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# Post Graduate Program in Data Analytics

In collaboration with IBM

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# About the Program

Accelerate your career with this acclaimed Post Graduate Program in Data Analytics, in partnership with Purdue University and in collaboration with IBM. This program features the perfect mix of theory, case studies, and extensive hands-on practice. This program, in partnership with Purdue University, provides a comprehensive data analytics education, leveraging Purdue's academic excellence in data analytics and Simplilearn's partnership with IBM.

This Post Graduate Program is designed to give graduates in any discipline and experienced professionals from programming as well as non-programming background an extensive data analytics education. This training offers a blend of online self-paced videos, live virtual classes, hands-on projects, and labs. Students also have access to mentorship sessions that provide a high-engagement learning experience and real-world applications to help master essential data analytics skills. This program offers in-depth exposure to data visualization tools such as Excel, Power BI, and Tableau and the programming languages Python, R, and SQL to help prepare you for an exciting career in data analytics.

# Key Features of the Post Graduate Program in Data Analytics in Partnership with Purdue University



Purdue Post Graduate Program Certification



Industry-recognized IBM certificates



180+ hours of Blended Learning



12+ hands-on projects on integrated labs



Capstone project in 3 domains



Purdue Alumni Association membership



Masterclasses from Purdue faculty



# About the Post Graduate Program in Data Analytics in Partnership with Purdue University

Purdue University, a top public research institution, offers higher education at its highest proven value. Committed to student success, Purdue is changing the student experience with a greater focus on faculty-student interaction and creative use of technology.

This Data Analytics Post Graduate Program in partnership with Purdue University will open pathways for you in the data analytics domain as it pertains to virtually every realm of business—from healthcare to manufacturing to ecommerce.

Upon completing this program, you will receive a joint Purdue-Simplilearn certification of completion.



## About Simplilearn

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

# Program Eligibility Criteria and Application Process

Those wishing to enroll in the Post Graduate Program in Data Analytics in partnership with Purdue University will be required to apply for admission.

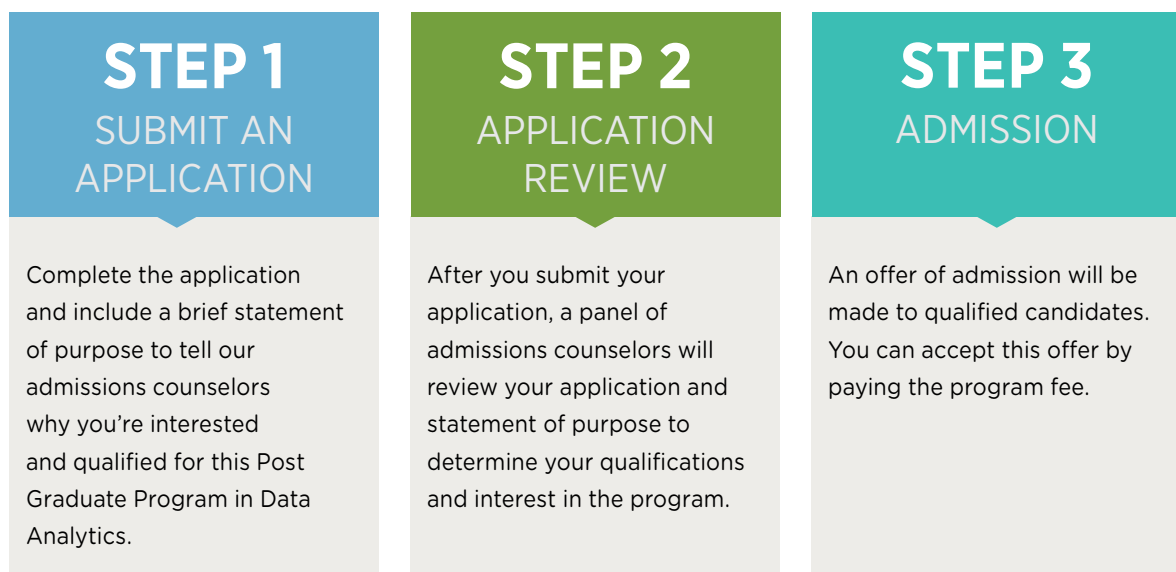
## Eligibility Criteria

For admission to the Post Graduate Program in Data Analytics, candidates:

- ✓ Should have bachelor's degree in any discipline with an average of 50% or higher marks
- ✓ With a non-programming background can also apply
- ✓ Having prior work experience is not mandatory

## Application Process

The application process consists of three simple steps. An offer of admission will be made to the selected candidates and accepted by the candidates upon payment of the admission fee.



