DATA ANALYST MASTER'S PROGRAM

In Collaboration with IBM

Contents

About the Course

This Data Analyst Master's Program, in collaboration with IBM, will transform you into a data analytics expert. In this course, you will learn the latest analytics tools and techniques, how to work with SQL databases, the languages of R and Python, the art of creating data visualizations, and how to apply statistics and predictive analytics in a business environment.

Key Features

- Industry-recognized certifications from IBM and Simplilearn for this unique collaboration program
- Portfolio-worthy capstone demonstrating mastered concepts
- 12+ real-life projects providing hands-on industry training
- 30+ in-demand skills
- Lifetime access to self-paced learning and class recordings

About IBM and Simplilearn collaboration

This joint partnership between Simplilearn and IBM introduces students to an integrated Blending Learning approach, making them experts in data analysis. This program, in collaboration with IBM, will help students become industry-ready for data analyst job roles. IBM is a leading cognitive solution and cloud platform company, offering a plethora of technology and consulting services. Each year, IBM invests $6 billion in research and development and has achieved five Nobel Laureates, nine U.S. National Medals of Technology, five U.S. National Medals of Science, six Turing Awards, and 10 inductions into the U.S. Inventors Hall of Fame.

About Simplilearn

Simplilearn is a leader in digital skills training, focused on the emerging technologies that are transforming our world. Our Blended Learning approach drives learner engagement and is backed by the industry's highest completion rates. Partnering with professionals and companies, we identify their unique needs and provide outcome-centric solutions to help them achieve their professional goals.

Learning Path - Data Analyst

Electives

- Data Science in Real Life
- Programming Refresher
- Industry Master Class - Data Analyst

Data Analyst Master's Program Outcomes

Understand essential statistical concepts, including measures of central tendency, dispersion, correlation, and regression

Master SQL concepts such as Universal Query Tool and SQL command

Write your first Python program by implementing concepts of variables, strings, functions, loops, and conditions

Understand the nuances of lists, sets, dictionaries, conditions and branching, objects, and classes in Python

Work with data in Python, including reading and writing files, loading, working, and saving data with Pandas

Learn how to interpret data in Python using multi-dimensional arrays in NumPy, manipulate DataFrames in Pandas, use SciPy library of mathematical routines, and execute machine learning using Scikit-Learn

Perform data analytics using popular Python libraries

Data Analyst Master's Program Outcomes

Gain insights on several data visualization libraries in Python, including Matplotlib, Seaborn, and Folium

Gain an in-depth understanding of the basics of R, learning how to write your own R scripts

Master R programming and understand how various statements are executed in R

Who Should Enroll in this Program?

A career as a data analyst requires a foundation in statistics and mathematics. Aspiring professionals of any educational background with an analytical frame of mind are best suited to pursue the Data Analyst Master's Program, including:

- IT professionals
- Banking and finance professionals
- Marketing managers
- Supply chain network managers
- Beginners in the data engineering domain
- Students in UG/ PG programs

Introduction to Data Analytics

Simplilearn's Introduction to Data Analytics course will give you insights into applying data and analytics principles in your business. You will gain an understanding of the complete data analytics lifecycle, from problem definition to solution deployment. Through various industry-specific examples and case studies, you will learn how analytics, data visualization, and data science methodologies can be used to drive better business decisions.

Key Learning Objectives

- Understand how to solve analytical problems in real-world scenarios
- Define effective objectives for analytics projects
- Work with different types of data
- Understand the importance of data visualization to help make more effective business decisions
- Understand charts, graphs, and tools used for analytics and visualization and use them to derive meaningful insights
- Create an analytics adoption framework
- Identify upcoming trends in the data analytics field

Course curriculum

- Lesson 1 - Course Introduction
- Lesson 2 - Data Analytics Overview
- Lesson 3 - Dealing with Different Types of Data
- Lesson 4 - Data Visualization for Decision making
- Lesson 5 - Data Science, Data Analytics, and Machine Learning
- Lesson 6 - Data Science Methodology
- Lesson 7 - Data Analytics in Different Sectors
- Lesson 8 - Analytics Framework and Latest trends

Statistics Essentials

Statistics is the science of assigning a probability to an event based on experiments. It is the application of quantitative principles to the collection, analysis, and presentation of numerical data. Ace the fundamentals of data science, statistics, and machine learning with this course. It will enable you to define statistics and essential terms related to it, explain measures of central tendency and dispersion, and comprehend skewness, correlation, regression, and distribution. Additionally, you will be able to make data-driven predictions through statistical inference.

