AI and Machine Learning in Insurance Training Course

Professional Development Training Course Outline

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

Course Introduction

The insurance industry is undergoing a technological revolution, powered by Artificial Intelligence (AI) and Machine Learning (ML). These technologies are transforming traditional insurance operations—enhancing customer experiences, optimizing risk assessments, improving claims management, and combating fraud. Training Course on AI and Machine Learning in Insurance equips professionals with the necessary skills to integrate AI-driven decision-making, predictive analytics, and automated processes in insurance workflows.

With the rising demand for data science, automation, and insurtech innovations, this course is designed to provide a hands-on, industry-relevant foundation. Whether you're a data analyst, underwriter, claims manager, or tech strategist, this program empowers you to lead with intelligent automation and deploy AI and ML to gain a competitive advantage in a rapidly evolving insurance ecosystem.

Programme Curriculum

AI and Machine Learning in Insurance Training Course

Introduction

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Course Objectives

1. Understand the fundamentals of AI and Machine Learning in insurance.
2. Explore data preprocessing and feature engineering in insurance datasets.
3. Learn how predictive modeling enhances underwriting and pricing.
4. Use AI-powered chatbots to improve customer service in insurance.
5. Identify and mitigate insurance fraud using anomaly detection.
6. Implement automated claims processing with machine learning tools.
7. Examine risk modeling using supervised and unsupervised learning.
8. Leverage natural language processing (NLP) in insurance documentation.
9. Gain insights on ethical AI use and regulatory compliance in insurance.
10. Study AI governance and data privacy frameworks in insurance.
11. Discover deep learning applications in image-based insurance assessments.
12. Deploy real-time decision engines for smarter insurance operations.
13. Integrate AI algorithms into legacy systems through API architectures.

Target Audience

1. Insurance Underwriters
2. Claims Adjusters
3. Data Scientists in Insurance
4. Actuarial Analysts
5. Risk Management Professionals
6. Insurance IT Managers
7. Business Intelligence Analysts
8. Insurtech Entrepreneurs

Course Duration: 10 days

Course Modules

Module 1: Introduction to AI and ML in Insurance

- Evolution of AI and ML in financial services
- Importance of AI in insurance transformation
- Types of machine learning algorithms
- Use cases in life, health, and auto insurance
- Challenges and opportunities
- **Case Study**: AI adoption in a major European insurer

Module 2: Data Collection and Preprocessing

- Importance of quality insurance data
- Data cleaning and transformation techniques
- Handling missing or skewed data
- Feature extraction and selection
- Normalization and standardization
- **Case Study**: Preparing claims data for predictive analytics

Module 3: Predictive Modeling for Underwriting

- Introduction to predictive modeling
- Building and evaluating models
- Regression, decision trees, and ensemble models
- Risk scoring and customer segmentation

- Improving underwriting accuracy
- **Case Study**: Predictive underwriting in auto insurance

Module 4: Automated Claims Processing

- Automation in FNOL (First Notice of Loss)
- Image recognition in claims
- Integrating OCR and NLP for documents
- Workflow automation platforms
- Customer satisfaction metrics
- **Case Study**: AI in property insurance claims

Module 5: Fraud Detection Using AI

- Common fraud patterns in insurance
- Supervised vs. unsupervised fraud detection
- Anomaly detection techniques
- Neural networks for fraud detection
- Reducing false positives
- **Case Study**: Machine learning to reduce fraud in health insurance

Module 6: Risk Modeling and Forecasting

- Risk modeling frameworks
- Time series forecasting in insurance
- Stress testing and scenario analysis
- Monte Carlo simulations
- Model validation and risk exposure
- **Case Study**: Catastrophe risk modeling using AI

Module 7: Natural Language Processing (NLP)

- Text mining in insurance records
- Sentiment analysis in customer reviews
- Automating documentation
- NLP for legal compliance
- Named entity recognition
- **Case Study**: NLP used in policy comparison platforms

Module 8: Customer Engagement with AI Chatbots

- Chatbot architecture and design
- AI vs. rule-based bots
- Training bots using historical interactions
- Integration with CRM systems
- Enhancing claims and quote journeys
- **Case Study**: AI chatbot rollout in life insurance

Module 9: Deep Learning in Insurance

- CNNs for image-based inspections
- LSTM for time-dependent policy renewals
- Insurance telematics and IoT data
- Audio classification for customer service
- Reinforcement learning in pricing models
- **Case Study**: Deep learning in auto accident evaluation

Module 10: Ethics and Responsible AI

- Bias and fairness in insurance models
- GDPR and data protection standards
- Transparency and explainability
- Model audit trails
- Ethical use of customer data
- **Case Study**: Ethical AI evaluation in home insurance pricing

Module 11: Regulatory Compliance and AI Governance

- Overview of global insurance regulations
- Managing regulatory risk using AI
- AI governance frameworks
- Compliance dashboards
- Documentation and audit readiness
- **Case Study**: AI model audit during a compliance check

Module 12: Building Smart Insurance APIs

- Microservices in insurance
- API-based ML model deployment
- Security and authentication
- Legacy integration challenges
- Scalable architecture patterns
- **Case Study**: API integration for claims prediction engine

Module 13: Building and Training ML Models

- Model lifecycle management
- Training vs. inference environments
- Model performance tuning
- Hyperparameter optimization
- Deployment strategies
- **Case Study**: ML model deployment for customer churn

Module 14: Real-Time Decision Engines

- Event-driven architecture
- Streaming data analytics
- Integrating AI with business rules
- Personalization in real time
- Monitoring and alerting
- **Case Study**: Real-time pricing engine for health plans

Module 15: Future Trends in AI & Insurtech

- AI trends shaping the insurance landscape
- Blockchain + AI applications
- AI and climate risk modeling
- Voice AI and claims
- Predictive customer lifetime value (CLV)
- **Case Study**: Future-ready insurtech transformation roadmap

Training Methodology

- Instructor-led live virtual classes

- Hands-on lab exercises and coding sessions
- Real-world case study analysis and group work
- Quizzes and assessments to reinforce learning
- Industry expert guest lectures
- Capstone project for end-to-end AI insurance solution

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

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com