CAREER PROSPECTS

The array of business sectors of interest is extremely wide and concerns large industrial groups as much as SME/SMIs, research centres or start-ups.

TARGETED POSITIONS
- Data Analyst
- Data Scientist
- Data Engineer
- Data Architect
- Data Manager
- BI Manager
- Data Protection Officer
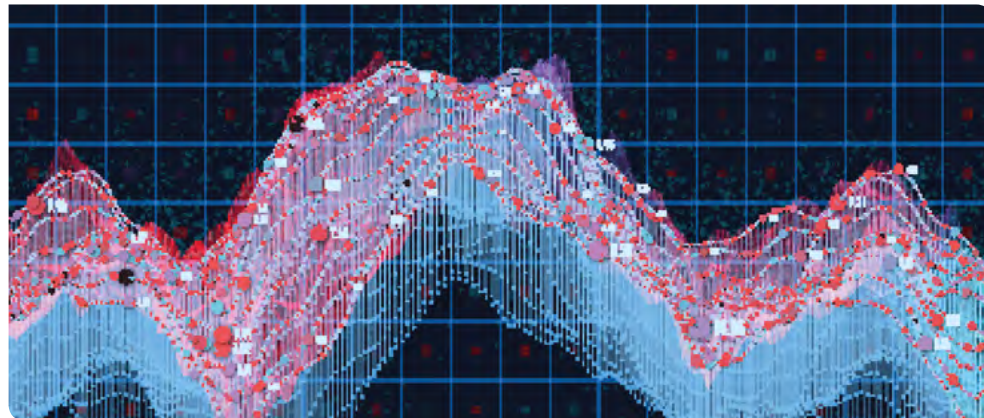- Data Auditor

FIELDS
- Companies in the digital industry
- Insurance and health companies
- Banks/ Financial industry
- Sales, distribution/ Marketing
- Medical/ pharmaceutical industry
- Energy
- Communal services
- Industry
- Transport industry
- Life sciences
- Natural Sciences
- Engineering
- Journalism

PROJECTS

A project is carried out on both academic semester in collaboration with a company. **It is used as a guideline for the whole semester and serves as support to the many lectures.**

Some examples of projects conducted in the major:
- Development of a web tool allowing the co-design between volunteers and researchers of a common OLAP-cube representation of a biodiversity database.
- Study of patient segmentation on chronic disease medical and daily-life data for better counseling
- Set up of a survey and an interview campaign to map the use and ecological impact of the IoT in the Occitanie region.

💬 **Jade KRESIBERGER**
(2021 School Year)

The generalist course of the EPF allowed me to take the time to discover the different fields of engineering. The choice of our studies can be complex. I have always admired people who develop computer tools, but despite my curiosity, I did not know if this area would suit me.

During my first 3 years at EPF in Montpellier, I took my first steps in programming, development or even data analysis. *We had strict plans and guidelines to follow while retaining a certain freedom that also allowed us to express our personality. From scratch, we manage to create games or tools for data management, which gave me a lot more and comfort my choices to do the Major in Data Engineering. We study a lot of different subjects : data analysis, Machine Learning, Big Data or even Ecodesign. All the things we can do is amazing! From a simple survey, it is possible to extract conclusive information. For example, my 4th year project consisted of carrying out a study on companies that use connected objects for their professional lives. We were able to estimate the sectors that use the most and why companies do not use them (budget, protection of information, etc.).*

The Data Engineering major and the semester project allows me to discover IT project management, which combines team management and work progress. *I already appreciate it during my internship at Bolloré Logistics in Singapore. I had the chance to develop a tool for estimating the cost and CO_2 emissions of air and maritime transport for customers in order to reduce the number of company e-mail exchanges.*

Yes! IT can be useful for our planet!

Now in 5th year I have started a professionalization contract at Accenture, within the Artificial Intelligence / Data department where I will assist a Data Architect. I no longer have any doubts that I belong in this exciting field because I participate in projects which make sense!

