

Data & AI Analytics

300 Academic Hours

Course Overview

The Data & AI Analytics program is a comprehensive training track designed to prepare analysts for hands-on work across analytics, BI, Python, and AI. Participants build strong foundations in SQL (basic and advanced), work with leading BI tools (Tableau), develop data visualization skills, perform data analysis with Python, gain applied statistics knowledge, and are introduced to Machine Learning and Big Data concepts. The program integrates AI tools to accelerate analysis, coding, and insight generation. The course is highly hands-on, built around real business scenarios and a comprehensive capstone project that simulates the work of a data analyst in a data-driven organization.

Target Audience

- Graduates of relevant degrees: Statistics, Mathematics, Information Systems, Computer Science, Engineering, Industrial Engineering & Management, or other exact sciences
- Candidates with basic experience working with data
- Junior analysts seeking to strengthen technical capabilities
- Career switchers aiming to enter the analytics and data domain
- Candidates pursuing a career in Data & AI Analytics

What Participants Will Gain?

Graduates complete the program with end-to-end analytics capabilities: translating business questions into analytical workflows, querying and processing data using SQL and Python, building data models, designing interactive reports and dashboards with Tableau, and applying data visualization principles to communicate insights effectively. They gain applied knowledge in statistics and A/B testing, practical exposure to Machine Learning and Big Data concepts, and hands-on experience using AI tools (e.g., Copilot and LLMs) to enhance analysis and productivity. By the end of the program, graduates have completed multiple hands-on assignments and a capstone project demonstrating their ability to solve real business problems and are well-positioned for roles such as Data Analyst, BI Analyst, or Analytics Specialist in data-driven organizations.

Course Syllabus

Module 1: Intro to Data Analytics

- Analytics Overview
- The different Roles of Analyst
- KPIs
- What is a KPI
 - Common KPIs
 - Marketing/Product Analytics KPIs
 - General Business and Data Analytics KPIs

Module 2: SQL

Basic SQL Baseline

- Getting to know your Data
- Basic Select
- Where Statement
- Order By
- Scalar Functions
 - Math functions
 - Text functions
 - Date & Time functions
 - Conversion Functions
- Isnull & Coalesce
- Case Statement
 - Simple Case
 - Advanced Case
- Group Functions
- Having
- Join
 - Inner Join
 - Outer Joins
- Union
- Excpt
- Intersect
- Sub Query
- Derived Tables
- DML

Course Syllabus

Advanced SQL

- Window Functions
 - Ranking Functions
 - Row Number
 - Rank
 - Dense Rank
 - Ntile
- Aggregative Window Functions
- Offset Functions
 - Lead
 - Lag
- Window Functions: Controlling the Window
 - Rows Between
- Views
- CTE: Common Table Expression

SQL Mastery & AI Analytics

- Intro to LLM
- Prompt Engineering
- Optimization & Learning Techniques:
 - One-Shot Learning
 - Few-Shot Learning
 - Zero-Shot Learning
 - Zero-Shot CoT (Chain of Thoughts)
- Translating Business Questions into SQL Queries
 - Writing Queries with AI & Copilot
 - Optimizing, Debugging and Troubleshooting Queries using AI
- Case Studies: Real Business Analysis using SQL & AI
 - Cohort Analysis
 - Segmentation
 - Data Scaffolding
 - Automation with tool like n8n

Course Syllabus

Module 3: Tableau

- Connecting to Data
 - Setting Up Connections and Data Sources
 - Organizing Your Data
 - Relationship Data Modeling
- Desktop Basics
- Creating a Report
 - Displaying your data
 - Understanding Fields
 - Chart types
 - Filtering & Sorting
 - Organizing Data: Groups, Sets and Bins
 - Parameters – Dynamic and Statics
- Advanced Reporting
 - Creating and Editing Calculated Fields
 - Aggregations, String Functions, Date Calculations
 - Table Calculations
 - Level of Detail
 - Data Blending
 - Advanced Charts
 - Analytics and Forecasting
 - Mapping Data Geographically
- Advanced Formatting
- Dashboards
 - Combining views into a dashboard
 - Sizing, Layout and Formatting
 - Interactivity: Filters and Actions
- Final Project