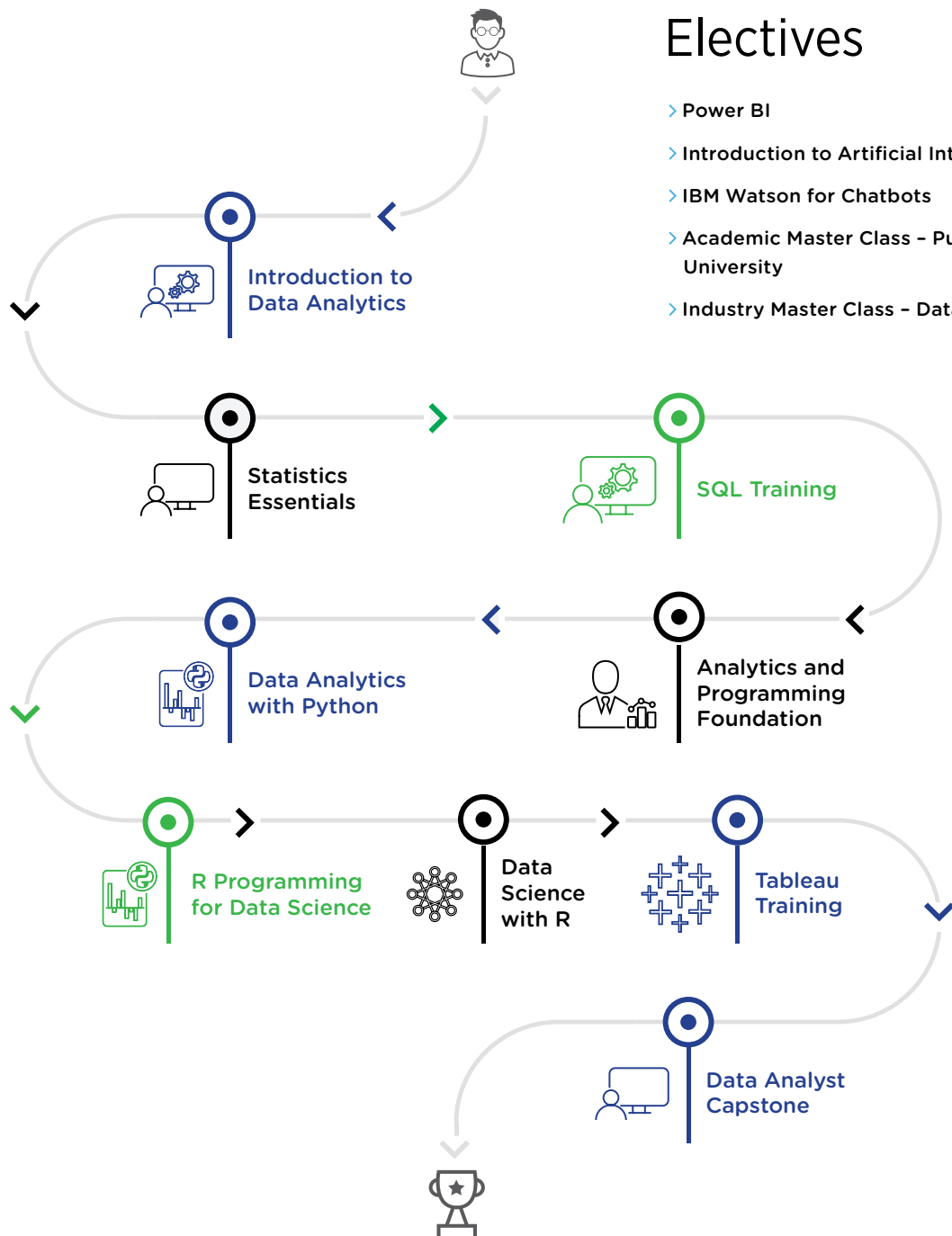


## Talk to an Admissions Counselor

We have a team of dedicated admissions counselors who are here to help guide you in the application process and related matters. They are available to:

- ✓ Address questions related to the application
- ✓ Assist with financial aid (if required)
- ✓ Help you better understand the program and answer your questions

# Learning Path



## Electives

- > Power BI
- > Introduction to Artificial Intelligence
- > IBM Watson for Chatbots
- > Academic Master Class - Purdue University
- > Industry Master Class - Data Science



# Program Outcomes



Understand essential statistical concepts and SQL concepts



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



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



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



Perform data analytics using popular Python libraries



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



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

# Program Outcomes



Understand and use linear and non-linear regression models and classification techniques for data analysis



Grasp the concepts of Tableau Desktop 10, become proficient with Tableau statistics and build interactive dashboards



Become an expert on visualization techniques such as heat map, treemap, waterfall, Pareto, Gantt chart, and market basket analysis



Get introduced to the latest Microsoft analytics and visualization tools (Power BI)



Understand the basics of AI concepts, machine learning workflows, and AI business applications



## Who Should Enroll in this Program?

This program caters to graduates in any discipline and working professionals from programming as well as non-programming backgrounds. Candidates with no prior experience can also apply for this program. The diversity of our students adds richness to class discussions and interactions.

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 this Post Graduate Program in Data Analytics, including:

- ✓ IT professionals
- ✓ Banking and finance professionals
- ✓ Marketing managers
- ✓ Supply chain network managers
- ✓ Students in UG/ PG programs

# Introduction to Data Analytics

The focus of this online course is to introduce beginners to the fundamental concepts of data analytics through real-world case studies and examples. This courseware covers the importance of data analytics and visualization for decision-making in a business setting, the difference between data analytics, data science, and machine learning, and how to build an analytics framework and use analytics tools to uncover meaningful business insights.

## Key Learning Objectives

- ✓ Understand how to solve analytical problems in real-world scenarios
- ✓ Define effective objectives for analytics projects
- ✓ 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 and identify upcoming trends in the data analytics field

## Course curriculum

- |   |   |
|---|---|
| ✓ Lesson 1 - Course Introduction                    | ✓ Lesson 5 - Data Science, Data Analytics, and Machine Learning |
| ✓ Lesson 2 - Data Analytics Overview                |   |
| ✓ Lesson 3 - Dealing with Different Types of Data   | ✓ Lesson 6 - Data Analytics in Different Sectors                |
| ✓ Lesson 4 - Data Visualization for Decision Making | ✓ Lesson 7 - Analytics Framework and Latest Trends              |



# Statistics Essential for Data Analytics

Statistics is the science of assigning a probability through the collection, classification, and analysis of data. This course will enable you to define statistics—a foundational part of data science—and essential terms related to it, explain measures of central tendency and dispersion, and comprehend skewness, correlation, regression, and distribution. 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 Training

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 the concepts of fundamental SQL statements, conditional statements, commands, joins, subqueries, and various functions to 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- Fundamental 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



# Analytics and Programming Foundation

This course will equip you with the basics of programming languages and statistics fundamentals and techniques required to get a headstart to your analytics career. You'll learn the basic concepts of OOPS, data analysis, and excel analytics functions.

