



AI+ Business Intelligence Practitioner

COURSE OVERVIEW

The AI+ Business Intelligence Practitioner (BIP) course provides a comprehensive five-day curriculum designed for professionals interested in leveraging AI and BI tools to enhance data-driven decision-making. The program covers fundamental AI and BI concepts, data preparation, machine learning, and advanced AI techniques like deep learning and generative AI. Participants will gain hands-on experience using Python, Power BI, Tableau, and other BI platforms, focusing on data visualization, statistical analysis, and predictive modeling. The course also includes practical applications of AI in real-world business scenarios, culminating in a capstone project.

All students receive:

- One-Year Subscription (with all updates)
- High-Quality E-Book
- AI Mentor for Personalized Guidance
- Quizzes, Assessments, and Course Resources
- Exam Study Guide
- Proctored Exam with one Free Retake

PREREQUISITES

- Basic Computer Skills: Familiarity with software applications.
- Foundational Data Concepts: Basic knowledge of data analysis (beneficial, not mandatory).
- Open to All: Suitable for all expertise levels, with an interest in AI, ML, and BI.

COURSE OUTLINE

Module 1 - Introduction to AI and BI Fundamentals

1.1 Overview of AI and BI Integration

- Understanding AI: Key Concepts and Definitions: Gain insights into fundamental AI concepts, exploring its definitions, key components, and role in transforming industries.
- Evolution of Business Intelligence: Traditional BI to AI-Driven BI: Discover the progression from traditional BI tools to the integration of AI, enhancing data analysis, decision-making, and business outcomes.
- Real-World Applications: Industry Use Cases for AI in BI: Examine practical AI-driven BI use cases across industries, such as retail demand forecasting, improving supply chain efficiency and customer insights.



1.2 Core Concepts in Business Intelligence

- **BI Framework: Data Collection, Transformation, and Visualization:** Learn the processes involved in data collection, transformation, and visualization to enhance business intelligence and decision-making.
- **Key BI Tools: Power BI, Tableau, and Looker:** Explore the capabilities of Power BI, Tableau, and Looker to effectively analyze, visualize, and present data for better insights.

1.3 Data Analysis Process and AI's Role

- **Steps in Data Analysis: Problem Definition, Data Preparation, and Reporting:** Understand the critical steps in data analysis, including problem definition, data preparation, and reporting for accurate insights.
- **Integration of AI: Enhancing Data Quality, Insights, and Decision-Making:** Learn how AI integration improves data quality, generates valuable insights, and supports better decision-making processes.

1.4 BI Trends and Challenges

- **Emerging Trends: Self-Service Analytics, Real-Time BI, Embedded BI:** Explore the latest trends in BI, such as self service analytics, real-time BI, and embedded BI, revolutionizing data access and decision-making.
- **Challenges in BI: Data Silos, Scalability, and Security:** Understand the common challenges in BI, including data silos, scalability issues, and security concerns that impact data management and analysis.

1.5 Case Study

- **Explore the Impact of AI-Enhanced BI Solutions in a Specific Industry (e.g., Healthcare for Predictive Analytics):** Analyze how AI-driven BI solutions in healthcare enable predictive analytics to improve patient outcomes, optimize resource allocation, and enhance decision-making.

1.6 Hands-On Activity

- **Case Study Analysis: Analyze a Real-World Example of AI-Enhanced BI Solutions:** Investigate a real-world case where AI-enhanced BI solutions have been successfully implemented, highlighting their impact on business performance and decision-making.

Module 2 - Python for AI-Driven Business Intelligence

2.1 Python Programming Fundamentals

- **Benefits of Python in AI-Driven BI:** Understand how Python enhances AI-driven BI by providing powerful libraries and tools for data analysis, machine learning, and automation.
- **Basic Syntax & Data Structures: Lists, Tuples, Dictionaries:** Learn the foundational Python syntax and key data structures like lists, tuples, and dictionaries essential for effective programming.
- **Object-Oriented Programming: Classes, Inheritance, and Modules:** Explore the principles of object-oriented programming in Python, focusing on classes, inheritance, and modules to organize and structure code.



2.2 Advanced Python Libraries for BI

- Key Python Libraries: Pandas, NumPy, Scikit-learn, TensorFlow, Keras: Discover essential Python libraries such as Pandas, NumPy, Scikit-learn, TensorFlow, and Keras for data manipulation, machine learning, and deep learning applications.

2.3 Visualization with Python

- Libraries: Matplotlib, Seaborn, and Plotly: Learn how to use Matplotlib, Seaborn, and Plotly for data visualization, enabling the creation of informative and interactive charts and graphs.

