

ARTIFICIAL INTELLIGENCE APPLICATIONS IN MICROFINANCE CREDIT SCORING



GENTEX[®]
TRAINING CENTER



Introduction

The Artificial Intelligence Applications in Microfinance Credit Scoring Training Course shows how machine learning can extend responsible lending to borrowers with thin credit files. Microfinance institutions serve clients who often lack formal financial history, so traditional scoring models underperform. This course explains how alternative data, behavioural features, and machine learning can assess that population more fairly and accurately. It covers data sourcing, model building, validation, and fairness testing. Furthermore, it addresses regulatory expectations, explainability, and client protection principles. As a result, participants learn to build scoring systems that widen access while controlling credit risk.

Artificial Intelligence Applications in Microfinance Credit Scoring Course Objectives

- Explain how machine learning differs from traditional credit scoring methods.
- Identify alternative data sources suitable for microfinance borrowers.
- Design credit scoring models using logistic regression, decision trees, and gradient boosting.
- Apply feature engineering to behavioural, transactional, and geographic data.
- Evaluate models using the Gini coefficient, KS statistic, and AUC measures.
- Assess model fairness, bias, and exclusion risk across client segments.
- Apply explainability methods such as SHAP values and scorecard interpretation.
- Interpret credit scoring outputs into cut-offs, limits, and pricing decisions.
- Align scoring practice with responsible finance and client protection principles.
- Plan deployment, monitoring, and model governance in microfinance institutions.

Course Methodology



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- Interactive lectures with microfinance scoring case studies.
- Hands-on feature engineering and model design exercises.
- Validation workshops using Gini, KS, and AUC results.
- Fairness and bias assessment practice on sample client datasets.
- Structured peer discussion with facilitator feedback on deployment challenges.

Who Should Take This Course

- Microfinance credit and risk analysts.
- Digital lending and product managers.
- Data analysts in microfinance and development finance.
- Credit committee members and heads of credit.
- Compliance and client protection officers.
- Consultants supporting financial inclusion programmes.

Artificial Intelligence Applications in Microfinance Credit Scoring Course Outlines

Day 1: Foundations of Microfinance Credit Scoring

- Microfinance lending models and group versus individual lending.
- Why traditional credit bureaus under-serve microfinance clients.
- Credit scoring concepts, scorecards, and rating scales.
- The machine learning scoring lifecycle.
- Data protection, consent, and client data ethics.
- Regulatory environment for digital lending and scoring.
- Case study: a microfinance institution improving approval rates with scoring.





Day 2: Data Sourcing and Feature Engineering

- Traditional data: repayment history, loans, and arrears.
- Alternative data: mobile money, utility payments, and agent records.
- Psychometric and behavioural data collection methods.
- Data quality, missing values, and outlier treatment.
- Feature engineering for recency, frequency, and monetary measures.
- Segment variables: sector, geography, gender, and business type.
- Workshop: building a feature set for a microfinance scoring model.

Day 3: Model Building and Validation

- Logistic regression scorecards and weight of evidence.
- Decision trees and random forests for credit decisions.
- Gradient boosting models and their advantages.
- Training, validation, and out-of-time testing splits.
- Performance metrics: Gini coefficient, KS statistic, and AUC.
- Overfitting, stability, and population drift checks.
- Workshop: validating a scoring model on sample loan data.

Day 4: Fairness, Explainability, and Responsible Scoring

- Bias sources in data, features, and target definitions.
- Fairness metrics and exclusion risk assessment.
- Explainability with SHAP values and reason codes.
- Adverse action notices and client communication.

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- Responsible finance and client protection principles.
- Regulatory expectations on automated credit decisions.
- Workshop: interpreting reason codes for a declined application.

Day 5: Deployment, Monitoring, and Governance

- Translating scores into cut-offs, limits, and pricing.
- Champion-challenger models and staged rollout.
- Monitoring score distribution, delinquency, and drift.
- Model review cycles, documentation, and governance.
- Integrating scoring with loan origination systems.
- Measuring financial inclusion impact alongside risk.
- Course review, assessment, and action planning.

Conclusion

By successfully completing Artificial Intelligence Applications in Microfinance Credit Scoring, participants will gain a solid understanding of how machine learning and alternative data improve credit assessment for under-served borrowers. They will also acquire practical skills in feature engineering, model validation, fairness testing, and deployment governance. In addition, the course prepares them to expand access to finance while managing risk responsibly. Gentex Training Center delivers this programme with a strong focus on applied scoring practice and measurable inclusion impact.

FAQs for Artificial Intelligence Applications in Microfinance Credit Scoring course





Q1 What is the "Artificial Intelligence Applications in Microfinance Credit Scoring" course about?

It is a five-day programme on using artificial intelligence to score microfinance borrowers. It covers alternative data sourcing, feature engineering, machine learning model building and validation, fairness and explainability, and deployment governance for institutions serving clients with limited credit history.

Q2 What are the key benefits of the "Artificial Intelligence Applications in Microfinance Credit Scoring" course?

Participants learn to approve more creditworthy clients without raising default rates, which directly expands outreach. The course also reduces reliance on collateral, speeds up loan decisions, improves pricing accuracy, strengthens fairness and client protection practice, and gives credit committees evidence-based scoring they can defend.

Q3 What skills will I gain from the "Artificial Intelligence Applications in Microfinance Credit Scoring" course?

Participants gain alternative data sourcing and feature engineering, machine learning credit model building, model validation using Gini, KS and AUC measures, and fairness, explainability and deployment governance assessment. These four skills cover the scoring lifecycle from data to model governance.



Q4 What tools, methods, or standards are covered in the "Artificial Intelligence Applications in Microfinance Credit Scoring" course?

The course covers logistic regression scorecards, weight of evidence, decision trees, random forests, gradient boosting, recency-frequency-monetary feature engineering, psychometric scoring, the Gini coefficient, KS statistic and AUC, out-of-time validation, population drift checks, SHAP values and reason codes, adverse action notices, champion-challenger testing, and responsible finance and client protection principles.

Q5 How is the "Artificial Intelligence Applications in Microfinance Credit Scoring" course applied in real-world practice?

Participants apply the methods inside their institutions. They assemble alternative data, engineer features, train and validate scoring models, test fairness across client segments, define score cut-offs and limits, and set monitoring routines for live portfolios. Many leave with a scoring model outline and validation plan ready to pilot.