Key Learning Objectives

- Understand the fundamentals of statistics
- Work with different types of data
- Learn how to plot different types of data
- Calculate the measures of central tendency, asymmetry, and variability
- Calculate correlation and covariance
- Distinguish and work with different types of distribution
- Estimate confidence intervals
- Perform hypothesis testing
- Make data-driven decisions
- Understand the mechanics of regression analysis
- Carry out regression analysis
- Use and understand dummy variables
- Understand the concepts needed for data science, even with Python and R

Course curriculum

- Lesson 1 - Introduction
- Lesson 2 - Sample or Population Data?
- Lesson 3 - The Fundamentals of Descriptive Statistics
- Lesson 4 - Measures of Central Tendency, Asymmetry, and Variability
- Lesson 5 - Practical Example: Descriptive Statistics
- Lesson 6 - Distributions
- Lesson 7 - Estimators and Estimates
- Lesson 8 - Confidence Intervals: Advanced Topics
- Lesson 9 - Practical Example: Inferential Statistics
- Lesson 10 - Hypothesis Testing: Introduction
- Lesson 11 - Hypothesis Testing: Let's Start Testing!
- Lesson 12 - Practical Example: Hypothesis Testing
- Lesson 13 - The Fundamentals of Regression Analysis
- Lesson 14 - Subtleties of Regression Analysis
- Lesson 15 - Assumptions for Linear Regression Analysis
- Lesson 16 - Dealing with Categorical Data
- Lesson 17 - Practical Example: Regression Analysis

SQL for Data Analytics

This course gives you the information you need to successfully start working with SQL databases and make use of the database in your applications. Learn how to correctly structure your database, author efficient SQL statements and clauses, and manage your SQL database for scalable growth

Key Learning Objectives

- Understand databases and relationships
- Use common query tools and work with SQL commands
- Understand transactions, creating tables and views
- Comprehend and execute stored procedures

Course curriculum

- Lesson 1- Fundamentals SQL Statements
- Lesson 2-Restore and Back-up
- Lesson 3-Selection Commands: Filtering
- Lesson 4-Selection Commands: Ordering
- Lesson 5-Alias

- Lesson 6-Aggregate Commands
- Lesson 7-Group By Commands
- Lesson 8-Conditional Statement
- Lesson 9-Joins
- Lesson 10-Subqueries
- Lesson 11-Views and Index
- Lesson 12-String Functions
- Lesson 13-Mathematical Functions
- Lesson 14-Date - Time Functions
- Lesson 15-Pattern (String) Matching
- Lesson 16-User Access Control Functions

Business Analytics with Excel

Business Analytics with Excel training will boost your analytics career with powerful new Microsoft Excel skills. This business analytics training course will equip you with the concepts and hard skills required for a strong analytics career. You'll learn the basic concepts of data analysis and statistics, helping promote data-driven decision making. Your new knowledge of this commonly used tool combined with official business analytics certification is guaranteed to ensure career success.

Key Learning Objectives

- Understand the meaning of business analytics and its importance in the industry
- Grasp the fundamentals of Excel analytics functions and conditional formatting
- Learn how to analyze with complex datasets using pivot tables and slicers
- Solve stochastic and deterministic analytical problems using tools like scenario manager, solver, and goal seek
- Apply statistical tools and concepts like moving average, hypothesis testing, ANOVA, and regression to data sets using Excel
- Represent your findings using charts and dashboards
- Get introduced to the latest Microsoft analytic and visualization tools, such as Power BI

Course curriculum

- Lesson 1- Introduction to Business Analytics
- Lesson 2- Formatting Conditional Formatting and Important Functions
- Lesson 3- Analysing Data with Pivot Tables
- Lesson 4- Dashboarding
- Lesson 5- Business Analytics with Excel
- Lesson 6- Data Analysis Using Statistics
- Lesson 7- Power BI

Tableau Training

This Tableau Desktop 10 training will help you master the various aspects of the program and gain skills such as building visualization, organizing data, and designing dashboards. You will also learn the concepts of statistics, mapping, and data connection. It is an essential asset to those wishing to succeed in data science.