EPF
GRADUATE SCHOOL OF ENGINEERING

SCEAUX I TROYES I **MONTPELLIER**

DATA ENGINEERING
MAJOR

BECOME AN ENGINEER

#Machine Learning #Green IT #Visualisation #Statistics & Optimization #Data Analysis #Data Science #Ethics, Law & Policy #Business Intelligence #Data Governance

CREATE CHANGE, DESIGN THE FUTURE

PROGRAM **AIMS**

The aim of the Data Engineering major is to train flexible and adaptable engineers, able **to help companies and laboratories to structure and add value to their data**. Emphasis is placed on a systemic approach including **legal, ethical, economic and environmental aspects**.

Graduates of this major acquire scientific, technical and managerial expertise based on:

- A global approach of the data value chain:
  Collect, Structure, Analyse, Use and Manage ;
- Ethical, legal, economic and environmental aspects of data exploitation.

Graduates will have **competences in mathematics** (statistics, decision theory, modelling), **IT** (IS, script language, mining and visualisation tools, machine learning) **as well as knowledge in contextualization** (Green IT, law and ethics, business, scientific applications).

PROGRAM **STRUCTURE**

The major extends over two academic years and is organised around two in-class semesters, framed by two internship semesters. (Note : For the international students, the first internship is replaced by an International Project semester which includes mechanics, energy, computer science and French.)

All the CUs are offered **in English**. They are designed as independent credits so as to admit students from other programs or students attending vocational training.

In order to be as close as possible to employment conditions, CUs use one project approach, thus confronting students to real requirements specifications, teamwork and self-containment.

COMPULSORY CUs – YEAR 4

TECHNICAL COURSE UNITS

Information Systems for Data | 66 h | 5 ECTS

Programming & IT Management Data Streams	Understanding the resources and tools behind any Data Framework.

Data architecture | 63 h | 5 ECTS

Data Models Data Storages	Physical considerations and design rules for storing (a lot of) data.

Mathematics of Decision Making | 75 h | 5 ECTS

Linear Algebra, Statistics & Probability Optimization : analytics and numerics Introduction to Computational Thinking	The Maths behind the magic, Data analysis 101.

CONTEXTUALIZATION COURSE UNITS

Data & Earth : issues and perspectives | 60 h | 5 ECTS

Ecological impact of IT Data for Earth (Remote sensing, GIS, ...)	The paradoxes of digitalisation. What can Data do for the planet ?

Understanding the Business Environment | 75 h | 5 ECTS

Business operation & business skills Companies's visits English	How companies work and how to learn buisness expertise. Conflict and change management.

Major's project | 150 h | 5 ECTS

COMPULSORY CUs – YEAR 5

TECHNICAL COURSE UNITS

Exploratory Data Analysis | 63 h | 5 ECTS

ETL, Data Cleaning & Integrity Data Viz Dimensionality reduction	Mitigating Data imperfections from quality to integrity issues. Visual representation for data exploration & communication. How to work when you have multidimensional data, large volume or complex data.

Machine Learning & Predictive Modeling | 75 h | 5 ECTS

Introduction to Machine Learning Predictive Modelling Unsupervised clustering	The Maths behind the magic : Machine Learning.

Ethics, Law and Cybersecurity | 69 h | 5 ECTS

Data & Ethics Data Law Cybersecurity & Data Protection	Real world issues : take a step back from technology.

CONTEXTUALIZATION COURSE UNITS

First Steps into Data Science | 57 h | 5 ECTS

Data-driven problem resolution Natural language Processing Time Series Analysis	A step further in Data Science : the challenge of tomorrow.

Prescriptive Analytics & Data Strategy | 68 h | 5 ECTS

Data Driven Strategy for Business Intelligence Digital Transformation & Data Strategy Data Science Challenge	Real world issues : from information to Strategy.

Major's project | 150 h | 5 ECTS

Project Management Professionalization Project monitoring & final presentation	Team project on behalf of a client.