

Data Science for Experts: Curriculum

This program is targeted at professionals who want to learn to develop machine-learning solutions, and who are also interested to learn the business implications of data science.

Big Data and analytics are changing the world rapidly ... this unique course prepares you for a leading role in this new business reality.

Foundation

The Foundation offers an orientation in data science, Big Data, new analytics and new business opportunities. You will learn predictive analytics, the theory of supervised and unsupervised learning, and their practical applications in a Python-based analytics environment. You practise applying machine learning in the data-analytic workflow embodied by the CRISP-DM model.

Curriculum (7 days in class):

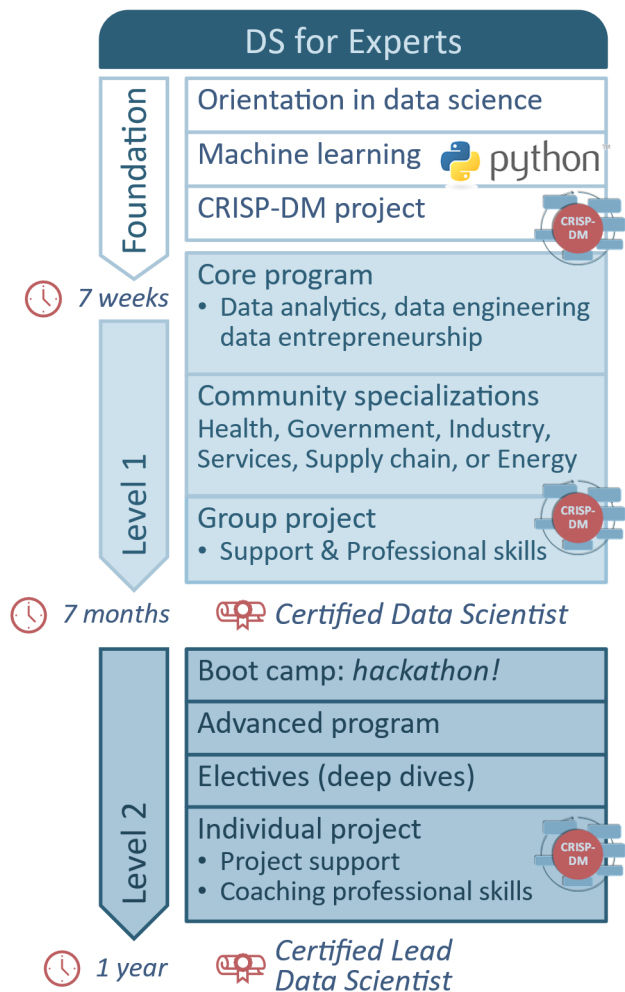
- Preparation: Depending on your skill level in programming, you may need up to 4 weeks of self-study in an online learning environment where you learn coding in Python.
- Data science: new forms of data, new analytics and new business opportunities
- Data Science Projects and Machine Learning
- Data preparation & principles of machine learning
- Supervised learning
- Unsupervised learning
- Interpretable machine learning & evaluation
- Practical application of machine learning in a CRISP-DM project
- Statistical learning: Prediction, causal inference & validity

Level 1

The core program in data analytics, data engineering and data entrepreneurship trains you as an all-round data scientist. You also choose a sector specialization, where you learn typical applications specific for your sector, such as predictive maintenance, computational personalized healthcare, or deep learning. Upon completion of this level, you become a *Certified Data Scientist*.

Curriculum (12 days in class):

- Leading data-science projects: how to get things done?
- Visualization
- Data modelling and relational database management
- Time-series forecasting
- Data and privacy law
- Decision quality
- Introduction to deep learning
- Text mining and natural-language processing (NLP)



- Community specialization: depending on the sector where you work, you follow a sector-specific program aimed at helping you integrate data science in your work field. Community-specific courses include: data-driven service integration, data-driven healthcare, business analytics, production planning and data-driven supply-chain management, marketing analytics, smart and predictive maintenance, new business concepts driven by data and analytics, Industry 4.0 and the role of data and AI
- Professional skills: sharing and understanding thoughts, questions, ideas and solutions. Resulting in goal setting, presentation skills and pitching.
- Together with a team of classmates, you develop a realistic data-science solution in a complex and challenging group project.

Level 2

If you decide to continue to the second level, the last module offers a number of deep-dives in advanced-level topics, including privacy law & data security, process mining and advanced data architectures. In a two-day bootcamp you do a hackathon with your classmates. The Level 2 training revolves around learning to lead a data-science initiative and achieve real impact. With the support of JADS experts and professors you implement a data-science application in your own organization and help your organization create business value from data and analytics. Upon completion of this level, you become a *Certified Lead Data Scientist*.

Curriculum (11 days in class):

- Leading data science: winning support and realizing your organization's data ambitions
- Data management and data governance
- Data entrepreneurship: developing novel business models driven by data and analytics
- Anomaly detection
- Process mining
- Advanced data architectures
- Electives program: professors and experts offer a varied program of deep-dives, from which you select two courses
- Two-day bootcamp where you do a hackathon with your classmates.
- Professional skills: Lectures and individual coaching in taking a leading role in the development of your organization's data ambitions.
- In-company project supported by JADS professors and experts