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COURSE BROCHURE

Advanced Predictive and Prescriptive Analytics Training Course

14 – 25 February 2027
Muscat

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Registered in the United Kingdom and Saudi Arabia

Advanced Predictive and Prescriptive Analytics Training Course

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Advanced Predictive and Prescriptive Analytics is a 2-week training course for analytics managers and business leaders who sponsor analytics initiatives and build an advanced analytics value roadmap ranking use cases by decision impact, feasibility and data readiness. Many organisations now hold capable models that never change a pricing, staffing or maintenance decision. The course is delivered by Jupiter Prime Training.

Why Predictive and Prescriptive Analytics Matter Now

Three pressures shape this field today. Boards ask what return earlier analytics investment produced, and dashboards alone rarely answer; cloud platforms and automated machine learning make prediction cheap, so the scarce skill is choosing which decision to improve; and operations, finance and commercial leaders want recommendations they can act on, not probabilities they must interpret. Organisations that connect forecasts to optimisation and decision rules capture measurable gains, while those that stop at reporting accumulate unused models. The course draws on the Cross-Industry Standard Process for Data Mining CRISP-DM to link business understanding, modelling, evaluation and deployment.

Who Gains Most from Predictive and Prescriptive Analytics

- Analytics leads who decide which models move from prototype into daily operations
- Business sponsors accountable for the commercial or operational benefit of analytics
- Decision-support heads who translate model outputs into rules, prices or schedules
- Data science managers who balance model accuracy, explainability and delivery time
- Transformation leads who track analytics maturity across business units

An analytics centre of excellence and its business sponsors gain most when several members attend together and agree one portfolio of decisions to improve.

Predictive and Prescriptive Analytics Capabilities

Participants move from commissioning reports to specifying which decision a model should change, how it will be optimised and how its value will be proven.

- Assess analytics maturity and decision readiness across functions — executives prioritising investment
- Specify predictive models for churn, demand, risk or failure — product owners framing requirements
- Design prescriptive models using optimisation and simulation — operations leaders setting schedules, prices or stock
- Weigh model accuracy against explainability and cost — risk and compliance reviewers
- Calculate decision value with uplift tests and counterfactuals — finance partners validating benefits
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Communicate a prioritised roadmap with funding stages — boards and steering committees

Key Predictive and Prescriptive Analytics Terms

- Predictive analytics — using historical data and statistical or machine learning models to estimate the likelihood or size of future outcomes.
- Prescriptive analytics — recommending the action that best meets an objective under constraints, typically using optimisation or simulation on top of predictions.
- Decision intelligence — the practice of designing decisions explicitly, linking data, models, rules and human judgement to measurable outcomes.
- Uplift modelling — estimating the incremental effect of an action on each customer or case rather than the raw outcome probability.
- Linear programming — an optimisation method that finds the best value of a linear objective subject to linear constraints.
- Analytics maturity model — a staged scale describing how far an organisation has progressed from descriptive reporting to automated prescriptive decisions.

Predictive and Prescriptive Analytics Day by Day

Day 1: The Analytics Value Gap

- Analytics Maturity Assessment — Locating Units From Descriptive to Prescriptive
- Decision Inventory — Listing Recurring Choices That Models Could Improve
- Value Leakage Diagnosis — Explaining Why Existing Models Go Unused
- CRISP-DM Business Understanding — Turning Decisions Into Model Objectives
- Sponsor and Stakeholder Mapping — Securing Owners for Each Decision

Day 2: Framing Predictive Problems

- Target Definition and Prediction Horizon — Choosing What and When to Predict
- Classification Versus Regression Framing — Matching Outputs to Decisions
- Feature Availability at Decision Time — Preventing Leakage in Live Use
- Baseline Rules and Benchmarks — Setting the Bar Models Must Beat
- Data Readiness Scoring — Judging Volume, Quality and Access

Day 3: Model Families and Selection

- Gradient Boosting and Random Forests — Handling Tabular Business Records
- Survival and Time-to-Event Models — Predicting Churn and Asset Failure
- Automated Machine Learning Platforms — Accelerating Experiments Without Losing Control
- Model Selection Criteria — Weighing Accuracy, Stability and Interpretability
- Cost-Sensitive Evaluation — Scoring Models by Business Loss, Not Accuracy

