Data Science for Government & Public: Curriculum

Are you working in local, regional or central government? The Government & Public Sector program includes specific lectures and challenges for people working in public services. Where data engineers and data scientists are technical experts, business managers and senior professionals need to integrate data and analytics into their work, and ensure that data science connects flawlessly to the organization's needs. This bridge function between analytics and other business functions is called: the Analytics Translator.

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. You practise applying machine learning in the data-analytic workflow embodied by the CRISP-DM model.

Curriculum (6 days in class):
o Data science: new forms of data, new analytics and new business opportunities
o Data Science Projects and Machine Learning
o Data preparation & principles of machine learning
o Supervised learning
o Unsupervised learning
o Interpretable machine learning & evaluation
o Practical application of machine learning in a CRISP-DM project
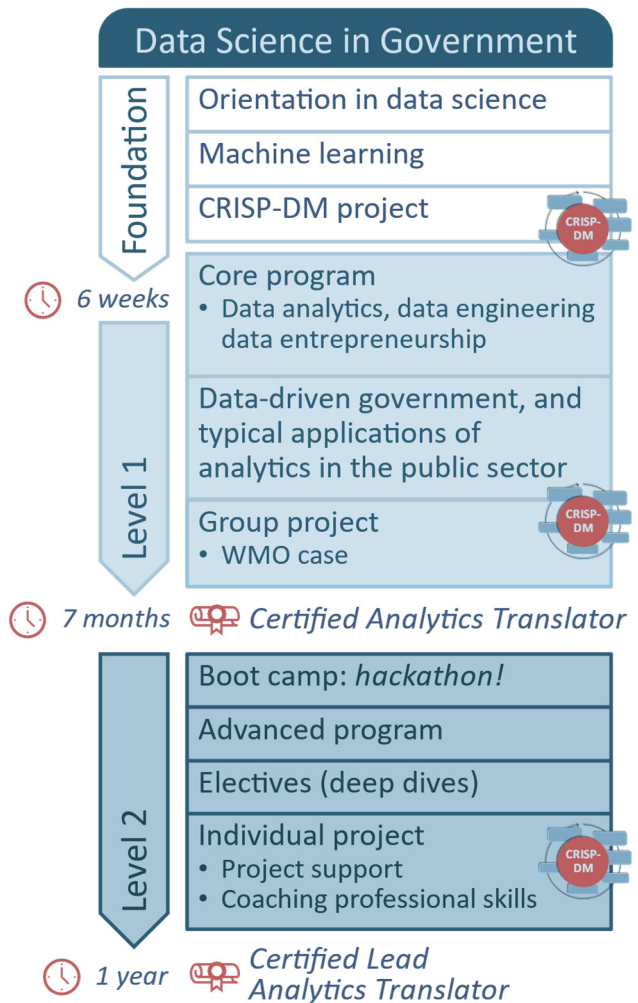o Statistical learning: Prediction, causal inference & validity

It is not required to master programming skills. We will work in a Python environment, but learning to code in Python is not part of the course.

Level 1

The core program in data analytics, data engineering and data entrepreneurship trains you as an analytics translator. You also learn about typical applications specific for the public sector. Upon completion of this level, you become a *Certified Analytics Translator*.

Curriculum (12 days in class):
o Leading data-science projects: how to get things done?
o Visualization
o Data modelling and relational database management
o Time-series forecasting
o Data and privacy law
o Decision quality
o Introduction to deep learning
o Text mining and natural-language processing (NLP)

Data Science in Government

Foundation
- Orientation in data science
- Machine learning
- CRISP-DM project

⏱ *6 weeks*

- Core program
  • Data analytics, data engineering data entrepreneurship

Level 1
- Data-driven government, and typical applications of analytics in the public sector
- Group project
  • WMO case

⏱ *7 months* 🎖 *Certified Analytics Translator*

Level 2
- Boot camp: *hackathon!*
- Advanced program
- Electives (deep dives)
- Individual project
  • Project support
  • Coaching professional skills

⏱ *1 year* 🎖 *Certified Lead Analytics Translator*

- o Applications in government, such as reconstruction of customer journeys and quantitative data analysis; from narrative to data modelling; and operationalization of data science in the cloud based on the CRISP-DM model.
- o Professional skills: sharing and understanding thoughts, questions, ideas and solutions. Resulting in goal setting, presentation skills and pitching.
- o Together with a team of classmates, you develop a realistic data-science solution in a complex and challenging group project in public government.

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 Analytics Translator*.

Curriculum (11 days in class):
- o Leading data science: winning support and realizing your organization's data ambitions
- o Data management and data governance
- o Data entrepreneurship: developing novel business models driven by data and analytics
- o Anomaly detection
- o Process mining
- o Advanced data architectures
- o Electives program: professors and experts offer a varied program of deep-dives, from which you select two courses
- o Two-day bootcamp where you do a hackathon with your classmates.
- o Professional skills: Lectures and individual coaching in taking a leading role in the development of your organization's data ambitions.
- o In-company project supported by JADS professors and experts