2.4 Hands-On Activity

- Perform AI-Driven Data Visualization Using Python and the Libraries Discussed: Apply Python and libraries like Matplotlib, Seaborn, and Plotly to create AI-powered visualizations that enhance data interpretation and decision making.

Module 3 - Data Preparation and Feature Engineering with AI

3.1 Data Collection Techniques

- Types of Data Sources: Structured, Semi-Structured, and Unstructured Data: Understand the different types of data sources, including structured, semi-structured, and unstructured data, and their role in data analysis.
- Data Gathering Methods: Databases (SQL, NoSQL), APIs, and Web Scraping Tools: Learn various data gathering methods, including SQL, NoSQL databases, APIs, and web scraping tools, to efficiently collect data.
- Real-Time Data Collection: Using Tools Like Kafka and Spark: Explore how tools like Kafka and Spark facilitate real time data collection and processing for immediate insights and analysis.
- Ethical Considerations: Privacy, Compliance, and Data Governance: Examine ethical considerations in data handling, including privacy concerns, compliance with regulations, and best practices for data governance.
- Use-Case: Real-Time Data Collection in an E-Commerce Environment Using Kafka: Analyze the application of real-time data collection using Kafka in an e-commerce setting to improve operational efficiency and customer experience.

3.2 Data Quality & Evaluation

- Assessing Data Quality: Accuracy, Completeness, and Consistency: Evaluate data quality by measuring its accuracy, completeness, and consistency to ensure reliable insights and decision-making.
- AI Tools for Data Profiling: Identifying Anomalies, Duplicates, and Missing Data: Leverage AI tools for data profiling to detect anomalies, identify duplicates, and handle missing data efficiently.
- Cleaning Techniques: Imputation, Outlier Removal, and Redundancy Handling: Apply data cleaning techniques such as imputation, outlier removal, and redundancy handling to improve data quality for analysis.



3.3 Advanced Data Preparation

- Transformation Techniques: Standardization, Normalization, and Encoding: Learn transformation techniques like standardization, normalization, and encoding to prepare data for analysis and machine learning models.
- Feature Engineering with AI: Feature Selection, Dimensionality Reduction (PCA, t-SNE): Explore feature engineering with AI, focusing on feature selection and dimensionality reduction methods such as PCA and t-SNE.
- Handling Imbalanced Datasets: Oversampling, Undersampling, and SMOTE: Understand techniques for handling imbalanced datasets, including oversampling, undersampling, and SMOTE, to improve model performance.
- Case Study: Data Cleaning for a Predictive Model in Finance Using Imputation and Outlier Handling: Analyze a case study on data cleaning for a predictive finance model, focusing on imputation and outlier handling to improve model accuracy.

3.4 Hands-On Activity

- Build an AI-Driven Data Preparation Pipeline Using Python and Scikit-learn: Learn how to construct an AI-driven data preparation pipeline using Python and Scikit-learn, automating tasks like data cleaning, transformation, and feature engineering for machine learning models.

Module 4 - Machine Learning (ML) for Business Intelligence

4.1 ML Models for BI

- Supervised Learning: Regression, Classification: Understand supervised learning techniques like regression and classification to predict outcomes and categorize data based on labeled examples.
- Unsupervised Learning: Clustering, Anomaly Detection: Explore unsupervised learning methods such as clustering and anomaly detection to find patterns and detect outliers in unlabeled data.
- Reinforcement Learning: Optimization and Decision-Making: Learn the principles of reinforcement learning for optimization and decision-making, where an agent learns to make decisions through trial and error. Use-Case: Applying Regression Models for Sales Forecasting in Retail: Analyze the use of regression models for sales forecasting in retail, predicting future sales based on historical data.

4.2 Hands-On Activity

- Build and Evaluate an ML Model Using AI Tools Like Scikit-learn and Evaluate Its Performance on a Real-World Dataset: Learn how to build and evaluate machine learning models using Scikit-learn, applying them to real-world datasets to assess performance and accuracy.