Key Learning Objectives

- Grasp the concepts of Tableau Desktop 10, become proficient with statistics, and build interactive dashboards
- Master data sources and datable blending, create data extracts, and organize and format data
- Master arithmetic, logical, table and LOD calculations, and ad-hoc analytics
- Become an expert on visualization techniques such as heat map, treemap, waterfall, Pareto, Gantt chart, and market basket analysis
- Learn to analyze data using Tableau Desktop as well as clustering and forecasting techniques
- Gain command of mapping concepts such as custom geocoding and radial selections
- Master Special Field Types and Tableau Generated Fields and the process of creating and using parameters
- Learn how to build interactive dashboards, story interfaces, and how to share your work

Course curriculum

- Lesson 1 - Getting Started With Tableau
- Lesson 2 - Working with Tableau
- Lesson 3 - Deep Diving with Data and Connections
- Lesson 4 - Creating Charts
- Lesson 5 - Adding Calculations to Your Workbook
- Lesson 6 - Mapping Data in Tableau
- Lesson 7 - Dashboards and Stories
- Lesson 8 - Visualizations for an Audience

Power BI Training

Microsoft Power BI is a suite of tools used to analyze your data and extract business insights by building interactive dashboards. This Power BI Training course will help you get the most out of Power BI, enabling you to solve business problems and improve operations.

This Power BI Training course will help you master the development of dashboards from published reports, discover greater insight from your data with Quick Insights, and learn practical recipes for the various tasks that you can do with Microsoft Power BI—from gathering your data to analyzing it. This course also contains some handy recipes for troubleshooting various issues in Power BI.

Key Learning Objectives

- Create dashboards from published reports
- Quickly generate visuals and dashboards with Quick Insights
- Use natural language in the Q&A feature to quickly generate visuals for actionable insight
- Create and manage data alerts
- Get report layout and data visualization best practices
- Understand which charts/graphs to use depending on the question being answered or the story being told
- Use shapes to design, emphasize, and tell a story
- See how to incorporate custom visuals into your reports and dashboards

- Share reports and dashboards, as well as the pros and cons of each
- Complete a Power BI data analysis/visual project from start to finish
- Improve team collaboration with Microsoft Teams
- Know how to get and prepare your data for analysis and visualization
- Learn how to create relationships between tables in your data model
- Create calculated columns and measures using the DAX languag

Course curriculum

- Lesson 1 - Get and Prep Data like a Super Nerd
- Lesson 2 - Develop Your Data Nerd Prowess
- Lesson 3 - Developing Reports and Dashboards
- Lesson 4 - Tips, Tricks, and Capstone Project

Python for Data Science

Kickstart your learning of Python for data science with this introductory course and familiarize yourself with programming. Upon completion of this course, carefully crafted by IBM, you will be able to write your Python scripts, perform fundamental hands-on data analysis using the Jupyter-based lab environment, and create your own data science projects using IBM Watson.

Key Learning Objectives

- Write your first Python program by implementing the concepts of variables, strings, functions, loops, and conditions
- Understand the nuances of lists, sets, dictionaries, conditions and branching, objects, and classes
- Work with data in Python, including reading and writing files, loading, working, and saving data with Pandas

Course Curriculum:

- Lesson 1 - Python Basics
- Lesson 2 - Python Data Structures
- Lesson 3 - Python Programming Fundamentals
- Lesson 4 - Working with Data in Python
- Lesson 5 - Working with NumPy Arrays

Data Visualization with Python

Data visualization plays an essential role in the representation of both small and large-scale data. In this Data Visualization with Python course, you will learn how to create impressive graphics and charts and customize them to make them more productive and more pleasing to your audience. You will gain expertise in several data visualization libraries in Python, namely Matplotlib, Seaborn, and Folium to extract information, better understand the data, and make more effective decisions.

