Predictive Modelling for Revenue Authorities Training Course

Professional Development Training Course Outline

Category	Taxation and Revenue	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Predictive Modelling for Revenue Authorities Training Course equips participants with advanced analytical capabilities to anticipate taxpayer behaviour, detect non-compliance, and enhance data-driven decision-making across tax administration processes. Through modern modelling techniques, participants explore how revenue institutions can use data science, risk scoring, and forecasting tools to strengthen compliance strategies, streamline operations, and allocate enforcement resources effectively. The course provides a strong foundation in statistical modelling, machine learning, and digital tax analytics, enabling revenue authorities to shift from reactive approaches to proactive, intelligence-led tax administration.

As global tax systems modernize, predictive modelling has become essential for combating evasion, improving service delivery, and strengthening voluntary compliance. This programme guides participants through model development, validation, deployment, monitoring, and ethical considerations. Real-world case studies illustrate how predictive analytics improves audit selection, revenue forecasting, taxpayer segmentation, and fraud detection. By the end of the course, participants will be fully equipped to design and apply predictive models that enhance transparency, efficiency, and performance across revenue authority operations.

Programme Curriculum

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Course Objectives

1. Understand the role of predictive modelling in modern revenue administration.
2. Identify datasets and data structures required for predictive analytics.
3. Apply statistical and machine learning techniques to tax data.
4. Develop models for audit selection, fraud detection, and risk identification.
5. Implement taxpayer segmentation and behavioural prediction models.
6. Analyse forecasting methods for revenue prediction and compliance trends.
7. Evaluate the performance, accuracy, and stability of predictive models.
8. Integrate predictive modelling outputs into operational tax processes.
9. Strengthen risk-based compliance strategies using model insights.
10. Assess technology infrastructure and analytical platforms for modelling.
11. Apply data governance, security, and ethical AI principles.
12. Improve decision-making through data-driven performance indicators.
13. Design a predictive modelling strategy for long-term modernization.

Organizational Benefits

- Enhanced ability to forecast revenues accurately
- Improved audit selection and enforcement targeting
- Stronger detection of fraud, evasion, and high-risk taxpayer activities
- Greater efficiency in resource allocation and operational planning
- Increased voluntary compliance through behaviour-based interventions
- Enhanced digital transformation and analytics maturity
- Reduced compliance gaps and improved revenue assurance
- Strengthened governance through evidence-based insights
- Improved public trust through transparent tax administration
- Modernized tax systems aligned with global standards

Target Audiences

- Revenue authority analysts and data specialists
- Tax compliance and enforcement officers
- Risk management and fraud detection teams
- Digital transformation and modernization units
- Policy formulation and research divisions
- Tax system developers and IT architects
- Strategic planning and performance departments
- Consultants supporting tax analytics and reform

Course Duration: 10 days

Course Modules

Module 1: Foundations of Predictive Modelling in Tax Administration

- Understand predictive modelling concepts and terminology
- Explore global trends in intelligence-driven revenue administration
- Identify modelling opportunities across tax functions
- Review required analytical skills and organizational readiness
- Define success factors for predictive modelling projects
- Case Study: Introduction of predictive analytics in a national revenue authority

Module 2: Data Requirements for Predictive Modelling

- Identify essential tax datasets and data types
- Assess data quality, completeness, and reliability
- Explore data integration techniques across systems
- Understand structured and unstructured tax data
- Apply data cleansing and transformation processes
- Case Study: Data preparation framework for compliance modelling

Module 3: Statistical Modelling Techniques

- Explore regression, classification, and clustering methods
- Select appropriate statistical methods for tax-related problems
- Conduct variable selection and feature engineering
- Interpret outputs and model coefficients
- Apply techniques for reducing model bias
- Case Study: Regression model for predicting taxpayer delinquency

