Session</td>
<td>Master Class</td>
<td>Capstone Project Group Work</td>
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<tr>
<td>Peer to Peer</td>
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</tr>
</tbody>
</table>
FREQUENTLY ASKED QUESTIONS

How much time should I expect to dedicate to the program?
It is a full-time 11-week program. You will have sessions from 9 AM to 8 PM Monday through Friday as well as from 9 AM to 3 PM on Saturdays.

What is the program’s dynamic?
In 11 weeks, this program is meant to be a skill-accelerator and very quickly enhance your ability to fill an immediate gap in your skill sets.

What does a typical day at the Data Science Bootcamp entail?
The typical day at the Data Science Bootcamp begins with an instructor-led session about a concept, followed by time to apply what you have learned in a practical, project-based example – using real data sets from our partner corporations. We cap off each week with DATA LAB and Client Touch-Points.

Who are we looking for?
The IE Data Science Bootcamp is ideal for young professionals wanting to learn how to utilize data more efficiently across all industries. With these new skills, we will look to combat the current shortage of Data Scientists in the labor market. We are looking for analytical, data-driven profiles, with a bachelor’s degree and a minimum work experience between two and five years.

How can this program add value to my professional career?
In the face of the quick technological development and the upcoming need for professionals possessing these skills across a wide range of industries, the Data Science Bootcamp presents a compact and focused way of preparing oneself for these current and future challenges. Having Data Science tools in your skill set is a crucial asset in many areas and increases your employability prospects as well as salary expectations. The IE Data Science Bootcamp also gives you a chance to connect with global brands and businesses to develop a real data application for real users.

What do I receive upon completing the program?
At the end of the program, those who complete all the sessions will earn a Data Science Bootcamp certificate from IE Exponential Learning. The Bootcamp curriculum uses cutting-edge learning methodologies and carefully-designed content, while also giving the selection of resources and dynamics used great importance to ensure a maximum level of understanding and engagement. The Data Science Bootcamp will serve as an immersive, intense career boost, adding the Data Science toolkit to your existing skill set.

Application Process
The Data Science Bootcamp Admissions process consists of completing the Data Science Bootcamp application, as well as attaching the following documents to your application in the “Other Documents” section:

- A PDF scan of your diploma from an accredited university (or a statement that you are currently completing, or will have completed, a Bachelor’s Degree before beginning the Data Science Bootcamp)
- A motivation letter answering the following question: Why do you want to be part of the Data Science Bootcamp?

After you submit your application, you will then have an interview with Admissions. Following the interview, IE Exponential Learning’s Admissions Committee will review the entirety of your application, and shortly after you’ll receive a decision from Admissions.

How long will the Admissions Committee need to review my application?
The Admissions Committee will need two to three business days to review your application.
TEAM & INSTRUCTORS

HEAD OF IMMERSIVE LEARNING

Ricardo Mesquita
*Head of Immersive Learning* @ IE XL
in ricardomesquita2018
ricardo.mesquita@ie.edu

Ricardo is the Head of immersive learning at IE Exponential Learning. The mission of IE XL is to empower professionals and entrepreneurs with the skills to succeed in the digital world of work.

These new learning experiences, designed in modular formats, bring innovative approaches to teaching and learning by combining technology, hands-on learning, and community building.

Former CEO of The LAB Miami, Ricardo is a founding member of Beta-i and co-author of the book "The Soul of Business", a roadmap for entrepreneurs looking to set up shop in Portugal.

ACADEMIC DIRECTOR OF DATA SCIENCE BOOTCAMPS AND R MACHINE LEARNING INSTRUCTOR

Iván Martín Maseda
CTO, Binfluencer
in ivanmartinmaseda
imartinm@faculty.ie.edu

Iván Martín is the Chief Technology Officer of Binfluencer, a data driven company leveraging the power of machine learning techniques to detect the most influential people in any sized market globally.

He is a former McKinsey Data Scientist, software engineer specialized in Artificial Intelligence and has a Master’s Degree in Business Analytics and Big Data by IE Business School. He is also an adjunct professor in machine learning at the same university.

PROGRAM COORDINATOR

Daniela Höfle
Program Coordinator at IE Exponential Learning
in daniela-hoefle

Python

Pablo Monfort
Founder of Canalyticals, Previously Data Scientist at McKinsey & Company
in pablo-monfort

DATA VISUALIZATION

Fran Diego
Data Scientist at Nextail
in frandiego

DATA ACQUISITION IN R AND SQL

Angela Cabrero
Data Science & BI leader. MRM/McCann Spain
in angela-cabrero-romeral

COMMUNICATION AND STORYTELLING

Ignacio Larrú
CFO at KFUND
in ignacio-larru

PROGRAM COORDINATOR

Daniela Höfle
Program Coordinator at IE Exponential Learning
in daniela-hoefle

R CODING

María Medina
Data Scientist at PiperLab
in mariamedp

DATA LABS

Javier Lameda
Consultant at EY
in javierlameda

MATH AND STATS

Juanjo Manjarín
Math and Stats Teacher at IE
in juanjomanjarin

RESILIENCE

Rodrigo Aguirre de Cáceres Churruca
Director, Social Impact at Grupo Gala Capital
in rodrigoaguirredescarcar

DATA VISUALIZATION

Fran Diego
Data Scientist at Nextail
in frandiego

DATA ACQUISITION IN R AND SQL

Angela Cabrero
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Javier Lameda
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MATH AND STATS

Juanjo Manjarín
Math and Stats Teacher at IE
in juanjomanjarin

RESILIENCE

Rodrigo Aguirre de Cáceres Churruca
Director, Social Impact at Grupo Gala Capital
in rodrigoaguirredescarcar
DATA SCIENCE BOOTCAMPS

DETAILS

UPCOMING INTAKES
13 Apr / 29 Jun 2018
28 Sept / 14 Dec 2018
15 Mar / 07 Jun 2019

DURATION
11 Weeks, over 300 class hours

FORMAT
Full-time on Madrid Campus

LANGUAGE
English

FEE
€14,000*

*25% IE Alumni discount

DEMO DAYS
2018
28 Jun + 13 Dec

CONNECT

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Skype live: d.shishkova_2

“Guest companies

Partners

“IE is designed to train for future Data Science-related jobs. Employability is the name of the game.”

Morane (France) hired by Nielsen

18 | IE EXPONENTIAL LEARNING
We want to empower professionals and entrepreneurs with the skills to succeed in the digital world of work.

Our mission is to support individuals in their continuous growth, fueling the ability to adapt and create new professional opportunities.

We develop learning experiences in modular formats bringing innovative approaches to teaching and learning. Join us and never stop learning!