Module 5 - Advanced AI and Generative AI for BI

5.1 Deep Learning and Neural Networks for BI

- Applications: Scenario Planning, Data Generation, and Predictive Modeling: Explore how scenario planning, data generation, and predictive modeling enhance decision-making and strategy formulation in various industries.
- Deep Learning and Neural Networks for BI: Learn the role of deep learning and neural networks in business intelligence, providing advanced capabilities for data analysis and decision-making.
- Artificial Neural Networks (ANNs): Concept and Applications in BI: Understand the concept of ANNs and their applications in BI, such as pattern recognition and decision support.
- Convolutional Neural Networks (CNNs) for Image Data and Visualization: Discover how CNNs are used for processing image data and generating meaningful visualizations to support business intelligence. Recurrent Neural Networks (RNNs) for Time Series Forecasting and Trend Analysis: Learn about RNNs and how they are used for time series forecasting and analyzing trends over time.
- Training Deep Neural Networks: Overview, Architecture, and Backpropagation: Gain an understanding of how deep neural networks are trained, including their architecture and the process of backpropagation.
- Implementing Neural Networks for Pattern Recognition and Prediction: Explore how neural networks can be implemented for tasks like pattern recognition and predictive analytics.
- Case Study: Using Deep Learning for Customer Segmentation in Retail: Analyze a case study on using deep learning for customer segmentation in the retail sector, improving targeting and personalization.

5.2 Generative AI for BI

- Overview of Generative AI: What is Generative AI? Introduction to the Concept and Types (e.g., GANs, VAEs): Understand the concept of Generative AI, exploring its types such as GANs and VAEs, and their capabilities in generating new data.
- Applications in Business Intelligence: Data Augmentation, Scenario Planning, and Content Generation: Discover how Generative AI is used in BI for data augmentation, scenario planning, and generating relevant content to improve insights.
- Generative Models in BI: How They Can Generate Predictive Insights, Automate Reporting, and Simulate Business Strategies: Learn how generative models can be applied in BI to create predictive insights, automate reporting processes, and simulate various business strategies.
- Use Cases: Product Development, Personalized Marketing, and Financial Modeling: Explore real-world use cases of Generative AI in BI, such as product development, personalized marketing, and financial modeling for optimized outcomes.
- Impact on BI: Enhanced Decision-Making, Improved Analytics, and Automation of Complex Tasks: Examine the transformative impact of Generative AI on BI, enhancing decision-making, analytics, and automating complex tasks to drive business growth.



5.3 Advanced AI Techniques

- **CNNs for Image Data Analysis:** Learn how Convolutional Neural Networks (CNNs) are applied for image data analysis, enabling businesses to extract meaningful insights from visual content.
- **RNNs for Time Series Forecasting:** Understand how Recurrent Neural Networks (RNNs) are used in time series forecasting, helping businesses predict future trends and patterns from sequential data.
- **Transformer Models (BERT, GPT): NLP in BI:** Explore how Transformer models like BERT and GPT are revolutionizing Natural Language Processing (NLP) in BI, enabling businesses to analyze and interpret text data for deeper insights.

5.4 Hands-On Activity

- **Create a Deep Learning Model for Predictive Analytics and Integrate It with BI:** Learn how to build a deep learning model for predictive analytics and seamlessly integrate it with Business Intelligence systems to provide actionable insights and enhance decision-making.

Module 6 - Statistical Analysis with AI Tools

6.1 Statistical Analysis for BI

- **Descriptive & Inferential Statistics:** Understand the difference between descriptive and inferential statistics, and how each is used to summarize data and make predictions about populations.
- **Visualizing Trends with AI Tools:** Learn how AI tools can be used to visualize trends in data, enhancing the understanding of patterns and insights for better decision-making.

6.2 Time Series Analysis

- **Forecasting Trends and Demands Using AI:** Learn how AI can be utilized to forecast trends and demands, enabling businesses to plan more accurately and optimize operations.
- **Sales and Operational Planning with AI-Enhanced Models:** Discover how AI-enhanced models improve sales and operational planning by providing more accurate predictions and better resource allocation.
- **Use-Case: Time-Series Analysis for Predicting Demand Spikes in Retail:** Explore a use case of time-series analysis to predict demand spikes in retail, helping businesses manage inventory and optimize sales strategies.

6.3 Hands-On Activity

- **Perform Time Series Analysis with AI Tools, Forecasting Future Trends:** Learn how to use AI tools to perform time series analysis, enabling the forecasting of future trends and helping businesses make data-driven decisions.

Module 7 - AI-Powered Business Intelligence Tools

7.1 AI in BI Platforms

- **Overview of AI Capabilities in Power BI, Tableau, and Looker:** Explore the AI capabilities integrated into Power BI, Tableau, and Looker, enhancing data analysis and visualization with machine learning-driven insights.



- **Automated Visualization and Insight Generation:** Learn how automated visualization tools can generate real-time insights, making it easier to interpret complex data and support business decisions.