Module 4: Machine Learning for Revenue Authorities

- Understand supervised and unsupervised learning algorithms
- Apply decision trees, random forests, and gradient boosting
- Evaluate training, testing, and validation processes
- Improve model accuracy using advanced ML techniques
- Address overfitting, underfitting, and performance drift
- Case Study: Machine learning model for automated audit selection

Module 5: Behavioural Modelling & Taxpayer Segmentation

- Identify behavioural indicators and risk-relevant variables
- Apply segmentation methods such as clustering
- Predict taxpayer responses to interventions
- Use models to enhance service delivery strategies
- Integrate behavioural insights into compliance planning
- Case Study: Taxpayer segmentation for targeted communication

Module 6: Revenue Forecasting Models

- Explore short-term and long-term revenue forecasting methods

- Apply time-series analysis for trend estimation
- Incorporate economic variables and policy impacts
- Assess accuracy of forecasting models
- Integrate forecasting outputs with budget processes
- Case Study: Forecasting VAT revenues using time-series models

Module 7: Fraud Detection Models

- Identify fraud risk indicators across tax types
- Apply anomaly detection and network analysis
- Integrate third-party data for enhanced detection
- Use models to support investigations and compliance actions
- Automate fraud alerts and risk scoring
- Case Study: Predictive fraud detection for corporate income tax

Module 8: Audit Selection Models

- Explore data-driven approaches for audit targeting
- Develop models to prioritize high-risk taxpayers
- Assess trade-offs between coverage and efficiency
- Integrate models with audit workflows
- Monitor and recalibrate audit models over time
- Case Study: Increasing audit effectiveness using predictive analytics

Module 9: Compliance Risk Models

- Define compliance risk categories and scoring criteria
- Develop integrated risk assessment models
- Use behavioural and transactional variables
- Automate risk scoring dashboards
- Improve compliance strategies using model insights
- Case Study: Compliance risk model for small businesses

Module 10: Early Warning & Alert Systems

- Identify early warning indicators of non-compliance
- Build automated triggers for intervention
- Integrate alerts with taxpayer service systems
- Evaluate alert accuracy and response effectiveness
- Manage false positives and refine alert algorithms
- Case Study: Early warning system for tax arrears

Module 11: Model Validation & Performance Measurement

- Conduct accuracy testing and reliability assessments
- Apply cross-validation and stress testing
- Monitor long-term model stability
- Define KPIs for predictive modelling performance
- Document validation results for governance oversight
- Case Study: Validation framework for predictive tax models

Module 12: Deployment of Predictive Models

- Integrate models into operational revenue systems
- Automate data pipelines and refresh cycles
- Manage model deployment across departments
- Train staff to use modelling outputs effectively
- Ensure continuity and operational resilience
- Case Study: Deployment of audit selection models at scale

Module 13: Ethical & Governance Considerations

- Apply ethical standards for AI and predictive analytics
- Manage privacy, data protection, and confidentiality risks
- Address algorithmic bias and fairness concerns
- Establish governance structures for model oversight
- Align modelling with legal and regulatory frameworks
- Case Study: Ethical review of a taxpayer scoring model

Module 14: Technology & Infrastructure for Predictive Modelling

- Explore analytics platforms and modelling tools
- Assess cloud, on-premise, and hybrid environments
- Integrate modelling tools with tax administration systems
- Ensure cybersecurity and secure data transmission
- Build scalable, high-availability analytic environments
- Case Study: Technology upgrade to support predictive analytics

Module 15: Developing a Predictive Modelling Strategy

- Define long-term modelling priorities and objectives
- Align analytics strategy with modernization goals
- Build capacity through training and organizational restructuring
- Monitor performance and refine modelling approaches
- Develop implementation plans for revenue innovation
- Case Study: National predictive modelling strategy roadmap

Training Methodology

- Interactive expert presentations and technical demonstrations
- Hands-on modelling exercises using tax-related datasets
- Group work and collaborative problem-solving sessions
- Case study analysis and best-practice reviews
- Practical model-building simulations and validation exercises
- End-of-course action planning for institutional implementation

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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