Day 4: Explainability and Trust

- SHAP and Partial Dependence Plots — Explaining Drivers to Business Owners
- Fairness and Bias Testing — Protecting Customers and Employees
- Model Risk Tiering — Matching Validation Depth to Decision Impact
- Model Documentation Cards — Recording Purpose, Limits and Owners
- Challenger Models — Keeping Champion Models Honest

Day 5: From Prediction to Prescription

- Decision Rules and Thresholds — Converting Scores Into Actions
- Next-Best-Action Frameworks — Choosing Offers, Interventions or Calls
- Uplift Modelling — Targeting Cases Where Action Changes Outcomes
- Expected Value Calculation — Combining Probabilities, Costs and Benefits
- Human-in-the-Loop Design — Deciding Where Judgement Overrides Models

Day 6: Optimisation Methods

- Linear and Integer Programming — Allocating Budgets, Staff and Capacity
- Pricing and Markdown Optimisation — Balancing Margin and Volume
- Workforce Scheduling Models — Matching Rosters to Forecast Workload
- Constraint Modelling Workflow — Capturing Policies, Limits and Priorities
- Solver Selection and Run Times — Fitting Optimisation Into Operating Rhythms

Day 7: Simulation and Decisions Under Uncertainty

- Monte Carlo Simulation — Testing Plans Against Variable Demand and Risk
- Discrete-Event Simulation — Modelling Queues in Hospitals, Branches and Plants
- Stochastic Optimisation — Choosing Robust Plans Across Scenarios
- Scenario Planning Dashboards — Letting Leaders Compare Options Interactively
- Sensitivity Analysis — Revealing Which Assumptions Change the Answer

Day 8: Proving Value and Scaling

- Randomised Pilots and Control Groups — Measuring True Incremental Benefit
- Counterfactual Benefit Estimation — Valuing Decisions Where Tests Are Impossible
- MLOps and Decision Monitoring — Tracking Drift and Override Rates
- Benefit Realisation Tracking — Reporting Gains to Finance
- Analytics Operating Model — Organising Hub, Spoke and Product Teams

Day 9: Portfolio Prioritisation

- Use-Case Scoring Matrix — Ranking by Value, Feasibility and Risk
- Investment Staging — Releasing Funds Against Evidence Gates
- Skills and Platform Gap Analysis — Planning Hires, Partners and Tools
- Roadmap Dependency Mapping — Sequencing Shared Data Foundations
- Executive Storytelling for Analytics — Presenting Choices, Not Algorithms

Day 10: Practising the Advanced Analytics Value Roadmap

- Telecom Retention Case — Applying Survival Models and Uplift Targeting
- Hospital Staffing Case — Applying Forecasts and Scheduling Optimisation
- Retail Pricing Case — Applying Price Optimisation and Controlled Pilots
- Steering Committee Challenge — Defending Priorities and Value Evidence
- Advanced Analytics Value Roadmap — Completing Use Cases, Stages and Benefit Measures

Applying Predictive and Prescriptive Analytics After the Course

- Run a decision inventory with one business unit and score each recurring decision for value, data readiness and model fit.
- Design a controlled pilot for one existing predictive model, adding a decision rule and a control group to measure incremental benefit.

Predictive and Prescriptive Analytics Questions FAQ

What are advanced predictive and prescriptive analytics, and why do they matter now?

They are methods that forecast outcomes and then recommend actions using optimisation, simulation and decision rules. They matter now because prediction has become inexpensive, while organisations still struggle to turn model outputs into decisions with proven financial or operational value.

Which roles gain most from predictive and prescriptive analytics training?

Analytics managers, business sponsors and decision-support heads gain most. You benefit if you fund, prioritise or oversee analytics initiatives in telecoms, healthcare, retail, utilities or financial services and must show their impact.

How does a predictive and prescriptive analytics course differ from a statistical methods course?

It focuses on choosing decisions to improve, optimising actions and proving value rather than on estimating and testing statistical models. A methods course trains analysts in technique, while this subject equips leaders to direct and scale analytics.

What do you bring back from predictive and prescriptive analytics training?

You bring back a prioritised portfolio of analytics use cases with decision owners, model approaches, pilot designs and benefit measures that your steering committee can approve.

Predictive and Prescriptive Analytics: The Way Forward

The advanced analytics value roadmap first informs which decision receives the next pilot and funding stage. Analytics leaders, sponsors and finance partners use it to agree value measures and evidence gates. After the first pilot, revisit the scoring weights and maturity ratings, because measured uplift shows which use cases truly deserve scaling.