7.2 Power BI Essentials

- **Data Import & Transformation:** Learn the techniques for importing and transforming data, preparing it for analysis and visualization using various AI tools and platforms.
- **Building Interactive Dashboards with AI Features:** Discover how to create interactive dashboards with AI-driven features, enhancing data visualization and user experience for better decision-making.

7.3 Tableau Essentials

- **Data Connection & Preparation:** Understand the process of connecting and preparing data from various sources to ensure it is ready for analysis and visualization.
- **Creating Advanced Visualizations with AI-Enhanced Features:** Learn how to create advanced visualizations with AI-enhanced features to provide deeper insights and more effective data storytelling.

7.4 Hands-On Activity

- **Build Interactive Dashboards and Create BI Reports with Power BI and Tableau Using Real-Time Data:** Learn how to design interactive dashboards and generate BI reports with Power BI and Tableau, utilizing real-time data for dynamic insights and decision-making.

Module 8 - Prompt Engineering for AI-Driven BI

8.1 Introduction to Prompt Engineering

- **Overview of Prompt Engineering: Crafting Effective Prompts to Interact with AI Models:** Understand the principles of prompt engineering and learn how to craft effective prompts for interacting with AI models to achieve desired outcomes.
- **Overview of LLM Model and Role of LLMs (Large Language Models) in BI:** Explore Large Language Models (LLMs) and their role in business intelligence, enhancing data analysis and decision-making through advanced natural language processing.
- **Optimizing Prompts for Various BI Tasks: Data Analysis, Reporting, Decision-Making:** Learn how to optimize prompts for specific BI tasks such as data analysis, reporting, and decision-making to improve efficiency and accuracy.
- **Use-Case: Automating Report Generation in Power BI Using LLM Prompts:** Analyze a use case of automating report generation in Power BI using LLM prompts, streamlining the reporting process and improving productivity.

8.2 Crafting Effective Prompts

- **Generating Predictive Insights: Optimizing Prompts for Predictive Analytics:** Learn how to optimize prompts to generate predictive insights, enhancing forecasting and decision-making in business intelligence tasks.
- **Automating Visualization Workflows: Creating Visualizations Directly Through LLM-Generated Instructions:** Discover how to automate the creation of visualizations by using LLM-generated instructions, streamlining the visualization workflow and improving efficiency.



8.3 Hands-On Activity

- Design and Test Prompts to Automate BI Tasks Such as Report Generation, Data Analysis, and Visualization: Learn how to design and test effective prompts to automate key BI tasks, including report generation, data analysis, and visualization, improving efficiency and accuracy.

Module 9 - Communication Skills

9.1 Data Storytelling & Communication

- Crafting Narratives: Presenting AI Insights Effectively to Non-Technical Stakeholders: Learn how to craft clear and compelling narratives to present AI-generated insights in a way that resonates with non-technical stakeholders.
- Visual Communication: Best Practices for Visualizing Insights Using BI Tools: Discover best practices for visualizing insights using BI tools, ensuring clarity and impact in presenting data to diverse audiences.

9.2 Solution Presentation

- Delivering Findings and Strategic Recommendations to Stakeholders, Focusing on Actionable AI-Driven Insights: Learn how to effectively deliver findings and strategic recommendations, emphasizing actionable AI-driven insights that drive informed decision-making and business outcomes.

Module 10 - Capstone Project

- Capstone Project 1
- Capstone Project 2
- Capstone Project 3

WHY TRAIN WITH SUNSET LEARNING INSTITUTE?

Sunset Learning Institute (SLI) has been an innovative leader in developing and delivering authorized technical training since 1996. Our goal is to help our customers optimize their technology investments by providing convenient, high quality technical training that our customers can rely on. We empower students to master their desired technologies for their unique environments.

What sets SLI apart is not only our immense selection of trainings options, but our convenient and consistent delivery system. No matter how complex your environment is or where you are located, SLI is sure to have a training solution that you can count on!

Premiere World Class Instruction Team

- All SLI instructors have a four-year technical degree, instructor level certifications and field consulting work experience
- Sunset Learning has won numerous Instructor Excellence and Instructor Quality Distinction awards since 2012

Enhanced Learning Experience

- The goal of our instructors during class is ensure students understand the material, guide them through our labs and encourage questions and interactive discussions.

Convenient and Reliable Training Experience

- You have the option to attend classes live with the instructor, at any of our established training facilities, or from the convenience of your home or office
- All Sunset Learning Institute classes are guaranteed to run – you can count on us to deliver the training you need when you need it!

Outstanding Customer Service

- You will work with a dedicated account manager to suggest the optimal learning path for you and/or your team
- An enthusiastic student services team is available to answer any questions and ensure a quality training experience

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