Key Learning Objectives

- Learn data visualization and best practices when creating plots and visuals
- Master basic plotting with Matplotlib
- Generate different visualization tools using Matplotlib such as line plots, area plots, histograms, bar charts, box plots, and pie charts
- Understand Seaborn, a data visualization library in Python, and how to use it to create attractive statistical graphics
- Understand Folium and how to use it to create maps and visualize geospatial data

Course curriculum

- Lesson 1 - Introduction to Visualization Tools
- Lesson 2 - Basic Visualization Tools
- Lesson 3 - Specialized Visualization Tools
- Lesson 4 - Advanced Visualization Tools
- Lesson 5 - Creating Maps and Visualizing Geospatial Data

Programming Basics and Data Analytics with Python

Learn how to analyze data in Python using multi-dimensional arrays in NumPy, manipulate DataFrames in Pandas, use the SciPy library of mathematical routines, and perform machine learning using scikit-learn. This course will take you from the basics of Python to the many different types of data. You will learn how to prepare data for analysis, perform simple statistical analyses, create meaningful data visualizations, predict future trends from data, and more.

Key Learning Objectives

- Import data sets
- Clean and prepare data for analysis
- Manipulate Pandas DataFrame
- Summarize data
- Build machine learning models using scikit-learn
- Build data pipelines

Course curriculum

- Lesson 1 Course Introduction
- Lesson 2 Python Environment Setup and Essentials
- Lesson 3 Python Programming Fundamentals
- Lesson 4 Data Analytics Overview
- Lesson 5 Statistical Computing
- Lesson 6 Mathematical Computing using NumPy
- Lesson 7 Data Manipulation with Pandas
- Lesson 8 Data visualization with Python
- Lesson 9 Intro to Model Building

R Programming for Data Science

Gain insight into the R programming language with this introductory course. An essential programming language for data analysis, R programming is a fundamental key to becoming a successful data science professional. In this course, you will learn how to write R code, learn about R's data structures, and create your own functions. After the completion of this course, you will be fully able to begin your first data analysis.

Key Learning Objectives

- Learn about math, variables, strings, vectors, factors, and vector operations
- Gain a fundamental knowledge of arrays and matrices, lists, and data frames
- Get an understanding of conditions and loops, functions in R, objects, classes, and debugging
- Learn how to accurately read text, CSV, and Excel files plus how to write and save data objects in R to a file
- Understand and learn how to work on strings and dates in R

Course curriculum

- Lesson 1 - R Basics
- Lesson 2 - Data Structures in R
- Lesson 3 - R Programming Fundamentals
- Lesson 4 - Working with Data in R
- Lesson 5 - Strings and Dates in R

Data Visualization with R

In this Data Visualization with R course by IBM, you will learn how to create beautiful graphics and charts, customizing their look and feel using the open-source language R.

This course will help you learn how to leverage a software tool to visualize data and enable you to extract information, better understand the data, and make more effective decisions.

Key Learning Objectives

- Learn how to create beautiful graphics and charts
- Understand how to customize the look and feel of them
- Master the creation of maps in R
- Gain expertise in the creation of scatter plots, line plots, regression, bar charts, histograms, pie charts, word clouds, radar charts, waffle charts, and box plots

Course curriculum

- Lesson 1 - Basic Visualization Tools
- Lesson 2- Basic Visualization Tools Continued
- Lesson 3 - Specialized Visualization Tools
- Lesson 4 - How to Create Maps
- Lesson 5 - How to Build Interactive Web Pages

Data Science with R

The next step to mastering data science is learning R—the most in-demand open source technology in the field. R is an extremely powerful data science and analytics language which has a steep learning curve and a very vibrant community. This is why it is quickly becoming the technology of choice for organizations who are adopting the power of analytics for a competitive advantage.