## Key Learning Objectives

- ✓ Understand the meaning of business analytics and its importance in the industry
- ✓ Gain knowledge in the basics of programming, Python fundamentals, Jupyter and Python environment setups, and OOPs concepts
- ✓ Have a fair understanding of different programming languages, algorithms, and pseudo codes
- ✓ Grasp the fundamentals of Excel analytics functions and conditional formatting
- ✓ Learn how to analyze with complex datasets using pivot tables and slicers
- ✓ Apply statistical tools and concepts such as moving average, hypothesis testing, ANOVA, and regression to data sets using Excel
- ✓ Represent your findings using charts and dashboards

## Course curriculum

### Module 1:

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

### Module 2:

- ✔ Lesson 9 - Introduction to Programming
- ✔ Lesson 10 - Programming Environment Setup
- ✔ Lesson 11- OOPs Concepts
- ✔ Lesson 12- Programming Fundamentals of Python
- ✔ Lesson 13- File Handling, Exception Handling, and Package Handling

# 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 Data Analytics Overview
- ✓ Lesson 3 Statistical Computing
- ✓ Lesson 4 Mathematical Computing Using NumPy
- ✓ Lesson 5 Data Manipulation with Pandas
- ✓ Lesson 6 Data visualization with Python
- ✓ Lesson 7 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 completion of this course, you will be fully prepared to begin your first data analysis.

## Key Learning Objectives

- ✓ Learn about math, variables, strings, vectors, factors, and vector operations
- ✓ Gain fundamental knowledge of arrays and matrices, lists, and data frames
- ✓ Get insight into conditions and loops, functions in R, objects, classes, and debugging
- ✓ Learn how to accurately read text, CSV, and Excel files and how to write and save data objects in R to a file
- ✓ Understand and 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 - Stings and Dates in R



# Data Science with R

The next step to becoming a data scientist is learning R, the most in-demand open source technology. R, a powerful data science and analytics language, has a steep learning curve and a very vibrant community. This is why it is quickly becoming the technology of choice for organizations that are adopting the power of analytics for 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 structures used in R and learn how to import/export data in R
- ✓ Understand and use the various apply functions and DPLYR functions
- ✓ Understand and use the various graphics in R for data visualization
- ✓ Gain a basic understanding of various statistical concepts
- ✓ Understand and use the hypothesis testing method to drive business decisions
- ✓ Understand and use both 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

# Tableau

This Tableau Desktop 10 training will help you master the various aspects of the program and gain skills such as building visualizations, 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 data 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, tree map, waterfall, Pareto, Gantt chart, and market basket analysis
- ✓ Learn to analyze data using Tableau Desktop as well as clustering and forecasting techniques
- ✓ Gain a 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



# 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.

This capstone project will bring you through the methodologies of data pre-processing, exploratory data analysis, and data storytelling by creating dashboards to drive business decisions. You can choose to work on projects that cover the most relevant domains (consumer services, BFSI, and healthcare) to make your practice more relevant.

# Elective Course

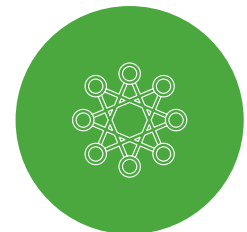
## Power BI

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.



## Introduction to AI

The Introduction to Artificial Intelligence course is designed to help learners decode the mystery of artificial intelligence and understand its business applications. This course provides an overview of artificial intelligence concepts and workflows, machine learning, deep learning, and performance metrics. You'll learn the difference between supervised and unsupervised learning, be exposed to use cases, and see how clustering and classification algorithms help identify artificial intelligence business applications.

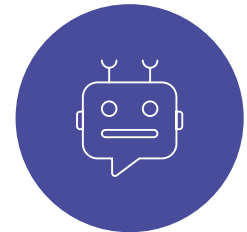




# Elective Course

## IBM Watson for Chatbots

This course provides a practical introduction on how to build a chatbot with Watson Assistant without writing any code and then deploy your chatbot to a real website in less than five minutes. It will teach you to plan, build, test, analyze, and deploy your first chatbot.