Data Visualization

- What is data visualization and why it is essential
- Types of visualizations in the business world
- How to tell the story behind the numbers
- Different types of charts, maps, and tables
- Cognitive biases in data presentation + Gestalt principles
- The use of colours and their meanings
- How to use text and typography effectively
- Interactivity and its advantages in data presentation

Building User-Centered Dashboards

- The proper workflow for creating a dashboard
- Understanding user needs and requirements
- Types of dashboards

Module 4: Python Programming

Course Syllabus

Basic Python

- Fundamentals
 - Intro
 - Python essentials
 - The working environment
- Data types
 - Numbers
 - Strings
 - Booleans
 - None
- Collections
 - Lists
 - Tuples
 - Dictionaries
 - Sets
- Control flow
 - if...else
 - for...in
 - list comprehension
 - while
- Textual interface
 - input
 - format

Intermediate Python

- Functions
 - Built-in Functions
 - lambda Functions
 - User-defined Functions using AI & Copilot (text-to-code)
- Working with Text files & JSON
 - Standard library essentials
- Connecting Python and SQL
 - Manual coding
 - Generated DB connections for SQL Queries using AI

Course Syllabus

Data Analysis - The NumPy library & Co Pilot AI

- The NumPy Library
 - Arrays
 - Broadcasting
 - Vectorized operations
 - Auto-generating Arrays using AI
- The pandas Library
 - Series and Index
 - DataFrame
 - GroupBy
 - Transformations
 - Visualisation
 - Auto-transforming JSON / YAML files into a DataFrame using AI
 - Auto-generating DataFrame and Series from text using AI
- Advanced Visualisations
 - Matplotlib
 - Seaborn
 - Plotly
 - AI-Enhanced Visualization
 - Asking Copilot for best chart recommendations
 - Auto generating code for plots using AI
- Final Project

Module 5: Statistics for Data Analysts

- Descriptive Statistics
 - Measures of central tendency (mean, median, mode)
 - Dispersion (variance, standard deviation, range, percentiles)
- Random Variables
 - Discrete Variables
 - Continuous Variables
- Probability Basics:
 - Concepts of events
 - Sample space
 - Combinations
 - Conditional probability and Bayes' theorem
- Distributions for Analysts
 - Normal
 - Binomial
- A/B testing

Course Syllabus

Module 6: Big Data & Machine Learning

Big Data

- Big Data Technologies Introduction
- Hadoop Data ingestion technologies
- Hive and Impala
- NoSQL
- Technologies and trends in the world of Big Data

Machine Learning

- Programming fundamentals
- ML lifecycle
- Data preparation
- Machine learning algorithms
- Regression
- Classification
- Clustering

Module 7 : Final Project

Final Project

Why Naya College?



Specialization in Data and AI – Naya College is Israel's leading, most established, and only college specializing in the world of data & AI since 2010.



Leading Instructors – All of Naya College's instructors are experienced managers from Israel's data industry.



Learn technology from a true tech company – Naya College is much more than a college. We live and breathe technology and lead the remote-learning course industry. Throughout the course, you will learn using the most advanced technologies in the field, and the course learning experience is based on practical, real-world experience.



Personal Consultation and Guidance – Not sure which track is right for you? In a personal consultation call, we'll understand your experience, goals, and aspirations, and help you choose the training program that best suits your career path.



Flexible Payment Options – Convenient installment plans with no registration fees, so you can start learning with peace of mind and focus on your success.



Support All the Way to Employment – Career development workshops, interview preparation workshops, job-matching support, and connections to leading companies.



Full Flexibility in Learning – **No obligation to attend class.** All classes are recorded on Zoom and students can complete the lessons at their own pace.

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So, how do we move forward from here?

Take the first step with a professional program,
personal guidance, and a connection to the world of work.

For any questions, feel free to contact us by phone or email:

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