Key Learning Objectives

- Gain a foundational understanding of business analytics
- Install R, R-studio, and workspace setup and learn about the various R packages
- Master R programming and understand how various statements are executed in R
- Gain an in-depth understanding of data structure used in R and learn to import/export data in R
- Define, understand, and use the various apply functions and DPYR functions
- Understand and use the various graphics in R for data visualization
- Gain a basic understanding of various statistical concepts
- Understand and use hypothesis testing method to drive business decisions
- Understand and learn how to use linear and non-linear regression models and classification techniques for data analysis
- Learn and use the various association rules and Apriori algorithm
- Learn and use clustering methods including K-means, DBSCAN, and hierarchical clustering

Course curriculum

- Lesson 1 - Introduction to Business Analytics
- Lesson 2 - Introduction to R Programming
- Lesson 3 - Data Structures
- Lesson 4 - Data Visualization
- Lesson 5 - Statistics for Data Science-I
- Lesson 6 - Statistics for Data Science-II
- Lesson 7 - Regression Analysis
- Lesson 8 - Classification
- Lesson 9 - Clustering
- Lesson 10 - Association

Data Analyst Capstone

This Data Analyst Capstone project will give you an opportunity to implement the skills you learned throughout this program. Through dedicated mentoring sessions, you'll learn how to solve a real-world, industry-aligned data science problem, from data processing and model building to reporting your business results and insights. This project is the final step in the learning path and will enable you to showcase your expertise in data analytics to future employers.

Elective Course

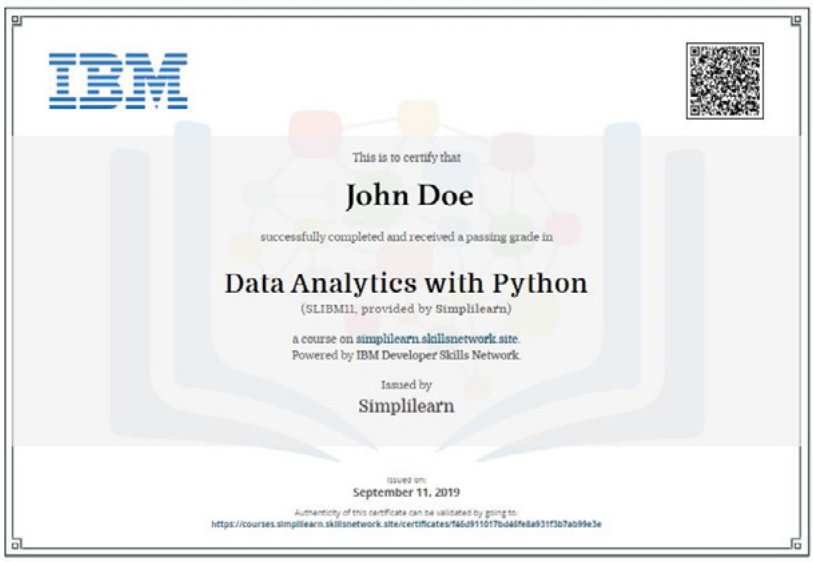
Data Science in Real Life

Data science is one of the most highly sought-after fields of the century. Explore the truth about what data science is and hear from real practitioners telling real stories about what it means to work in data science, including use cases. Learn about data science in a business context and the future of data science.

Programming Refresher

Programming is an increasingly important skill and this course will establish your proficiency in handling basic programming concepts. This course will cover the basics of Java, Python, and C++. By the end of this program, you will gain context into object-oriented programming and understand the basic programming concepts like data types, variables, strings, loops, and functions and also software engineering concepts like multithreading and multitasking.

Certificates



Upon completion of this Master's Program, you will receive certificates from IBM and Simplilearn in the Data Analyst courses in the learning path. These certificates will testify to your skills as an expert in data analysis. Upon program completion, you will also receive an industry-recognized Master's Certificate from Simplilearn.

Advisory board member

Ronald Van Loon

Top 10 Big Data & Data Science Influencer, Director of Adversitement

Named by Onalytica as one of the three most influential people in big data, Ronald is also an author for a number of leading big data and data science websites, including Datafloq, Data Science Central, and The Guardian. He also regularly speaks at renowned events.

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