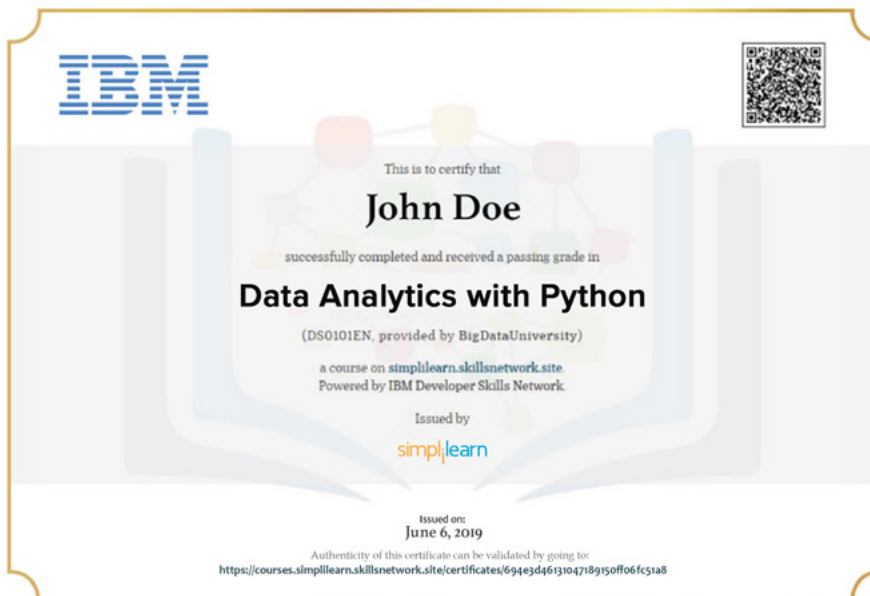
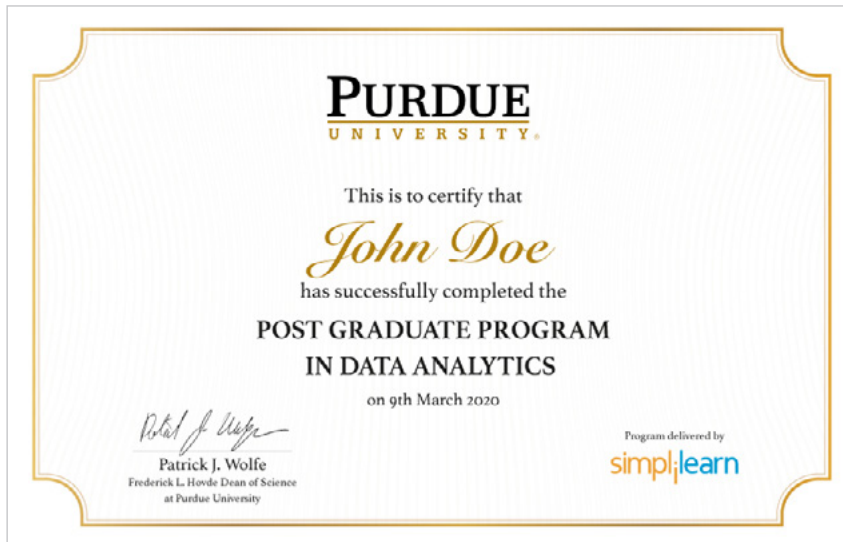
## Academic Master Class – Purdue University

Attend an online interactive masterclass and get insights about advancements in the Data Analytics domain.

## Industry Master Class – Data Science

Attend this online interactive industry master class to gain insights about Data Analytics Domain.

# Certification



Upon completion of this Post Graduate Program in Data Analytics in partnership with Purdue University, you will receive the Post Graduate Program Certification from Purdue University and IBM. You will also receive certificates from Simplilearn for the courses in the learning path. These certificates will testify to your skills as an expert in data analytics.

## Advisory Board Members



### Patrick J. Wolfe

[Frederick L. Hovde Dean of Science at Purdue University](#)

Patrick J. Wolfe, an award-winning researcher in the mathematical foundations of data science, is the Frederick L. Hovde Dean of Science at Purdue University and named the 2018 Distinguished Lecturer in Data Science by the IEEE. He provides expert advice on applications of data science.



### Ronald van Loon

[Big Data Expert, Director - Adversitement](#)

Named by Analytica as one of the three most influential people in big data, Ronald van Loon is the author of a number of leading big data and data science websites, including Dataflog, Data Science Central, and The Guardian. He is also a renowned speaker at industry events.



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All programs are offered on a non-credit basis and are not transferable to a degree.